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Level of Environmental Ethics Awareness and Environmental Citizenship Participation among Filipino Higher Education Student Leaders

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Abstract

School institutions are responsible for honing environmental ethics awareness and environmental citizenship participation among their students. Student leaders, on the other hand, are expected to uphold responsibilities to empower their co-students and address pressing environmental issues through different sets of activities aligned with sustainable development goals. Thus, this study assessed the higher education student leaders' environmental ethics awareness, environmental citizenship participation, and its correlation, and proposed a plan of activities to sustain and enhance the two aforementioned variables. By employing a descriptive-correlational design with a researcher-made questionnaire, this study found out that the higher education student leaders are highly aware of ethical actions concerning the environment. However, in terms of citizenship participation, the results revealed that these student leaders are not highly participative in various environmental activities despite having high levels of awareness. Hence, this study suggests that fostering collaborations among student leaders, organizations, and clubs will address environmental issues collectively, strengthening their environmental ethics awareness and participation, and a proposed plan of activities that may be initiated by the concerned authorities to ensure its full implementation.

Keywords: Environmental ethics awareness, Environmental citizenship participation,
Student leaders

Introduction

In recent years, environmental sustainability has emerged as a critical concern, especially in the context of higher education institutions across the globe. The environment has long provided for the needs of humankind, but the industrial revolution and ongoing human consumption of natural resources, particularly non-renewable ones, have brought these resources to the brink of depletion (Brennan, 2014). This poses a significant threat to future generations.

To address this pressing issue, it is imperative for academic institutions and leaders to take action by implementing and strengthening policies and action plans that promote environmental awareness and responsibility (Galang, 2010). In the Philippines, Batangas State University plays a crucial role in shaping the leaders of tomorrow, imbuing them with a sense of environmental responsibility and accountability.

This research explores the critical intersection of environmental ethics and environmental citizenship, focusing on the specific challenges faced by student leaders in higher education at Batangas State University. The degradation of nature can be mitigated through the acquisition of moral behaviors and ethical attitudes toward the environment (Brennan, 2014). However, the effectiveness of these ethical attitudes in driving environmental citizenship participation among student leaders remains an open question.

In addition to environmental ethics, this study delves into the broader issue of environmental citizenship participation, examining the awareness, understanding, perception, and active engagement of youth leaders in addressing environmental challenges. By assessing their environmental duties and responsibilities, as well as the structural causes of environmental degradation, this research aims to identify areas where Batangas State University and its student leaders can contribute to the preservation of our planet and the development of inter and intra-generational solutions.

As future secondary science teachers, this study can empower the researchers to incorporate environmental ethics and citizenship into the teaching and learning plans fostering a sense of responsibility and ethical awareness among students. It can also inspire the next generation of environmentally conscious leaders and advocates, driving positive change in local communities and beyond.

Objectives

The purpose of this study is to determine the level of environmental ethics awareness and environmental citizenship participation among higher education student leaders of Batangas State University, The National Engineering University - JPIPC Malvar, Batangas, Philippines during the Academic Year 2022-2023.

Specifically, this study aims to:

1. Determine the level of awareness of environmental ethics along with:
 - 1.1. Justice;
 - 1.2. Sufficiency; and
 - 1.3. Solidarity.
2. Describe the level of environmental citizenship participation in terms of:
 - 2.1. Reflection;
 - 2.2. Civic Responsibility; and
 - 2.3. Confidence.

3. Correlate environmental ethics awareness and environmental citizenship participation.
4. Propose a Plan of Activities to sustain environmental ethics awareness and enhance environmental citizenship participation of student leaders.

Methodology

Research Design

The researchers utilized a descriptive-correlational type of research that described the variables and the relationships that occur naturally between the two variables. This design is appropriate to use because this study describes the relationship between environmental ethics awareness and environmental citizenship participation among higher education student leaders.

Respondents

This population of 162 student leaders at Batangas State University - The National Engineering University JPLPC Malvar during the Academic Year 2022-2023 was chosen as respondents because it represents a significant and relevant subset of the university's student body. These student leaders are likely to have a deeper involvement in campus activities, including those related to environmental awareness and citizenship. Their experiences and perspectives can provide valuable insights into the study's focus on environmental ethics and citizenship among young leaders, making them an ideal group to gather data from.

Instrumentation

To address the research questions posed in this study, data was gathered using a researcher-made questionnaire. The questionnaire construction, validation, administration, and scoring adhered to established research standards and practices. The questionnaire was consisted of two parts. Part I assessed the awareness levels of higher education student leaders in environmental ethics, encompassing three dimensions such as justice, sufficiency, and solidarity. Part II focused on evaluating the environmental citizenship participation of student leaders, examining aspects such as reflection, civic responsibility, and confidence. Before administering the survey questionnaires, they underwent rigorous validation and reliability testing with the assistance of the adviser and experts.

To interpret the computed mean scores, we utilized the following mean ranges along with corresponding verbal interpretations:

3.51 – 4.00 – Highly Aware / Highly Participative

2.51 – 3.50 – Aware / Participative

1.50 – 2.49 – Slightly Aware/ Slightly Participative

1.00 – 1.49 – Not Aware / Not Participative

Data Collection Procedure

A written letter, aimed at clarifying the research's purpose, was made to request permission from the Office of the Vice Chancellor for Academic Affairs to use the student leaders as respondents of the study. Furthermore, another letter was drafted and submitted to higher authorities to gain approval for the distribution of the research instrument. Once approval was granted, the researcher collaborated closely with the department's secretary to schedule the administration of the questionnaire. In a hands-on approach, the researcher personally distributed and collected the questionnaires. Also, the student leaders were provided with a comprehensive orientation regarding the study's requirements and the strict confidentiality maintained regarding the information collected from them as study participants.

Subsequently, the collected data underwent thorough analysis, including checks, tallying, scoring, and analysis using various statistical methods such as weighted mean, standard deviation, and Chi-Square. These careful interpretations and analyses of the data enabled the researcher to plan of activities to sustain environmental ethics awareness and enhance environmental citizenship participation of student leaders.

Results

1. Environmental ethics awareness

One of the biggest threats to humanity today is the destruction of the environment. Prior to the human community, environmental protection and preservation were of utmost importance for sustainable development. The study endeavors to assess the environmental ethics awareness of higher education student leaders in the promotion of environmental protection and sustainability through the implementation of environment-related initiatives. Thus, this portion intends to present the levels of Environmental Ethics Awareness demonstrated by the higher education student leaders with its corresponding interpretation through tables.

1.1 Justice

Table 1 shows the respondents assessments on environmental ethics awareness in terms of justice.

Table 1 Environmental ethics awareness in terms of justice

Item Statements	Mean	Standard Deviation	Verbal Interpretation
<i>As a Student Leader, I know that ...</i>			
1. Respecting one's differences helps in achieving sustainable development goals.	3.75	0.46	Highly Aware
2. Giving equal opportunity with all constituents creates a secure and stable environment.	3.72	0.46	Highly Aware
3. Involving the students in all environmental activities held in the university is vital for greater change.	3.72	0.45	Highly Aware
4. Raising awareness about certain environmental issues creates a more progressive community.	3.70	0.51	Highly Aware
5. Doing collaborative environmental activities could help minimize the effects of environmental problems.	3.62	0.56	Highly Aware
Overall	3.70	0.49	Highly Aware

The table reveals that student leaders, on average, hold a high awareness of the crucial role that inclusivity, sustainability, and environmental engagement play within their university community. They highly recognize the significance of respecting differences, as indicated by a mean score of 3.75, and providing equal opportunities, with a mean score of 3.72, in achieving sustainable development goals while fostering a secure and stable environment.

Moreover, the data underscores their high awareness in the importance of involving students in environmental activities, with a mean score of 3.72, and in raising awareness about environmental issues, with a mean score of 3.70, to create a more progressive community. These high mean scores suggest a strong consensus among student leaders on these matters.

However, there is a slight variation in their views regarding the effectiveness of collaborative environmental activities, with a mean score of 3.62, indicating a somewhat lower level of agreement compared to the other statements.

The overall mean score of 3.70, with a standard deviation of 0.49, indicates high environmental ethics awareness in terms of justice, suggesting that the student leaders possess a strong awareness and understanding of environmental ethics, particularly in the context of justice. They likely recognize that environmental justice involves fair and equitable treatment of all individuals and communities concerning environmental issues, resources, and policies. Hendryx et al. (2013) said that awareness can have significant positive implications for their decision-making, advocacy efforts, and contributions to more equitable and sustainable environmental practices within their communities or organizations.

1.2 Sufficiency

Reflected in Table 2 is the respondents' assessment on environmental ethics awareness in terms of sufficiency.

Table 2 Environmental ethics awareness in terms of sufficiency

Item Statements	Mean	Standard Deviation	Verbal Interpretation
<i>As a Student Leader, I know that ...</i>			
1. Smart use of natural resources maintains Earth's biodiversity.	3.77	0.43	Highly Aware
2. Promoting the use of renewable resources saves money, energy, and electricity.	3.74	0.45	Highly Aware
3. Natural resources have limitations.	3.72	0.51	Highly Aware
4. Reforestation can help prevent habitat loss, as well as minimize the effects of climate change.	3.72	0.49	Highly Aware
5. Sustainable consumption and production help in sufficing the needs of both present and future generations.	3.67	0.53	Highly Aware
Overall	3.72	0.48	Highly Aware

The data presented in the table reveals a significant high level of environmental awareness among student leaders, particularly in sustainability. With an overall mean score of 3.72 and a low standard deviation of 0.48, it is evident that there is a strong consensus among these individuals regarding the critical importance of environmental ethics. One key aspect of this awareness is the recognition that sensible use of natural resources is essential for preserving Earth's biodiversity, as indicated by a mean score of 3.77. This underscores their understanding of the intricate connection between resource management and the maintenance of ecological diversity.

Furthermore, their awareness extends to the economic and environmental benefits of promoting renewable resources, as reflected in the mean score of 3.74. This indicates an appreciation for the cost savings, energy conservation, and improved electricity efficiency associated with renewable energy sources. Also, student leaders also grasp the finite nature of natural resources, as seen in the mean score of 3.72, signifying their acknowledgment of resource limitations. This recognition is pivotal in fostering responsible resource utilization and sustainability.

The implications of such heightened environmental awareness among student leaders are substantial. It positions them as advocates for sustainable practices, both within their academic institutions and in the wider community. Their informed decision-making abilities, stemming from this awareness, are likely to prioritize resource conservation and responsible

development. Furthermore, these leaders can play a pivotal role in educational initiatives, imparting their knowledge to peers and fostering a culture of sustainability. This is supported by Reis (2021) who stated that sufficiency is about consuming less in absolute terms and within the biophysical limits of the planet. The application of these principles can help Earth to become sustainable for future generations.

1.3 Solidarity

The respondents' assessment on environmental ethics awareness in terms of solidarity is presented in Table 3.

Table 3 Environmental ethics awareness in terms of solidarity

Item Statements	Mean	Standard Deviation	Verbal Interpretation
<i>As a Student Leader, I know that ...</i>			
1. Working together with other student leaders creates a stronger foundation for planning and implementing environmental programs.	3.75	0.49	Highly Aware
2. Promoting environmental policy (such as <i>Tapat ko, Linis Ko</i>) reinforces bayanihan in the community.	3.72	0.53	Highly Aware
3. Collaborating with other organizations will help strengthen the environmental programs in the community.	3.69	0.49	Highly Aware
4. Cooperating with the local government unit will increase more participants in environmental activities in the community.	3.59	0.56	Highly Aware
5. Coordinating with other stakeholders establishes a stronger connection for extending services in local communities.	3.51	0.56	Highly Aware
Overall	3.65	0.53	Highly Aware

The data underscores the impressive environmental ethics awareness of student leaders, particularly in relation to solidarity. With an overall mean score of 3.65 and a relatively low standard deviation of 0.53, it is evident that there is a strong consensus among these leaders regarding the importance of working together for the benefit of their communities and the environment.

Student leaders highly value the idea of working in unison with their peers to establish a solid foundation for planning and executing environmental programs, as indicated by a mean score of 3.75. This highlights their understanding that collective effort can enhance the effectiveness of such initiatives. Moreover, they recognize that promoting environmental policies, contributes to the spirit of *bayanihan*, or community cooperation, with a mean score of 3.72. This reveals their awareness of the role of policy advocacy in fostering communal values and cooperation.

Furthermore, they acknowledge the importance of collaborating with other organizations, local government units, and stakeholders to strengthen environmental programs and establish deeper connections within local communities. These findings indicate a comprehensive understanding of the significance of solidarity and cooperation in advancing environmental objectives. Overall, the data suggests that student leaders are well-equipped to lead and advocate for environmentally responsible practices, emphasizing unity and collaboration as essential principles in their environmental initiatives. This is supported by Welchman, (2012), who stated that ecological solidarity is based on the notion that individuals become united around a common goal and are conscious of their common interests and shared responsibility.

2. Environmental citizenship participation

In order to achieve a sustainable society, a citizen must be supported in overcoming any important gaps or challenges. Environmental citizenship participation is expressed through exercising environmental rights and duties, that were able to identify the underlying structural causes of environmental degradation and environmental problems, and the willingness and competencies to address critical and active engagements.

2.1 Reflection

Table 4 reveals the environmental citizenship participation in terms of reflection.

Table 4 Environmental citizenship participation in terms of reflection

Item Statements	Mean	Standard Deviation	Verbal Interpretation
<i>As a Student Leader, I am ...</i>			
1. Looking forward to passing the environmental activities to the succeeding student leaders.	3.59	0.57	Highly Participative
2. Observing the positive outcomes of the environmental activities on and outside the campus.	3.48	0.69	Participative
3. Feeling satisfied with the results and feedback of the beneficiaries after conducting environmental training in the community.	3.45	0.60	Participative
4. Contemplating the consequences of every action of humanity on the environment in the long run.	3.43	0.59	Participative
5. Thinking of proposing environmental activities, movements, and policies, in and outside the campus.	3.36	0.62	Participative
Overall	3.46	0.61	Participative

The data reveals that student leaders demonstrate a significant level of participation in terms of reflection. The overall mean score of 3.46, along with a moderate standard deviation of 0.61, suggests a general consensus among these leaders in their active participation with environmental initiatives. This is also supported by the statement of Ramirez (2017) in his research on the role of student organizations in the promotion of environmental education and preservation, that based on the assessment, student leadership may be a useful instrument in solving environmental issues and promoting environmental education.

As seen in the table, it is evident that the respondents express a strong willingness to pass on the responsibility of environmental activities to their successors, as evidenced by a mean score of 3.59, verbally interpreted as highly participative. This signifies their commitment to ensuring the continuity and sustainability of environmental efforts within their organizations. Additionally, they actively observe the positive outcomes of environmental activities both on and off campus, with a mean score of 3.48. This suggests that they are not only involved in planning and organizing such activities but are also keen on evaluating their impact and effectiveness beyond the immediate campus environment.

Furthermore, student leaders express satisfaction with the results and feedback received from beneficiaries after conducting environmental training in the community, with a mean score of 3.45. This reflects their genuine investment in creating positive change and enhancing environmental awareness among community members. Their participation extends to contemplation of the long-term consequences of human actions on the environment, as indicated by a mean score of 3.43. This demonstrates their holistic and forward-thinking approach to environmental issues, recognizing the importance of considering the broader environmental implications of human activities. Lastly, they actively brainstorm proposals for environmental activities, movements, and policies both within and outside the campus, with a

mean score of 3.36. This underscores their proactive role in driving the environmental agenda, not only within their immediate academic community but also in the broader context.

2.2 Civic responsibility

Table 5 presents environmental citizenship participation in terms of civic responsibility.

Table 5 Environmental citizenship participation in terms of civic responsibility

Item Statements	Mean	Standard Deviation	Verbal Interpretation
<i>As a Student Leader, I am</i>			
1. Working with colleagues to formulate a plan of activities that involve the environment.	3.35	0.74	Participative
2. Promoting and disseminate environmental education and awareness.	3.35	0.65	Participative
3. Raising awareness about climate change in and outside the campus.	3.31	0.66	Participative
4. Encouraging everyone to support local products that are 100% made from sustainable materials.	3.30	0.73	Participative
5. Joining voluntarily in various environmental activities (such as coastal clean-up drive, Clean & Green project, Earth Hour, etc.)	3.27	0.74	Participative
Overall	3.32	0.70	Participative

This table sheds light on the active participation of student leaders in environmental citizenship, specifically in terms of their civic responsibility. The data reveals a consistent pattern of participation, with an overall mean score of 3.32 and a moderate standard deviation of 0.70, indicating a shared commitment to environmental involvement.

Moreover, student leaders are actively working with their colleagues to formulate plans for environmental activities, as manifested by the mean score of 3.35. This reflects their collaborative approach to environmental initiatives, underscoring the importance of collective effort and teamwork in addressing environmental challenges. They are enthusiastic promoters and disseminators of environmental education and awareness, as demonstrated by the mean score of 3.35. This indicates their dedication to raising consciousness about environmental issues within and outside their academic community, demonstrating a sense of responsibility for spreading eco-friendly knowledge.

The table shows that the student leaders are actively participative in raising awareness about climate change both within and beyond their campus, as based on the mean score of 3.31. This suggests their recognition of climate change as a global issue that necessitates local action and advocacy, exemplifying their civic responsibility. Furthermore, they actively encourage others to support locally-made products crafted from sustainable materials, as shown by the mean score of 3.30). This demonstrates their commitment to promoting sustainable consumption practices and supporting local economies, aligning with principles of responsible citizenship.

Lastly, student leaders willingly participate in various environmental activities, such as coastal clean-up drives, Clean & Green projects, and Earth Hour events, as revealed by the mean score of 3.27. Their voluntary engagement in these activities reflects their sense of duty to actively contribute to environmental preservation and community improvement.

Overall, the data highlights that the respondents as actively participative individuals in their roles as environmental citizens, embracing their civic responsibility. Their collaborative planning, promotion of environmental awareness, climate change advocacy, support for sustainable products, and voluntary participation in eco-friendly activities collectively

demonstrate their commitment to making a positive impact on the environment and their communities. This participative spirit bodes well for fostering a culture of environmental responsibility within their academic institutions and beyond. Gottlieb & Robinson (2022) said, civic responsibility is a task bestowed by the government to ensure a balance between protection and allegiance. Student leaders are considered as the role models of their co-students and therefore shall possess active participation in the activities they implement for the institution.

2.3 Confidence

The respondents' assessment on environmental citizenship participation in terms of confidence is shown in Table 6.

Table 6 Environmental citizenship participation in terms of confidence

Item Statements	Mean	Standard Deviation	Verbal Interpretation
<i>As a Student Leader, I am ...</i>			
1. Using my environmental knowledge in preserving the environment.	3.64	0.54	Highly Participative
2. Assessing a co-student leader's abilities and needs on environmental sustainability.	3.52	0.63	Highly Participative
3. Applying my environmental skills in solving problems in my community and at home.	3.46	0.67	Participative
4. Accepting and responding to personal feedback on environmental concerns.	3.40	0.61	Participative
5. Taking action in addressing environmental problems/concerns.	3.28	0.69	Participative
Overall	3.46	0.63	Participative

As seen in the table, student leaders exhibit a commendable level of active participation in environmental citizenship. The overall mean score of 3.46, along with a moderate standard deviation of 0.63, indicates a collective sense of participative engagement in environmental activities. Chambis et al. (2020) said that education for environmental citizenship should be suitable to, directly and laterally, promote those values to students and themselves, furnishing an occasion for their reflection, confidence, and consideration. Subsequently, one of the important characteristics of student leaders is being confident in the knowledge and skills they possess and being open to learning and adjusting when needed.

Looking at the mean score of 3.64, this expresses a high level of participation in utilizing their environmental knowledge to contribute to the preservation of the environment. This suggests that they are not only well-informed about environmental issues but are also confident in their ability to apply this knowledge effectively. On the other hand, they actively assess the abilities and needs of their co-student leaders concerning environmental sustainability, as revealed by the mean score of 3.52. This highlights their role in mentorship and support, demonstrating their commitment to nurturing environmental leadership skills among their peers.

Furthermore, the table indicates that they apply their environmental skills in problem-solving within their communities and at home, as manifested by the mean score of 3.46. This demonstrates their practical approach to addressing environmental challenges, emphasizing the relevance of their environmental knowledge in real-life contexts. A mean score of 3.40 shows that they express a willingness to accept and respond to personal feedback on environmental concerns. This openness to feedback indicates their adaptability and responsiveness to improve

their environmental initiatives based on input from others. Lastly, student leaders actively take action to address environmental problems and concerns, as manifested by the mean score of 3.28. This reflects their proactive stance in implementing solutions and driving positive change, further underlining their participative role in environmental citizenship.

In sum, the table portrays that the student leaders are highly participative and confident individuals in their roles as environmental citizens. Their confidence in applying environmental knowledge, mentoring their peers, problem-solving, and responsiveness to feedback aligns with their commitment to actively engage in environmental preservation and sustainability efforts. This participative and confident approach bodes well for their effectiveness as leaders in promoting eco-friendly practices and contributing to positive environmental change within their communities. According to Kasymova et al. (2014), being confident in terms of citizenship participation requires a realistic sense of one's capabilities and feeling secure in that knowledge.

3. Relationship between the respondents' environmental ethics awareness and environmental citizenship participation

Table 7 shows the relationship between the student leaders' level of environmental ethics awareness and environmental citizenship participation. The correlation of the two aforementioned variables was tested using the Pearson r formula.

Table 7 Relationship between the respondents' environmental ethics awareness and environmental citizenship participation

Variables	Computed Pearson r	Verbal Interpretation	P-Value	Decision H0	Interpretation
Environmental Ethics Awareness and Environmental Citizenship Participation	0.519	Strong Correlation	0.000	Reject	Significant

Table 7 displays the correlation between the respondents' environmental ethics awareness and their environmental citizenship participation, as indicated by the computed Pearson correlation coefficient (r) of 0.519 and its corresponding P-value of 0.000. This correlation falls within the category of a "Strong Correlation," signifying a strong association between these variables. Consequently, the null hypothesis was decisively rejected, affirming the presence of a significant relationship between the respondents' environmental ethics awareness and their environmental citizenship participation.

This finding resonates with the widely accepted notion that "Greater awareness leads to greater action." It underscores the idea that individuals must first grasp the significance of environmental ethics principles before proactively engaging in efforts to address environmental issues. Essentially, individuals who lack familiarity with these ethical philosophies may question the rationale behind sustainability practices. Therefore, fostering environmental ethics awareness lays the foundation for effective social policies directed at environmental protection and the amelioration of environmental degradation through active citizenship participation. Ahmad et al., (2012) highlights the importance of fostering a citizenry that possesses a heightened environmental consciousness and actively engages in eco-friendly actions to protect and conserve the planet, contributing to its preservation through sustainable practices.

4. Propose a plan of activities to sustain environmental ethics awareness and enhance environmental citizenship participation among higher education student leaders

Table 8 shows the proposed plan of activities that aims to sustain the level of environmental ethics awareness and enhance the environmental citizenship participation of the higher education student leaders. These activities are intended to be done within the effectiveness of the academic year 2023-2024. The strategy is to propose this plan to the student organizations of the university together with their advisers and the school authorities for effective implementation. As to the expected output, the higher education student leaders must be able to expose themselves in various environmental activities that will enable them to sustain their awareness of pressing environmental issues and eventually, be able to collaborate with their co-student leaders to enhance their citizenship participation.

Table 8 Proposed plan of activities to sustain environmental ethics awareness and enhance environmental citizenship participation among student leaders

Activity/ Project Title	Category	Objective	Brief Description	Person/s Involved	Target Date	Projected Budget
ics Eco- Challenge: Nurturing Environmental Consciousness	Academic Activity	To develop a deeper understanding of the ethical dimensions of environmental decision-making and their role as responsible environmental stewards.	This is an activity designed to sustain environmental ethics awareness among students. It aims to engage participants in thought-provoking discussions, critical thinking, and real-life ethical scenarios related to environmental issues.	Student Leaders, Adviser	November 2023	Php 20,000
<i>Observe and Interact:</i> How to assess a co-student leader's abilities and needs on environmental sustainability	Special Interest Activity	To encourage student leaders to observe their peers' actions, behaviors, and involvement in environmental sustainability initiatives.	This activity can be done through regular interactions, attending meetings or events together, and observing their participation in sustainable activities.	Student Leaders, Adviser	August 2023	Php 15,000
"Green Guardians: Inspiring Environmental Action"	Special Interest Activity	To encourage student leaders to voluntarily participate in various environmental activities and to make the activities engaging, meaningful, and enjoyable to ensure maximum participation.	This will be done in a series of activities such as: Awareness Campaigns, Interactive Workshops, Field Trips and Outdoor Experiences, Volunteer Opportunities, Competitions and Challenges, School-wide Environmental Projects and Earth Hour Events.	Student Leaders, Adviser, Office of Student Activities	September 2023	Php 30,000

Activity/ Project Title	Category	Objective	Brief Description	Person/s Involved	Target Date	Projected Budget
able Solutions: Empowering Student Leaders for Environmental Change	Special Interest Activity	To empower student leaders with knowledge and skills to propose and implement environmental activities, movements, and policies within and outside the campus.	This activity is a dynamic and interactive workshop designed to equip student leaders with the knowledge and skills to propose and implement environmental activities, movements, and policies both within and outside their campus. Participants engage in brainstorming sessions to identify pressing environmental issues and devise innovative solutions.	Student Leaders, Adviser, Extension Services,	November 2023	Php 25,000
SURE-LEAD: Student-led Unified Response for Environmental Action and Development	Special Interest Activity	To empower every student leader with the knowledge, skills, and motivation to take unified action for environmental conservation and sustainable development, with the aim of enhancing their civic responsibility towards the environment.	This workshop aims to explore pressing environmental challenges, gain insights into their local impact, and develop a strong sense of responsibility for creating positive change. It also aims to foster a culture of environmental stewardship to make a lasting impact on the environment.	Student Leaders, Adviser	August 2023	Php 30,000

Discussions

The majority of the higher education student leaders are highly aware of environmental ethics awareness along with justice, sufficiency, and solidarity. While in environmental citizenship participation higher education student leaders are participative in reflection, civic responsibility, and confidence. There is a significant relationship that exists between environmental ethics awareness and environmental citizenship participation. Moreover, a comprehensive plan of activities is proposed to sustain environmental ethics awareness and enhance environmental citizenship participation among higher education student leaders. The plan includes organizing seminars and workshops to improve their understanding of the environment. As well as the activities that aim to actively engage those higher education student leaders in various environmental activities, equipping them with the skills and knowledge necessary to positively influence their peers and the ultimate goal to empower

student leaders to become effective agents of change in promoting environmental sustainability and responsibility.

Conclusion and suggestions

In line with the study's findings and conclusions, the researchers were able to construct the following recommendations. Foster collaboration among student leaders, organizations, and clubs to address environmental issues collectively, thus strengthening their environmental ethics awareness and participation.

The campus, through its Office of Student Organizations and Activities (SOA), may integrate sustainability goals and responsibilities into student leadership positions. The appointment of an environmental officer or committee within the student council to focus on sustainability initiatives and promote environmental awareness may be considered.

Furthermore, the proposed plan of activities may be initiated by the concerned authorities to ensure its maximum implementation. It is suggested to sustain environmental ethics awareness and enhance the environmental citizenship participation of the higher education student leaders in environmental citizenship. Since environmental ethics awareness and environmental citizenship participation deals with numerous concerns, a similar or follow-up study may be done considering other variables.

New knowledge and the effects on society and communities

The findings of this study shed light on new knowledge regarding the environmental awareness and citizenship participation of higher education student leaders. It underscores the crucial role that the educational institutions play in shaping the ethical values and environmental consciousness of their students. Additionally, it emphasizes the expectations placed on student leaders to lead by example in addressing pressing environmental concerns in line with sustainable development goals.

One notable revelation from this research is that student leaders at Batangas State University, The National Engineering University - JPLPC Malvar Campus, Batangas, Philippines, exhibit a commendable level of awareness when it comes to ethical actions related to the environment. This signifies a promising foundation upon which to build environmentally responsible behaviors and practices among the student body. However, the study also uncovers a discrepancy in the level of awareness and actual citizenship participation among these student leaders. Despite their high awareness, they are not as actively engaged in various environmental activities as might be expected. This observation highlights the need for more concerted efforts to translate awareness into tangible actions that contribute to environmental sustainability.

The implications of these findings extend beyond the student population, as they have the potential to influence society and communities at large. Educating and empowering student leaders to take a more active role in environmental citizenship can lead to positive ripple effects throughout their academic institutions and beyond. As these young leaders graduate and enter the workforce, their heightened environmental ethics and participation can contribute to a broader societal shift towards sustainability and responsible environmental stewardship.

In response to these findings, it is crucial for concerned authorities to take action. Collaborative initiatives among student leaders, organizations, and clubs can harness their collective potential to address environmental challenges effectively. Implementing a well-thought-out plan of activities can ensure that these efforts are sustained and that the gap

between awareness and action is bridged. Ultimately, this study underscores the importance of equipping higher education student leaders with the knowledge and tools they need to make a meaningful impact on their communities and society as a whole in terms of environmental ethics and citizenship participation.

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Perceptions of Select Filipino Teachers on the Most Essential Learning Competencies (MELCs) of the K to 12 Curriculum

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Abstract

The effects of Covid-19 on schools have been substantial and widespread. The impact of these changes has been far-reaching, affecting students and teachers alike. Strategically, the Department of Education in the Philippines released a concise version of the K to 12 curriculum to include only the Most Essential Learning Competencies or the MELCs. In effect, the researcher determined the perception of the teachers on the MELCs. Through a survey of 173 teachers across the Country, the findings revealed that teachers moderately agreed on statements related to impression ($M=2.71$, $SD=0.44$), morale ($M=2.60$, $SD=0.36$), stress, and workload ($M=2.63$, $SD=0.35$). Lastly, there was no significant difference in the perception of teachers as to gender, gender, years of teaching experience, type of school, and academic backgrounds.

Keywords: Teacher perception, K to 12, MELCs, COVID pandemic, Curriculum

Introduction

Only recently, the Philippines significantly changed its education system through the K to 12 curriculum reform. The curricular change was initiated to address the different local and international challenges confronting the educational preparation of the students. Ultimately, the curricular reform in the country is to afford Filipino learners the skills and knowledge they need for the 21st century.

However, even if it has not reached a decade yet, the implementation of the K to 12 curricula is confronted with another challenge—the COVID-19 health crisis. The pandemic necessitated another modification to ensure the continuity of learning even with the closure of schools. Strategically, the Department of Education (DepEd) made a drastic move to modify the curriculum to teach only the most essential. Through the Most Essential Learning Competencies or MELCs, the DepEd envisioned that remote learning modalities cover the basic and necessary learning goals (Department of Education, 2022).

The implementation of MELCs is unique to the country. Among the literature reviewed in the study, more study is needed to describe the initiative of other countries, in terms of curriculum, to address the educational dilemma caused by the pandemic. The modification of the K to 12 Curriculum to MELCs interested the researcher as such a program can affect the learning process in basic education schools. The study results inform the DepEd and other stakeholders if the MELCs can be an alternative curriculum implemented during challenging times like the pandemic or even effective in the post-Covid period.

Consequently, the study attempts to describe the implementation of the MELCs through the lens of one of the key players in the teaching-learning process--the teachers. Several researchers have pointed out (Dymond et al., 2015; Janko & Peskova, 2017) how teachers see or view the curriculum is essential. As implementors of the curriculum, teachers can provide meaningful feedback on the effectiveness and challenges of the program. They are valuable sources of information as they have first-hand experiences with how the curriculum works in the classroom.

Research Questions

In this study, the following research questions are asked:

1. What are teachers' levels of agreement on perception statements (impression, morale, and stress and workload) related to the MELCs released by the Department of Education?
2. Do teacher perceptions differ regarding gender, years of teaching experience, type of school, and academic background?

Review of related literature

Curriculum and curricular change in the Philippine context

With the many definitions of curriculum, the present research adapts that it is a product of an interplay of different factors (e.g., learning standards, learning objectives, and assessment) that are aimed at educating a student. Brubaker (2011) described the curriculum as "what persons experience in a setting." Therefore, the curriculum is what happens in the classroom, what the child learns at the end of the day, and what the teachers assess.

Contextually, the curricular reform to K to 12 in the Philippines had several drivers. However, it is ultimately a country's response to the global issues that confront its graduates, such as academic parallelism, skills competence, and citizen mobility (Montebon, 2014). Hence, the novel features of the K to 12 curriculum include extended basic education years by adding the Kinder and senior high school years. It also strategized to decongest the competencies in all disciplines. Mother tongue instruction at the primary level is also implemented. Lastly, the contextualization of lessons and arranging of the competencies in the spiral progression are observed. According to Hernandez (2012), Bro. Armin Luistro, then DepEd Secretary, stressed that the K to 12 programs would provide better access to education and improve the quality offered. The K to 12 assures that every Filipino student would have equal footing with other nationalities because the additional years of schooling will equip students with more knowledge and skills.

Meanwhile, the COVID-19 pandemic confronted the implementation of the K to 12 programs in the country. The Department of Education modified the curriculum to include only the most essential learning competencies. According to the guidelines released by the Department of Education, the MELCs are to ensure the learning continuity of about 27 million Filipino learners during the pandemic. The release of MELCs is also an effort of the Department of Education to address the Sustainable Development Goal (SDG) 4, which is to build resilient education systems.

Teachers and curriculum reform

An effective curriculum has not remained stagnant but one that has effectively developed through time. The constantly changing societal needs necessitate curriculum change or reform (Gouëdard et al., 2020). In effect, curricular reforms must equip students with skills and competencies to adapt to social circumstances.

However, the role of teachers in implementing the curriculum is crucial (Gouëdard et al., 2020; Miller & Seller, 1985; Hargreaves & Fullan, 2012; Kisa & Correnti, 2015). Teachers are responsible for connecting the curriculum's different spectrums, the school goals, and stakeholders (Miller & Seller, 1985). Operationally, Gouëdard et al. (2020) stressed that teachers' efficacy, practices, and perceptions help in the effective implementation of the curriculum. Hargreaves & Fullan (2012) agree that teachers understand how a curriculum can work and affect their students. On the other hand, Kisa & Correnti (2015) corroborate that teachers need to gain knowledge and beliefs to ensure the smooth implementation of a curriculum. Indeed, teachers can affect curricular processes.

The cited influences of teachers on curriculum reform stem from their perception of the curriculum as influenced by their context and experience. Perception, as described by (Murphy & Torff, 2014) author is a highly active process of meaning-making as an end-product of one's interaction with their environment. The construct is primarily influenced by their identity and interpretative framework that directs their likelihood or reason to go against or for the curricular reform (Vähäsantanen & Eteläpelto, 2011).

Primarily, teacher perception of the curriculum is shaped by their school experience. Vähäsantanen & Eteläpelto (2011) pointed out that teachers are influenced by the school system, particularly in how they have experienced the efforts of the institution to achieve the curricular goals, the quality of curriculum management, and the amount of support they receive. In relation, Kamokman (2019) stressed that teachers are a useful source of feedback to assess the effectiveness of the curriculum.

On the other hand, Janko and Peskova (2017) added that personal factors influence teachers' perceptions of the curriculum. For instance, more senior teachers may view curriculum change differently from teachers who just graduated from the university (Dymond et al., 2015). Even gender affects the teaching styles of teachers. According to El-Emadi et al. (2019), male teachers are more cognitive and skillful, while female teachers are nurturing. Such gender perception of teachers can influence student interest and success in school.

Regardless of the reason, Lacerda & Sepel (2019) advanced that teachers should perceive curriculum reform as "valid, positive, and executable ."Understanding teachers' perceptions of the curriculum create pathways and opportunities for successful implementation. To do so, Nevenglosky et al. (2019) suggested addressing factors that teachers perceived to be problematic in a curriculum. Such actions promote a culture of curriculum fidelity that will encourage teachers to implement the curriculum judiciously.

Methodology

This research used a quantitative research design using a survey method. Figure 1 illustrates the conceptual framework of the study.

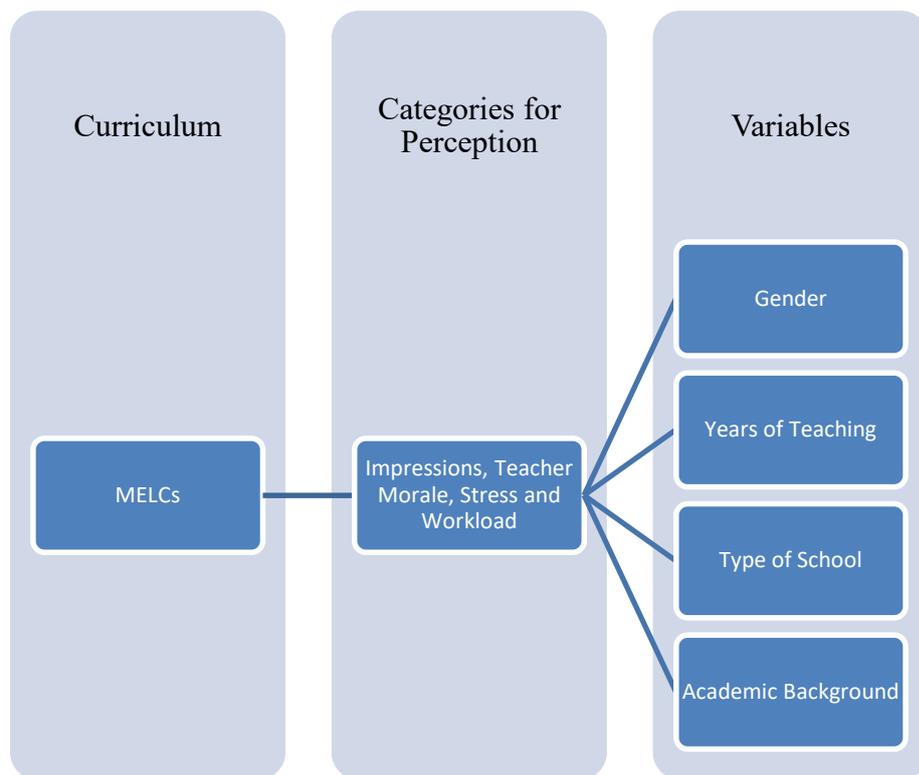


Figure 1 Conceptual Framework of Teachers' Perception on MELCs

Several researchers posit that teachers' perception of the curriculum underpins the effective implementation of the curriculum (Porter et al., 2015; Nadelson et al., 2012). How teachers view or perceive curriculum change can impact its successful translation in the classroom.

The current study is influenced by the research of Kessler-Hopek (2019), who investigated teacher perception of curriculum change in Georgia. One of the results of her study revealed three areas of teacher perception of curriculum: impression, teacher morale, and stress and workload. The said areas were adapted since the constructs represent the areas of teacher perception of a curriculum. Figure 1 shows the conceptual framework of the study.

From Kessler-Hopek's (2019) study, teacher impressions describe the general characteristics of the curriculum change or standard implemented. Hicks (2020) corroborates how teachers' impressions and buy-in can influence the learning experience delivered in the classroom using the implemented standards. That said, the researcher deems that teacher impression on the MELCs can be an essential category to investigate in the study.

Another construct related to teacher perception of the curriculum is teacher morale. According to Kessler-Hopek (2019), teacher morale considers the decisions or voices of teachers in curriculum development and implementation. Teacher morale also describes the

ability to perform their task professionally. Teachers must feel valued and heard as classroom experts and critical role players in the curriculum. The expert opinions of teachers can inform curricular implementors on areas to improve in the program.

The last construct related to teacher perception is stress and workload. Kessler-Hopek (2019) describe that stress and workload is an internal feeling of teachers towards their task. External factors can influence such internal feelings. In the case of teachers, external change, such as transitioning to the new curriculum standards, may influence their stress levels. Kessler-Hopek (2019) cautioned that teachers' stress levels should be considered, for it can directly influence their motivation and, in effect, may be manifested in their performance.

On another note, the study also explores teachers' perceptions of the curriculum according to certain variables. Fundamentally, how the curriculum is translated in the classroom can vary as schools are of different contexts. In the study, the researcher investigated if teacher perception of MELCs differs as to their gender, the nature of the school, and their years of teaching experience.

The first factor investigated is if gender influence teacher perception of the curriculum. According to Sari (2016), teachers have an innate perception of the classroom process as influenced by their gender. Sarı & Başarır (2016) found out that the traditional gender roles translate into the professional dispositions of the teachers. With the findings of Sarı & Başarır (2016) the researcher is interested in determining if gender affects teachers' perception of the MELCs.

Second, the years of teaching experience are also hypothesized to influence teachers' perception of the MELCs. As teachers mature, they can discern how and why a curriculum can work. Konokman et al. (2017) stressed that a teacher's expertise through time could input ways to implement the curriculum effectively. Therefore, this study investigates whether such an idea holds in the context of teachers delivering the MELCs.

Third, the nature of the school is investigated since public school settings differ from privately-owned institutions. Such differences may involve flexibility of implementation and instructional support. Thus, the nature of schools can provide different experiences for teachers that may lead to their perception of the MELCs.

Lastly, teachers' academic background is also investigated to determine if it affects teacher perception of the curriculum. Kessler-Hopek (2019) identified that professional development affects teachers' perception of the curriculum. Consequently, academic background as an identifier of professional development is hypothesized to affect how teachers perceive the MELCs of the K to 12 curriculum in the country.

As shown in Figure 2, the study mainly identifies the perception of teachers on the MELCs as to how it affects their teacher morale, their impressions on the curriculum, the stress they encounter, and even the amount of workload they experience. As teachers work in a different context, the study also explores if teacher perception significantly varies according to the nature of their school, specialization, years of teaching experience, and gender.

Participants and Sampling

Teachers who experienced teaching the MELCs were identified to participate in the study. Through a purposive snowball sampling method, about 255 teachers attempted to participate in the study. However, upon the return of the survey results, only 173 participants finished the survey. The demographics of the teacher participants are shown in Table 1.

Table 1 Demographical Distribution of Participants

	Criteria	Frequency	Percent
Gender	Male	47	27.17
	Female	126	72.83
Years of Teaching Experience	0 to 5 yrs	47	27.20
	6 to 10 yrs	34	19.70
	11 to 15 yrs	31	17.90
	16 to 20 yrs	23	13.30
	more than 20 yrs	38	22.00
Type of School	Private	16	9.20
	Public	152	87.90
	Others	5	2.90
Academic Backgrounds	Bachelors	93	53.80
	Masters	66	38.20
	Doctorate	13	7.50
	Post-Doctorate	1	0.60

*N=173

Instrumentation

The survey instrument has been modified from the study of Kessler-Hopek (2019) on teacher perception of the curriculum. The teacher perception instrument has twenty-two statements clustered into teacher impression (7 statements), moral (8 statements), and stress and workload (7 statements) categories. Each statement allowed respondents to rate their level of agreement on a 5-point Likert scale with five as strongly agree, four as agree, three as neutral, two as disagree, and one as strongly disagrees.

Slight modifications were made to the instrument. Thus, the instrument was subjected to phase validity among curriculum experts. The validator found the instrument valid with minimal suggestions on grammar and form. Upon subjecting the data to a reliability test, the reported Cronbach alpha is greater than 0.5 for all categories of the questionnaire (Impression=0.795; Moral=0.720; Stress and workload=0.712). Hence, the questionnaire is deemed reliable.

Data Gathering Procedures

The validated research instrument was converted into an online survey form using the Qualtrics application. The survey form stipulated ethical statements on the study's conduct and emphasized the respondents' voluntary participation. A link on the survey was sent to the different group messaging systems of a social media platform, while others received the invitation through email. The online survey happened on November 2021 to December 2022.

Data Analysis

Primarily, the data gathered from Qualtrics was analyzed to determine the completeness of the responses. Incomplete responses were excluded, and those that signified involuntary participation were deleted. Meanwhile, negative statements were recoded to make the whole perspective of the responses aligned and parallel.

The data was then interpreted using a descriptive statistic, particularly the mean. To analyze the level of agreement of the respondents on the statements asked in the survey, the researcher used the following ranges:

Range	Interpretation Guide	
	General Survey	Sub-category on Stress and Workload
4.51 to 5.00	Very high agreement	Significantly increased
3.50 to 4.50	High agreement	Somewhat increased
2.51 to 3.50	Moderate agreement	Remained the same
1.51 to 2.50	Low agreement	Somewhat decrease
1.00 to 1.50	Very low agreement	Significantly decreased

The researcher used correlational statistics to compare teacher perceptions of the variables identified. First, the researcher used an independent sample T-test to determine if there is a significant difference between the perception of male and female teachers on MELCs. Next, the researcher used one-way ANOVA to determine if there is a significant difference in teacher perception of MELCs according to their years of teaching, type of school, and academic background.

Results

Teacher Perception on MELCs

Primarily, this study aims to describe the perceptions of teachers on the released MELCS by the DepEd in the Philippines. Table 2 below reports the results of the online survey that was conducted.

Table 2 Teacher Perception on MELCs

Categories of Teacher Perceptions	Average Mean	SD	Interpretation
Impressions	2.71	0.44	Moderate
Teacher Morale	2.60	0.36	Moderate
Stress and Workload	2.63	0.35	Moderate

As seen in Table 2, the perception of teachers on the MELCs for the three categories are generally in moderate agreement but with very few low agreements too. Based on the average mean, the impression had the highest level of agreement among the three categories, while teacher morale had the lowest.

For impressions on MELCs, the teachers moderately agreed that there is a difference between the old and the new curriculum ($M=3.02$, $SD=0.83$). They also moderately agreed that the MELCs could promote collaboration in preparing resources ($M=2.95$, $SD=0.69$). The MELCs is easier to understand ($M=2.73$, $SD=0.79$) and it will promote student success ($M=2.71$, $SD=0.82$). Lastly, the teachers moderately agreed that the MELCs make them feel more prepared to create a new curriculum ($M=2.59$, $SD=0.79$). Meanwhile, the teachers have a low agreement that the MELCs are more rigorous than the previous curriculum ($M=2.55$, $SD=0.83$) and that it will have little impact on their everyday practice ($M=2.49$, $SD=1.04$).

On teacher morale, the respondents moderately agreed that they are more informed on the contents of the curriculum ($M=3.02$, $SD=0.79$), that it will help them become effective teachers ($M=2.87$, $SD=0.75$), and that it will help them prepare students for college after graduation ($M=2.86$, $SD=0.85$). Concurrently, the teachers also moderately agreed on negative statements on MELCs, such as focusing their efforts on complying with the mandates of the new curriculum ($M=2.93$, $SD=0.85$) and considering their decisions in its implementation ($M=2.79$, $SD=0.74$). The teachers had low agreement on morale statements describing that the MELCs will restrict their creativity ($M=2.45$, $SD=0.99$) and that their voices will be heard in developing policies to regulate curriculum implementation ($M=2.36$, $SD=0.95$).

Lastly, teachers moderately agreed on statements describing their stress and workload due to implementing MELCs. The statement with the highest level of agreement describes that teachers' efforts in implementing the MELCs will be worthwhile ($M=3.01$, $SD=0.67$). Also, teachers moderately agreed that the MELCs will require substantial revision of materials ($M=2.89$, $SD=0.75$), that they will spend more time on the new curriculum and that it will allow them to focus more on teaching higher-order thinking skills ($M=2.94$, $SD=0.79$). In terms of preparedness, the teachers moderately agreed that they were sufficiently prepared to teach the MELCs due to the professional development programs conducted for them ($M=2.58$, $SD=0.85$). Notably, the teachers disagreed on the time it would take them to prepare students for testing ($M=2.50$, $SD=0.92$).

The teachers were also asked to rate the change they experienced in terms of stress, workload, and productivity regarding implementing the MELCs. The mean scores gathered revealed that teachers generally perceived that their stress level ($M=2.67$; $SD=0.95$), workload ($M=2.75$; $SD=0.88$), and productivity ($M=2.65$; $SD=0.867$) remained the same in the MELCs compared with the expanded K to 12 curricula.

Another study objective is to determine if teacher perceptions vary according to certain variables. Tables 3 to 4 summarize the results of the correlation tests conducted for each variable.

Table 3 T-test for Gender and Teacher Perception

Categories	Gender	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Stress and Workload	Male	47	2.5684	.43422	-1.403	3.752	.054
	Female	126	2.6529	.31672			
Impression	Male	47	2.7264	.52178	.369	1.275	.260
	Female	126	2.6984	.41175			
Teacher Morale	Male	47	2.5399	.41138	-1.256	2.712	.101
	Female	126	2.6171	.33828			

Based on table 3, it can be inferred that the perception of teachers does not significantly differ according to gender (Sig > 0.5). It implies that the perceptions of male and female teachers are similar.

Table 4 ANOVA Test for years of teaching

Variables and Categories	Impression Ave. Mean= 2.71 SD = .443		Teacher Morale Ave. Mean= 2.60 SD = .360		Stress and Workload Ave. Mean= 2.63 SD = .353	
	F	Sig.	F	Sig.	F	Sig.
Years of Teaching	1.30	.273	.538	.708	.151	.962
Type of School	.684	.506	.827	.439	2.167	.118
Academic Background	.953	.417	.172	.915	.758	.519

*N=173

As seen in Table 4, The ANOVA test conducted revealed that the perception of teachers does not significantly vary (all have $S > 0.5$) according to the number of years of teaching, the type of school where teachers come from, and their academic background. It shows that teachers' perception of the MELCs is not affected by years of teaching experience, their context, or even their professional preparations.

Discussions

The study's limitation primarily lies in the number of participants involved in the survey. With such a number, the discussion presented is still subject to confirmation with a more significant survey population. Nevertheless, the researcher posits that the results can shed light on understanding how teachers perceive the released Most Essential Learning Competencies of the Department of Education in the country.

According to Murphy and Torff (2014), perception is awareness of information with one's senses. Perception mainly results from one's experience. In this study, teacher perception of the MELCs of the K to 12 programs was investigated to infer the program's effectiveness.

A notable result of the study primarily involves the moderate perception of teachers on most of the categories asked. In the instrument used, the moderate levels of agreement describe

that teachers do not necessarily agree or disagree with the statements asked of them. Teacher responses are generally at midpoint value. According to Chyung et al. (2017), a mid-point allows respondents to give answers in both the direction and strength of their opinion about a topic. Chyung et al. (2017) further explained that midpoint answers might be due to the respondents' knowledge of the topic, their level of engagement in the study, and even other factors they could consider while answering the survey.

In the case of the present research, the MELCs, as a relatively new standard, have been implemented for over a year. Hence, its maturity influenced teachers' perceptions of the program. The present study's result is similar to Cochrane & Cuevas (2015), who investigated curriculum change in the state of Georgia. They described that the early implementation of the standards affects teacher perception. In effect, the researcher suggests that a similar study can be conducted considering the maturity of the curriculum. Nevertheless, the results of this study offer several insights into the MELCs of the K to 12 curriculum in the Philippines.

As to Chyung et al. (2017), a midpoint answer allows the researchers to infer and present results in both directions of the scale. With the results mostly on a moderate level of agreement or at the midpoint, the researcher deems it wise to infer the discussion based on the ranks of the mean values of the perception statements. The researcher also looked for statements that support each other and yield similar observations.

For teacher impression, the results of the study describe that teachers are not entirely unaware of the features of the MELCs. Actually, the statement on the awareness of the curriculum yielded the highest level of agreement on the impression category. The teachers realized that the MELCs and the K to 12 have no difference. The said observation is supported by the high mean ratings in teacher morale on their level of information on t. Moreover, the teachers' familiarity with the MELCs seemed supported by the low level of perception regarding the rigor of the MELCs and their impact on their everyday practice. That said, teachers seemed confident with the MELCs and their standards. Their familiarity with the content of the MELCs may promote the ease of executing the standards in their classes. Their level of awareness of the MELCs is a promising potential to implement the standard in the classroom effectively. Hicks (2020) stressed that teachers' buy-in of the curriculum affects the teaching-learning process, while Mckeown et al. (2019) describe that positive perception of teachers will ensure the development of programs that will effectively deliver the standards. With such perceived familiarity, teachers' moderate perception of the statements on morale supports their confidence to deliver the MELCs in their classes professionally. To some extent, such perceived confidence in teachers can be viewed positively.

The teachers also gave a relatively high mean rating regarding their perception of how to conduct their profession. Ultimately, in the teaching morale, it can be observed that teachers perceive they can be a more effective teachers in the MELCs. Their familiarity with the study may support it. Compared to others, statements describing the morale of teachers towards MELCs are relatively higher. With the MELCs, they can promote effective student learning and focus on developing their critical and creative thinking skills. In the study conducted by Richter et al., (2021), they stressed that teachers' perception of their professional identity is affected on how they view their work efficacy. Consequently, the relatively high morale of the teachers towards MELCs boosted their confidence as professional teachers.

Another cluster of responses that yield similar mean ratings is the amount of work teachers will exert for the MELCs. In the stress and workload category, teachers acknowledge that the MELCS will require substantial development of lesson plans and instructional materials. Similarly, the teacher realizes that they must comply with the MELCs and deliver its standards rather than just teaching to the best of their abilities. Nevertheless, even with the

perceived amount of work that seems to confront teachers, they still perceive it worthwhile. The statement that yielded the least mean in the impression category says that teachers describe the MELCs as having little or no impact on their job. The said observation contrasts Murphy and Torff (2014), who revealed in their study that teachers are stressed when presented with new standards. Such perception of teachers is interesting since implementing the MELCs requires new teaching modalities because its implementation is during the onset of the pandemic. Zara et al. (2022) explained that Filipino teachers have positive attitudes toward teaching and that even in difficult situations, they can adapt to the challenge. Montebon (2022) corroborates that Filipino teachers possessed a positive attitude when confronted by the Covid-19 pandemic. The study's results support the observation of the said researchers on Filipino teachers' resilience.

While teachers are generally optimistic about their experiences teaching the MELCs, they express concerns about how they can be informed of new developments and make their voices heard. Teachers have the lowest mean rating on the statement describing their voice on policy formation for the relatively new curriculum. The teacher-centered approach to curriculum development is essential for MELCs to be successful. When their voices are not heard, it may lead to dissatisfaction among teachers (Dammak, 2017), leading to a decrease in student achievement or, even worse, student failure.

With all other positive perceptions of teachers on MELCs, policymakers need to explore options that would allow them to hear ideas from teachers. Teachers are the main actors in curriculum implementation; therefore, their opinions matter.

Conclusion and suggestions

The findings of this study reveal that, overall, teachers' levels of agreement on the perceptions statements regarding the MELCs released by the Department of Education are at a moderate level.

The results also indicate no significant difference in gender, years of teaching experience, type of school, and academic preparations.

These findings offer insights into how teachers in the Philippines perceive the K to 12 curricula. The researcher suggests that similar studies should be conducted to assess this curriculum's maturity. However, many questions still need to be answered regarding teacher perceptions of this program. For instance, what is their level of knowledge regarding these standards? Is it sufficient enough for them to implement them? What are their sentiments towards this program? What support do they need to effectively implement these standards?

New knowledge and the effects on society and communities

The results of the study identify several implications on teacher preparation and practices. Primarily, the results suggest areas that the findings could have implications for educational policy and teacher professional development programs. The uniformity in perceptions across various demographic categories indicates that a more general approach may be effective in implementing or refining the MELCs. A professional program development for teachers on general topics and curriculum context can be in design.

Another insight can be implied on the possibility of consensus building. The moderate level of agreement implies that there is room for improvement in achieving a higher consensus among teachers. This might be an opportunity for educational authorities to engage teachers in

further discussions, workshops, or collaborative activities to enhance understanding and consensus on the MELCs.

Lastly is the need for further research. While this study provides valuable insights on curricular perception, it also opens avenues for further research. Exploring the reasons behind the moderate agreement, conducting qualitative research to delve deeper into teachers' perspectives, or assessing the practical implications of these perceptions in the classroom could be areas for future investigation.

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Development of Fabric Surface Texture and Design Natural Dyed Hand-Woven Patterns in the Northern Region

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Abstract

This article aims to 1) Study the potential production, structure and consumer demand of hand-woven products with natural dyed fabric. 2) Develop the surface texture of fabric and design patterns of hand-woven fabrics that are suitable for textile manufacturing and meet the lifestyle of consumers. 3) Produce the prototypes of hand-woven fabrics which developed surface texture and pattern. 4) Assess consumer satisfaction with prototype product. The target group of this study is entrepreneurs of hand-woven fabrics using natural dyes in the northern region, there are 5 groups with 110 people in total, including the Ampan cotton group, Dao Mang Hemp Fabric Community Enterprise Group, Ban Pa Ngiu Karen Weaving Group, Ban Na Hang Karen Weaving Group, and Ban Huai Ta Community Enterprise Group. The research methods utilized in this study were focus groups, questionnaires, and collaboration with community entrepreneurs in developing and producing woven fabrics. The results show that the 15 woven fabrics developed by the researcher had better surface textures, with a soft touch and good recovery against wrinkles. Additionally, the new weaving structures resulted in new patterns. The researchers designed and produced 21 styles of contemporary casual wear, folk costume, and dress, which meet the requirements of consumers who value eco-friendliness, culture, healthy lifestyles, and minimalism. Furthermore, textile products such as bags, satchels, and hats were also designed and produced, emphasizing the fineness of sewing and the community product standards. Finally, the satisfaction of consumers with the prototype products was assessed, with an average satisfaction level of 4.84 out of 5.

Keywords: Fabric surface texture, Natural dyed hand-woven fabric, The weave patterns

Introduction

The One Tambon, One Product (OTOP) project is guideline to create prosperity and increase the living standard of community residents by producing or utilizing local resources and wisdom to develop high-quality products which are unique to each local culture. The Government is prepared to support communities to access modern knowledge which link to concept of creative economy with local lifestyle and culture. And develop the productive capacity for domestic and international markets. (Community Development Department, 2015 ; Patranid et al., 2014). Enhancement of Lanna fabrics and textiles by adding value for sustainable competitive market is a part of the OTOP policy. Local woven fabrics are processed by community producers which made from raw materials in community. Looms, waist looms and short looms are adopted. These are a traditional producing process and weaving techniques that are unique to the producer. It is considered one of the most valuable of cultural products in Thailand. Woven fabrics of each region have different characteristics according to type and source of fiber in northern provinces. (Komonsirichok, 2015) The pattern on fabric is weaving in according with the traditional wisdom of the weaver, and the natural environment of each region. Hand woven fabric from natural dyed fabric is more valuable and attractive than synthetic dyed fabric that produced in the industrial systems. (Donchai & Wimolphusit, 2008) Consumers in Thailand and other countries are consuming natural, cultural and healthy products which involve preservative environment or support the community. Consumers, who admire to eco-friendly and use a fashionable Thai product, give an opportunity to preserve and inherit local wisdom communities. A lot of women's weaving groups in northern provinces modify the original dyed method by using natural fiber dyeing and weaving, then change the yarn dyeing mode. (Komonsirichok & Woraphodpornchai, 2018) The distribution of natural dyed fabrics include other products can add value to higher prices than synthetic dyed fabrics. Furthermore, cotton fiber is mainly used for weaving in the north of Thailand due to the benefits such as comfortable to wear, easy for laundry, good water absorption, and easy staining. (Paliwanit, 1999) There are beautiful fabric patterns resulting from the weaving techniques of producers such as hemp fibers, which are natural fibers that the Hmong tribe used to weave into cloth. It is a rare fiber that is very oily like linen. It is tougher and stronger than cotton and linen fibers, high level hygroscopicity and good alkali resistance. (Sustainable Arts and Crafts Institute of Thailand, 2018) According to the preliminary interview with the local textile entrepreneurs about the problem of the production and natural fiber products. It was found that product uniqueness such as shawls or scarves made of hand woven cotton and hemp fibers are very valuable and charming. The price of hemp textile is 9,000-10,000 Baht. Consumers are willing to pay for this fabric because of it is natural fiber and has a large woven fiber. It has a unique Hmong style and is a delicate and beautiful candle pattern. With high durability and fine embroidery technology, each gown needs more than 30 days of production time. Problem of the texture of cotton products is also found that after dyeing and weaving, the skin will become rough. Not too soft. When wrinkles are difficult to recover, the fabric is not flexible. The problem of Hemp fabrics was the surface texture of the fabric would rough, hard and difficult to restore wrinkles. because of the large fibers. Although, the producer said that the fabric will gradually softens if washed frequently. In addition, the problems of cotton fabric and hemp fabric also found that the fabric was not flexible, and the processing and sewing of tailors were limited. The pattern formed by the weaving structure is the same pattern. The entrepreneur processes the fabric products into ready-made shirts. 1 piece of fabric The cost is high, but the sales are cheap,

which makes the income low. Finally, the researchers aim to reduce the business weaknesses of natural dye entrepreneurs through creative processes that add value and upgrade community woven fabrics according to specified standards and OTOP policies. By using mix fibers and different types of yarns to weave the same fabric, new fabric structures can be created that improve fabric performance, texture, and weaving patterns for a variety of purposes, meeting consumer trends and lifestyles, and generating higher prices that help the community earn more income and improve residents' quality of life.

Objective

- 1) Study the potential production, structure and consumer demand of hand-woven products with natural dyed fabric.
- 2) Develop the surface texture of fabric and design patterns of hand-woven fabrics that are suitable for textile manufacturing and meet the lifestyle of consumers.
- 3) Produce the prototypes of hand-woven fabrics which developed surface texture and pattern.
- 4) Assess consumer satisfaction with prototype product.

Methodology

1. Scope of content This research is a Participatory Action Research. The researchers cooperated with textile producers. All groups participated in all activities related to the fabric producing process in the region. The literature review involved: Natural fiber is used in textile development, the principle of natural dyes and woven fabrics, the quality development of dissected products, and the principle of mixed fiber as a mixed fiber fabric. Standard fabric testing methods: fabric pattern design, fabric and textile product development and design, fashion design materials and technology, Design thinking process.

2. Population Target group are woven entrepreneurs in the northern region. There are 5 groups, totaling 110 people : are as follow

2.1 Ampan cotton group, Nakorreu sub-district, Hot district, Chiang Mai province, consists of 20 people.

2.2 Dao Mang Hemp Fabric Community Enterprise Group, Pongyang sub-district, Mae Rim district, Chiang Mai province, consists of 25 people.

2.3 Ban Pa Ngiu Karen Weaving Group, Tha Nuea sub-district, Mae On district, Chiang Mai province, consists of 20 people.

2.4 Ban Na Hang Karen Weaving Group, Mae Pak sub-district, Wang chin district, Phrae province, consists of 20 people.

2.5 Ban Huai Ta Community Enterprise Group, Nangphaya sub-district, Thapa district, Uttaradit province, consists of 25 people.

3. Research Methodology Researchers used a focus group. There are 15 participants representing 5 groups in the discussion, consisting of 1 group chairman and 2 group members each. Then developed the fabric surface texture of hand-woven cotton fabrics and hemp fabrics by following the steps below:

3.1 Studied the potential production of 5 target groups.

3.2 Surveyed and analyzed consumers' demand for hand-woven fabrics and textiles in terms of characteristic and texture of the fabrics in online and offline markets.

3.3 Determined a method to develop cotton and hemp fabric texture that suitable for fabric production by using the principle of blended fiber (Paliwanit, 1999) that used different

types of yarns to weave blended fabrics. In order to improving the performance of the fabric and made it more attractive, the fabric has been better texture, suitable for processing, soften texture and good wrinkle recovery. Then, adjusted the types of vertical yarn, weft yarn and woven fabric structure for adaption to the different weaving methods of the target group, that is, weaving with looms. Waist looms, local looms/hand looms and Mhong nationality looms. Mixed fiber woven structure design. Weaving pattern design after that let the weaver produce the fabric according to the design. (Chunthone, 2019 ; The Support Arts and Crafts International Centre of Thailand (Public Organization), 2014)

3.3.1 Tested the tensile strength of the fabric according to ASTM D 5034-2009.

For the hardness of the fabric according to ASTM D 1388-1996. (2002 report) Option A:

For the tear strength of the fabric according to ASTM D 2261-07a.

For the thickness of the fabric according to ASTM. D 1777-1996 (revised in 2007) Option 1:

For the hair growth on the fabric surface using a Random Tumble Pilling Tester according to ASTM standards. D 3512-2007

For perform fold restoration test according to AATCC 66. Then analyzed and summarized the test results. (Kosiyanon, 1998)

3.3.2 Designed and produced prototypes of woven fabrics that have been developed for texture. in the form of clothing, apparel and textile products. By using the principles of design and development of textile products. As well as the design thinking process, (Charunghittsunthorn, 2005 ; Phitchayasontorn, 2012) including the use of conceptual frameworks of New products with the identity and wisdom of the group It is contemporary fashion to the consumer market that is popular with cultural products. Bringing the spirit of the local people to the people in the urban society, which is the cultural capital that is the potential of the group. to increase production. Create value-added quality products according to community product standards.

3.3.3 Created consumer satisfaction assessment form. to prototype clothing products and prototype textile products. It is a 5-level Rating Scale according to the Likert Scale method that inquires about satisfaction with the prototype product in 3 aspects: 1. Design aspect 2. Functional aspect 3. Material and quality. After that, collected data from the sample group 150 people, derived from purposive sampling are consumer who come to buy clothes at trade fair and exhibition of craft products.

4. Research Tool: The tools used to collect data according to the research procedures were as follows: Unstructured Interview, Fabric test, Consumer Satisfaction Assessment, and testing content validity.

Results

First, objective result: studied the potential production, structure and consumer demand of hand-woven products with natural dyed fabric.

The results of the analysis of the potential of the 5 target groups and the structure of the woven fabrics of each group found that

1. Ampan cotton group is a group of weavers dyed with natural dyes, traditional looms and native looms. There are 20 members of the group. The yarn used for woven fabrics is cotton warp yarn number Ne40/2 and weft yarn number Ne10/1. The weave structure is plain weave 1-1, number of warp threads in 1 inch. = 44 strands, the number of weft threads in 1

inch = 44 strands. After weaving, it will be sold in the form of fabric and processed into applied traditional costumes. But the fabrics that the group still uses in weaving are not diverse yarns and textures.

2. Dao Mang Hemp Fabric Community Enterprise Group is a Mhong tribe with 25 members. This is a group that grows hemp trees and weaves them into fabrics with Mhong looms. The lifestyle is related to the hemp fabric for writing candles. The fabric is a narrow fabric, which is dyed into dark blue with Hom or indigo, but the dye is not durable. The fabric produced and sold is about 4.5 meters long, and the price of each piece is 3,500 - 4,500 Baht. It is processed into various products, such as skirts. Shirts, coats, hats and bags are sold at relatively high prices, because the production process of hemp fiber takes more than 30 days.

3. Ban Pa Ngiu Karen Weaving Group. It is a group of weaving cotton with a back strap loom. There are 20 members and producing fabrics woven from artificial silk threads dyed with synthetic dyes. Before dyeing, they tied warp yarns with Mudmee pattern, then weaved onto the fabric alternating with the ground-dyed yarn to make a sarong. As for Karen shirt, they made from artificial silk yarn and cotton yarn number Ne10/1, dyed with synthetic colors as well. Woven into fabrics and woven into patterns with the technique of Jok. Then be embroidered and decorated with artificial silk threads and spikes to add beauty. In addition to sarongs and shirts, the group also produces scarves. Shawl and bags. The group has the ability to dye natural colors and has government agencies to promote the dyeing process according to academic principles. Including having sufficient and diverse natural resources that provide natural colors in different shades.

4. Ban Na Hang Karen Weaving Group. It is the Sa-kow (Paka-kyaw) ethnic group. There are 20 members of the group, producing fabrics from artificial cotton and silk threads dyed with synthetic dyes using an ancient hand-woven loom. There is a mudmee pattern dyed with the color of *Morinda coreia* buch, which is the traditional color of Karen's wisdom, unique and beautiful. But now it is more convenient to use synthetic dyes instead of natural dyes. Fabrics that are processed and sold within the group and acquaintances in the form of sarongs, shirts and bags are decorated with embroidery threads and millets to add beauty.

5. Ban Huai Ta Community Enterprise Group. This group was produced fabrics from artificial silk dyed with synthetic dyes. There were 25 members of the group weaving with traditional looms in the form of 4 heddles patterns that have been promoted by the Arts and Crafts Center. The group was produced and sold as sarongs, fabrics, shawls and scarves. The products were exquisite but used synthetic yarns and dyed with synthetic dyes in their production, causing the fabric to ventilate moisture poorly.

The study result of hand woven structure showed that there were 4 entrepreneur groups of cotton and artificial silk yarn weaving. The structure of woven fabrics was plain weave 1-1 and, Twill weave. And also found another group is Hemp weaving group, there woven hemp fabric structure was plain weave 1-1 as shown in Table 1.

Table 1 An analysis of the hand-woven fabric structure of the target group

Entrepreneur group	Hand-woven fabric structure	Warp yarn type / No.	Weft yarn type / No.	Number of Warp thread per inch	Number of Weft thread per inch	Characteristic of the loom
1. Ampan cotton group	Plain weave 1-1	Cotton yarn Ne40/2	Cotton yarn Ne10/1	44	44	loom & Traditional loom
2. Dao Mang Hemp Fabric Community Enterprise Group	Plain weave 1-1	Handspun hemp yarn	Handspun hemp yarn	20	20	Traditional weaving loom of the Hmong
3. Ban Pa Ngiu Karen Weaving Group	Plain weave 1-1	Cotton yarn Ne10/1	Cotton yarn Ne10/1	30	34	Back strap loom
4. Ban Na Hang Karen Weaving Group	Plain weave 1-1	Cotton yarn Ne40/2	Cotton yarn Ne10/1	54	72	Back strap loom
5. Ban Huai Ta Community Enterprise Group	Twill weave	Artificial silk yarn Ne40/2	Artificial silk yarn Ne40/2	48	110	4 heddles Traditional loom

From exploring the consumers' demand for hand-woven fabric products. In terms of the texture of natural dyed hand-woven fabrics both online market and offline market. It found that the consumers of natural dyed handmade fabrics were 35 years old women who love nature, culture, and health with simple dressing. In the offline market., best seller products were dresses, pants, shirts, coats, bags and hats. The characteristics of clothing fabrics and hat fabrics are soft, light and comfortable. Dyed with natural colors. And the characteristics of bag fabrics required thick fabric, which remained in shape. In the online market, best seller products were short-sleeved shirts, coats, dresses, skirts, casual trousers and quads. In addition to the design to meet customer needs, consumers also like comfortable, loose, not fit, free size, comfortable fabric, solid color or micro pattern, suitable for daily wear, excellent sewing technology. And also found that the story of the store and the unique features of the product were part of attracting consumers' attention.

Second, objective result: Developed the surface texture of fabric and design patterns of hand-woven fabrics that were suitable for textile manufacturing and meet the lifestyle of consumers.

The researcher found the ways to develop the texture characteristics of woven fabrics that were cotton fibers and hemp fibers (naturally dyed fibers such as indigo, hemp, ebony, Morinda coreia buch and shallac to be suitable for the production of fabric products. By using the principle of blending fibers, it was a blended fabric, i.e. using different types of yarn to weave into the same fabric (mixture) to increase the properties of the fabric. to be more usable The fabric had a better texture suitable for processing, soften touch and good recovery against

wrinkles. Then, Modified the type of warp yarn, weft yarn, and weaving fabric structure to suit different weaving methods of all 5 target groups, such as weaving with woven loom, back strap loom, native/hand loom. and the loom of Hmong tribe. In the structure of the weaving patterns of Ban Pa Ngiu Karen weaving group and Ban Na Hang Karen weaving group. The researcher designed the weaving pattern with Mudmee technique, so that each group of fabrics has three contemporary patterns, as shown in Figure 1.



1) Na Hang Karen Weaving Group 2) Pa Ngiu Karen Weaving Group

Figure 1 Woven pattern with Mudmee technique

(Source: Researcher, 2023)

And woven by producers according to the new structure designed by researchers. 15 kinds of natural dyed hand woven fabrics with new surface texture are obtained, as shown in Table 2

Table 2 The characteristics of the fabric of the target group develop the fabric surface texture according to the principle of blended fabrics.

Fabric Code	Fabric Structure	Warp yarn type	Weft yarn type	Number of Warp thread per inch	Number of Weft thread per inch	Target group	Weaving Method	Characteristic of the fabric and weaving pattern
1	Plain weave 1-1	Cotton Ne40/2	Hand spun cotton yarn	24	24	Ampan cotton group	Hand loom	
2	Plain weave 1-1	Cotton Ne40/2	Hand spun cotton yarn (thin thread)	24	40	Ampan cotton group	Hand loom	
3	Plain weave 1-1	Handspun cotton yarn (thin thread)	Hand spun cotton yarn (thin thread)	32	22	Ampan cotton group	loom	

Fabric Code	Fabric Structure	Warp yarn type	Weft yarn type	Number of Warp thread per inch	Number of Weft thread per inch	Target group	Weaving Method	Characteristic of the fabric and weaving pattern
4	Plain weave 1-1	Cotton Ne40/2	Cotton Ne10/1	44	40	Ampan cotton group	loom	
5	Plain weave 1-1	Cotton Ne40/2	C10/1 + R20/2	44	44	Ampan cotton group	loom	
6	Plain weave (1-1)	Cotton Ne40/2	Cotton Ne3	24	20	Ampan cotton group	loom	
7	Plain weave (1-1)	Cotton Ne40/2	Cotton Slub yarn Ne4.5	44	35	Ampan cotton group	loom	
8	Plain weave (1-1) (1 piece = 3 meters)	Cotton Ne10/3	Cotton Ne10/3	36	36	Ban Pa Ngiu Karen Weaving Group	Back strap loom	
9	Plain weave (1-1) (1 piece = 3 meters)	Cotton Ne10/1	Cotton Ne10/1	30	28	Ban Pa Ngiu Karen Weaving Group	Back strap loom	
10	Plain weave (1-1)	Cotton Ne40/2	Cotton Ne10/1	40	30	Ban Na Hang Karen Weaving Group	Traditional loom / hand loom	
11	Plain weave (1-1)	Cotton Ne40/2	Cotton Ne10/1	54	64	Ban Na Hang Karen Weaving Group	Traditional loom / hand loom	
12	Plain weave (1-1)	Hemp	Hand spun cotton yarn (thin thread)	20	30	Dao Mang Hemp Fabric Community Enterprise Group	Traditional weaving loom of the Hmong	
13	Plain weave (1-1)	Hemp with reyon Ne2.8	Hemp	20	20	Dao Mang Hemp Fabric Community Enterprise Group	Traditional weaving loom of the Hmong	

Fabric Code	Fabric Structure	Warp yarn type	Weft yarn type	Number of Warp thread per inch	Number of Weft thread per inch	Target group	Weaving Method	Characteristic of the fabric and weaving pattern
14	Twill weave	Cotton Ne40/2	Cotton Ne10/1	48	56 (Weft yarn merge 2 strands)	Ban Huai Ta Community Enterprise Group	Loom	
15	Twill weave	Cotton Ne40/2	Hand spun cotton yarn (thin thread)	48	52 (Weft yarn merge 2 strands)	Ban Huai Ta Community Enterprise Group	Loom	

In addition to developing fabric surface texture and weaving patterns according to the new weaving structure, the researchers were also designed a new pattern of contemporary hemp candles, preserving the traditional identity of the Dao Mang hemp fabric community enterprise group. When the fabric was processed into a product, it was modern, as shown in Figure 2



Figure 2 Hemp fabric candle pattern, new style,
Dao Mang Hemp Fabric Community Enterprise Group
(Source: Researcher, 2023)

Result of Fabric Surface Texture Test

After the producers weaves 15 kinds of blend fiber fabrics, the appearance of the structural fabrics were thick, medium thick and thin according to the type of warp yarn and weft yarn. Then, the researchers were tested all 15 kinds of fabrics according to the principle of textiles, which tested both warp yarns and weft yarns, by testing as follows:

1. Tensile strength test according to ASTM D 5034-2009 standard
2. Fabric hardness test according to ASTM D 1388-1996 (Reprove 2002) Option A standard
3. Tear strength test according to the standard ASTM D 2261-07a
4. Test for fabric thickness according to ASTM D 1777-1996 (Reapproved 2007) Option 1
5. Test for hair growth on the fabric surface. Using Random Tumble Pilling Tester according to ASTM D 3512-2007 standard.
6. Recovery against wrinkles test according to AATCC 66 standard.

The test results showed that the fabrics with the strongest tensile strength were No. 8 and No. 4, while the fabrics with lower hardness were fabrics. No.1. No.2, No.4, No.5, No.6, No.9 and No.11. The most tear resistant woven fabrics were No.14 and No.15, because it was a twill weave structures. The thickness test results of twill fabric showed that No.8 is the thickest fabric because it used vertical yarn and large cotton yarn. The medium thickness fabrics were No.15, No.13, No.12 and No.1 respectively. The fabric with the most facial hair was No. 1. The fabric with the least facial hair was No. 4, No. 8, No. 9, No. 10 and No. 11. The results of recovery against wrinkles test showed that the fabrics with the most wrinkle recovery along the warp thread and the most weft were No.1, No.5, and No.4, respectively.

The testing result could be summarized that the developed 15 fabric characteristics included fabric thickness, softness, touch and strength. Each fabric was suitable for processing into different products. In addition, the pattern made of woven structure, such as Mudmee pattern and frosted pattern was a new pattern but still retains the identity of the original weaver, as shown in table 3

Table 3 Result test of Characteristic fabric and Suitability in processing to make product

Fabric Code	Result test of Characteristic fabric	Suitability in processing to make product
1	Medium thick fabric, soft to touch, high tear resistant, Low tensile strength and has good recovery against wrinkles.	Clothing, Textile products : hat, bag
2	Thin fabric, soft to touch, medium tear resistant, low tensile strength and has good recovery against wrinkles.	Clothing
3	Medium thick fabric, soft to touch, low tear resistant, medium tensile strength and has good recovery against wrinkles.	Clothing, Textile products : hat, bag
4	Thin fabric, soft to touch, low tear resistant, low tensile strength and has good recovery against wrinkles.	Clothing
5	Thin fabric, very soft to touch, low tear resistant, medium tensile strength and has good recovery against wrinkles.	Clothing , Scarf
6	Medium thick fabric, soft to touch, low tear resistant, low tensile strength and has good recovery against wrinkles.	Clothing, Textile products : hat, bag
7	Medium thick fabric, soft to touch, medium tear resistant, medium tensile strength and has good recovery against wrinkles.	Clothing, Textile products : hat, bag
8	Very thick fabric, hard to touch, medium tear resistant, high tensile strength and has good recovery against wrinkles.	Textile products : Bag
9	Medium thick fabric, soft to touch, medium tear resistant, high tensile strength and has good recovery against wrinkles.	Clothing, Textile products : bag
10	Medium thick fabric, soft to touch, medium tear resistant, medium tensile strength and has good recovery against wrinkles.	Clothing
11	Thin fabric, soft to touch, medium tear resistant, medium tensile strength and medium recovery against wrinkles.	Clothing
12	Medium thick fabric, hard to touch, low tear resistant, high tensile strength and low recovery against wrinkles.	Clothing (Overcoat) Hat, Bag

Fabric Code	Result test of Characteristic fabric	Suitability in processing to make product
13	Medium thick fabric, hard to touch, medium tear resistant, high tensile strength and low recovery against wrinkles.	Clothing (Overcoat) Hat, Bag
14	Medium thick fabric, soft to touch, high tear resistant, medium tensile strength and medium recovery against wrinkles.	Clothing , Overcoat
15	Medium thick fabric, soft to touch, high tear resistant, medium tensile strength and low recovery against wrinkles.	Clothing ,Overcoat

Third, objective result : produced prototypes from hand-woven fabrics which developed surface texture and pattern.

Designed results of clothing and textile products : Researchers were considered various using by changing the use of products or designs, reduced the wearing of clothing in daily life, and used local culture. Used the concept that can felt the seasonality, or brought the surrounding things, emotions and nature into the design of beauty. The shape of the product was attracting customers or affecting the purchase. It was safe, strong, easy to use and reasonable in price. Local materials, manual and buoy production, transportation from producer to consumer. Researchers were used the principles of textile design and development, and designed thinking process, sketched design, then selected patterns, produced prototype and modify it, and further decorated them to obtain high-quality and beautiful products. The final step was made prototypes. All 15 fabric designs were 21 styles of clothing for adults such as casual wear and applied folk costume and 10 styles of contemporary textile products such as bags, satchels and hats. According to the community product standards, the sewing fineness was considered, which is suitable for the quality requirements of community products and trustworthy. To be accepted and built the credibility with consumers to buy products, researchers were also focused on the sustainable development. To improve the quality of community products according to the specified standards and OTOP policies. 31 kinds of clothing and textile product designs, as shown in Figure 3-7



Figure 3 Clothing and Casual wear prototype products from the canvas Code 1-11
(Source: Researcher, 2023)



Figure 4 Clothing, Casual wear and applied folk costume prototype products from the canvas Code 1-11 (Source: Researcher, 2023)



Figure 5 Clothing prototype products from the canvas Code 12-13 (Source: Researcher, 2023)



Figure 6 Clothing prototype products from the canvas Code 14-15 (Source: Researcher, 2023)



Figure 7 textile product prototype : bags, satchels and hats Code 1, 3, 6-9, 12 and 13
(Source: Researcher, 2023)

Forth, objective result : Assess the consumer's satisfaction with the prototype product.

Product were tested to find out the satisfaction of consumer 150 people, who would like to consume cultural products, and use fashionable Thai products. In terms of style, utility and material, and quality of the cloth. There were found that consumers were satisfied with the overall product at the most level with an average of 4.84 as shown in Table 5.

Table 5 Average satisfaction of customers toward prototype products

Item	Level of Satisfaction					Mean	Interpret
	5	4	3	2	1		
Model / Pattern							
1. Fashion style, Modern	110	40	0	0	0	4.73	Very good
2. Different from market /competitor	88	45	17	0	0	4.47	Good
3. The design is beautiful and meet the need of customer	140	10	0	0	0	4.93	Very good
4. Unique and eye-catching , reflecting local identity	134	16	0	0	0	4.91	Very good
Utility							
1. Suitable for various occasions. Suitable for various purposes.	140	10	0	0	0	4.93	Very good
2. Suitable for the buyer's characteristics and style	135	15	0	0	0	4.90	Very good
Material and Quality							
1.Characteristics of natural dyed fabrics is suitable for the model	132	18	0	0	0	4.88	Very good
2. Exquisite tailoring, Fabric is soft and comfortable.	133	17	0	0	0	4.89	Very good
3. The fabric pattern, the decoration on product is appropriate.	140	10	0	0	0	4.93	Very good
Overall mean satisfaction						4.84	Very good

It showed for the consumer style, the most satisfied were the design which beautiful and met their needs with an average of 4.93, followed by unique designs. Representing local identity with an average of 4.91 and fashion style. It was modern with an average of 4.73 respectively. In terms of usability, consumers were most satisfied about suitable for various occasions and suitable for various purposes. with an average of 4.93 and suitable for the characteristics and style of the buyer with an average of 4.90 in terms of materials and quality. Consumers were most satisfied with the fabric pattern, the decoration on product is appropriate with an average of 4.93, followed by exquisite tailoring, the fabric was soft and comfortable, average 4.89, and the nature of the fabric dyed naturally. It was suitable for the model with an average of 4.88, respectively, for overall product satisfaction. Consumers were satisfied at the most level with an average of 4.84. Furthermore, the researchers were also interviewed entrepreneurs for all 5 target groups on the subject. Satisfaction with the design and tailoring of prototype products. according to the unstructured interview form the results of the interview revealed that all entrepreneurs were satisfied with the design and original product. Including clothing, apparel and textile products as a whole, at the most level.

Discussions

The current study investigate the recombination effect of handmade fabrics dyed with natural cotton and hemp fibers used different types of yarns to weave the same fabric. Changing the type of vertical yarn. Straight yarn. The fabric structure was suitable for different weaving methods of all 5 target groups, creating a new fabric structure. The total number of hand woven fabrics developed by researchers were 15. According to the type of warp and weft, thick fabric, medium thick fabric, thick fabric and thin fabric were tested. The test results showed that these 15 fabric surface texture were thin, thickness, soft surface, high strength and good wrinkle recovery. Therefore, each fabric was suitable for processing into different products. In addition, Dao Mang hemp fabric group get new structural weave pattern. They were also get new hemp candle design. And also, Ban Pa Ngiu karen weaving Group and Ban Na Hang karen weaving Group were got contemporary weaving patterns, Mudmee techniques 3 patterns per group, which maintained the traditional identity of the group. The results of this study were consisted with the study of Umasin & Tonyalae (2020). On the development of Koh Yor creative woven patterns which found the development of Koh Yor woven patterns by combining different sizes of yarn materials and knitting technology, a woven pattern and size texture were formed. By weaving the yarn into fancy yarn, the fabric had independent color patterns and raised textures. The yarn was mixed with yarns of different sizes to made the fabric that relief texture of different degrees, and the fiber yarn was used to made the fabric fluffy. Special fiber yarns were used to mix and weave the fabric, which had luster and texture, and forms a raised pattern in the same fabric.

The study also investigate the product processing results were met the purchase needs of female customers aged 35 and above, and their lifestyles like natural Thai products and cultural Thai products that were contemporary products. According to the design and development of textile products and the design thinking process, were enhanced and increased the product value. 21 styles of clothing have been developed, which was a new modern style with the uniqueness of the group. Entrepreneur's sewing process was exquisite. Compared with the community product standard, and OTOP entrepreneur's products. All five target groups have reached more consumers and increased opportunities to compete with other brands. It could be seen that entrepreneurs were improved in design and pattern making/Reskill sewing

embroidery emphasizes delicacy aimed at community product standards. This finding was similar to the research of Sutakom & Komosirichok (2021), which found that fabric creation was a product that created value and improved products. In order to attract customers' attention, producer must focus on the meticulousness sewing according to the community product standard to raise the level of the group's products. Moreover, the researchers have also increased interference with the sustainable protection of identity and local lifestyle based on nature and culture. A production chain is formed through the design and development of 10 contemporary textile products, including bags and hats. When the products produced meet the market demand, the fabric quality and sewing process meet the community product standards. Entrepreneurs can sell at higher prices, which will help communities earn more income (Prachakul et al., 2019) and improve the quality of life of community residents.

Conclusion and suggestions

1. Restructuring of naturally dyed hand-woven fabrics that are cotton and hemp fibers. with the principle of blend fibers by using different types of yarn to be woven into the same fabric Modify the type of warp yarn, weft yarn and woven fabric structure to suit the different weaving methods of the 5 target groups, resulting in a new woven fabric structure, that increase the properties of the fabric to be more usable. Researchers developed the fabrics surface texture 15 woven fabrics. And tested the appearance of thick. Medium thick, very thick and thin according to warp yarn type. and weft yarn type The fabric test result show that The characteristics of all 15 fabrics are thick, thin, soft touch, be strong and has different good recovery against wrinkle. Therefore, each fabric is suitable for processing into different products.

2. Product processing results that meets the purchasing needs of women customers aged 35 years and over, who have a lifestyle that likes natural products and cultural products which is a product of Thailand that is not an outdated. It is an upgraded and value-added product. According to the principles of design and development of textile products. and design thinking process Developed into 21 styles of clothing, which are new products. contemporary style have a group identity The sewing workmanship of the entrepreneur is exquisite. Compared to community product standards As a result, the products of OTOP entrepreneurs in the category of fabric products and local textiles for all 5 target groups reach more consumers Increase the opportunity to compete with other brands. It can be seen that entrepreneurs have been upskilled in designing and making patterns / reskilling sewing and embroidery that emphasizes refinement aiming at community product standards. Researchers further disrupt product production chains by designing and developing 10 more contemporary textile products. There are bags, satchels and hats. The quality of the fabric and sewing craftsmanship are comparable to community product standards. When the products produced are in line with market demands. Entrepreneurs will be able to sell at a higher price. This will help the community earn more income. and improve the quality of life of community residents.

Suggestions from Research results

1. In order to created new woven patterns and fabric textures, the producers should constantly adjust the woven structure and the production of fabrics. Moreover, they should focus on the quality of weaving according to community product standards and fabric production for reaching high quality products.

2. There should maintain the quality of weaving process and pass on knowledge of weaving structure, new weaving patterns including how to dye yarn with natural colors to the youth in the community to continue inherit.

Suggestions for further Research

1. There should study and extended developing fabrics with new surface for processing into different types of textile products. By using different types and different size of yarns.
2. There should study various fabric structure and design the development product to obtain new patterns and new uniqueness.

New knowledge and the effects on society and communities

The obtained result from this research were as follow :

1. The research has enabled entrepreneurs to improve their skills in design, pattern-making, reskilling, sewing, and embroidery, emphasizing the delicacy of workmanship and targeting community product standards. As a result, locally produced fabrics and textiles have reached more consumers, increasing the opportunity to compete with other brands. This has paved the way for a new generation of marketing entrepreneurs.
2. The production process has resulted in the formation of a network that has increased the welding size of the entire fabric and textile supply chain. This has encouraged the natural dye business to establish a solid foundation and a strong group that can create added value and quality for products. For instance, the Ampan cotton group has integrated production with a loom that can operate as a small weaving factory, enabling the hiring of more weavers for the network group. Additionally, the networked Karen weaving groups need not invest in machine tools and can produce unique products using their own wisdom faster. Regarding high-quality natural dyes, these can be sent across the network at a fair price, or the knowledge of the natural dyeing process can be exchanged so as to enable self-reliance in the future.

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The Conditions and Guidelines of Action Learning Resources Through Miang Indigenous Wisdom in Mae Kampong Village, Chiang Mai Thailand

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Abstract

The objectives of this qualitative research were to study the conditions of the action learning resources through Miang indigenous wisdom in Mae Kampong Village, Chiang Mai Thailand, key informants consisted of twenty-six respondents, the instrument used was an unstructured interview form, the data were analyzed by content analysis and summarized into issues, and to study guidelines of the action learning resources through Miang indigenous wisdom in Mae Kampong Village, Chiang Mai Thailand; key informants consisted of twenty-five respondents, the data were analyzed by classifying into items. The research results were as follows: 1. The conditions of the action learning resources through Miang indigenous wisdom in Mae Kampong Village, Chiang Mai Thailand consisted of six aspects including 1.1 The social structure of Mae Kampong Village, Chiang Mai Thailand, 1.2 Ways of life, livelihood, and local wisdom, 1.3 Occupations and living, 1.4 Miang planters as an occupation, 1.5 Characteristics, and 1.6 Economics. 2. Guidelines of action learning resources through Miang indigenous wisdom to promote creative education in Mae Kampong Village, Chiang Mai Thailand consisted of the strengths, weaknesses, opportunities, and threats of the action learning resources applying as derived data to construct a model of action learning resources through Miang indigenous wisdom in Mae Kampong Village, Chiang Mai Thailand.

Keywords: Action learning resources, Miang indigenous wisdom, Mae kampong village, Chiang mai thailand

Introduction

Thailand's 20-Year National Strategy (2017–2036) (Thai Government Gazette, 2017, p.27) focused on enhancing competitiveness in terms of creating a future industry and services for creative and cultural tourism by promoting this type of travel by enhancing and managing goods and services with the help of local wisdom, creativity, and cultural capital; supporting the use of new technologies and innovations to enhance the tourism industry, marketing, and site management, particularly for historical sites and regions distinguished by their unique cultures and ways of life, with a focus on Thailand's unique stories; protecting the intellectual property of tourist attractions; encouraging historically significant, culturally significant, and artistically significant cities to register as conservative sites and to gain international recognition so that the cities can develop through imaginative image-building and development planning for urban areas and distinctive tourist attractions; promoting seasonal tourism; including community-based tourism, agricultural tourism, and conservative tourist, in accordance with each region's possibilities.

In accordance with the Twelfth National Economic and Social Development Plan (2017–2021) (Office of the National Economic and Social Development Board, Office of the Prime Minister, Thailand, 2017, p.82) created structures that encourage lifelong learning, with a focus on the creation of resource centers to establish new types of resource centers and to become life, cutting-edge, high-quality, and standardized learning centers in order to inspire people of all ages to be interested in learning and participating in educational activities that can improve Thai people's ability to adapt to future changes, such as the Edutainment Center and the Virtual Library. Moreover, the promotion of reading through contemporary local library services, as well as the provision of chances for kids and teenagers, should also receive more attention in the creation of learning parks at the provincial and regional levels, as well as cooperation between all relevant parties in local communities, which will provide simple access to high-quality, quick, and convenient learning services. Local museums will also be developed as excellent cultural and historical learning centers.

Mae Kampong Village, Chiang Mai Thailand, is a very attractive community that has inherited the heritage, wisdom, way of life, and culture related to Miang since ancient times for more than 200 years. The meaning of "Villager-Forest-Miang as villagers comes from the identity of the indigenous people of Mae Kampong Village who have a way of life living in the forest. There are more than 200 accounts of people utilizing Miang to live with their primary activity, which involves creating Miang to bring the collected Miang, steamed, marinated, and brought to sell in exchange for buying rice to support the family. The Lanna people of the northern highlands of Thailand have an agricultural culture known as "PaMiang," which derives its name from the forest. Miang is planted in forest areas, maintaining the forest and the ecosystem's diversity since ancient times. It is considered the wisdom of the community to manage the agroforestry system. and is the identity of living with the forest of people in Mae Kampong Village, Chiang Mai Thailand. The interesting products are "Miang," which comes from the Miang production culture in which Miang is used for consumption, which has been transmitted from the ancestors in ancient times by making it fermented and crunched as a snack and is a cultural way used to welcome guests and used in various belief rituals.

According to the data of the Ministry of Tourism & Sports (2021), Mae Kampong Village is a 100-year-old village, with most of the villagers migrating from Doi Saket District. Mae Kampong Village is about 1,300 meters above sea level and about 50 kilometers away from Chiang Mai. The houses in Mae Kampong Village are arranged in a row down the valley and on each side of the creek. The area is surrounded by mountains, coffee, and tea plantations, lots of waterfalls, forests, and other lovely natural features. The area also enjoys cool weather all year. There are 132 households, for a total population of 362 people. The residents' primary industries are employment, trade, and the production of tea and coffee. Most of the locals are Buddhists who believe in communal rituals, uphold community standards, and participate in community development. They also have close family and friend relationships. There are numerous ecosystems, a wide variety of natural plant life, and pure air, and water supplies in Mae Kampong Village. Along with a river passing through the village, there are also yellow-red flowers growing next to the creek that the residents refer to as Kampong Flowers. This is the origin of the name "Mae Kampong". (Tomma, 2018)

In addition, Chinwong et al. (2021) indicated that the Miang produced at Mae Kampong Village is well known. The community cultivates Cha Miang to support itself and uses it as a staple food and snack as well as an offering in rituals. Miang has thus been a part of Mae Kampong's daily life and economy for a long time, but in 1981, during his visit, His Majesty King Bhumibol Adulyadej the Great created two projects that would transform the lives of the residents of Mae Kampong. The Huai Hong Khrai Royal Development Study Center was the first initiative to protect water resources and raise living standards in the watershed area. The second initiative was the Teentok Royal Initiative Development Center, which aimed to advance farming, notably Cha Miang crops, and give people the chance to make a living off the land.

Action Learning Resources are the signs of the knowledge sources that have learning activities. By using the learning resources available in the community that are consistent with the potential and identity of the Miang people of the community area. in the upstream forest area in northern Thailand by community participation in various activities mutual learning exchange transfer experience, science, and local wisdom

As a researcher, I recognize Miang as valuable wisdom in Mae Kampong Village that have been transmitted to new generations is decreased, and it becomes a weakness of preserving the production base and services as well as sustainable living. Through knowledge, skill, belief, and behavior from activities created by residents of Mae Kampong Village with learning and adaptation for survival, this research will be a manner of managing community resources with independence, sustainable living, and problem-solving at the community level. Moreover, raising awareness of the roles and responsibilities of new-generation civilians in caring for the forest as a crucial source of the country's treasures will bring about the revival and utilization of Miang wisdom as a strong cultural capital of Mae Kampong Village. Miang culture will be stable and sustainable exist, with the preservation of wisdom, and uplift of to exist with great value.

Research Objectives

To study the conditions and guidelines of action learning resources through Miang indigenous wisdom in Mae Kampong Village, Chiang Mai Thailand.

Methodology

The researcher divided into two phases as follows:

Phase 1: To study the conditions of action learning resources through Miang indigenous wisdom in Mae Kampong Village, Chiang Mai Thailand. Key informants selected by purposive sampling were community leaders, and community committees, including those who are involved in community development in the area, are Mae On District Sheriff, Huay Kaew Subdistrict, community developers, and Teen Tok Royal Project Development Center staff, Watershed Management Center No. 2 staff, Watershed Management Division and Office of Conservation Area Management No. 16, Department of National Parks, Wildlife and Plant Conservation, Chiang Mai Province, for a total of twenty-six respondents. The selection criteria are based on qualifications, including being personnel in government agencies, the responsibility to practice in relation to development in the area, both in terms of knowledge and expertise in their own field, and the respect of the people in the community. The instrument was an unstructured interview. The data were analyzed by content analysis and summarized into issues.

Phase 2: To study guidelines by analyzing the strengths, weaknesses, opportunities, and threats to reflect the best potential of the action learning resources through Miang indigenous wisdom in Mae Kampong Village, Chiang Mai Thailand. Key informants selected by purposive sampling were a group of villagers living in Mae Kampong Village, Chiang Mai Thailand, Huay Kaew Sub-district, Mae On District, Chiang Mai Province, community sage, youths, representatives of community activity groups who voluntarily and continuously participate in community activities in the initial group of villagers, and entrepreneurs living in the same community, such as shops, resorts, Miang planters, relevant villagers involved with the ecotourism community, and entrepreneurs, for a total of twenty-five respondents. The selection criteria are based on qualifications, such as being able to participate in community activities voluntarily and continuously, and they are consensus accepted by the communities. The researchers themselves interviewed the respondents in the research field. The instrument was a SWOT analysis technique (Kotler et al., 2005, p. 58) used to determine and define strengths, *weaknesses*, opportunities, and *threats*. The data were analyzed by classifying them into items.

Results

The research results were as follows:

1. Results of studying the conditions of action learning resources through Miang indigenous wisdom in Mae Kampong Village, Chiang Mai Thailand from in-depth interviews and consisted of six aspects as follows:

1.1 In terms of the social structure of Mae Kampong Village, Chiang Mai Thailand, the current population of Mae Kampong Village has a population of approximately 411 people, 134 households (The Bureau of Registration Administration (BORA), 2021), all of whom are city dwellers or Lanna people who speak the northern language, "Kham Muang" and are Buddhists. Important social institutions are families, temples, schools, community halls, villages, etc. Mae Kampong Village had quite a strong social community. The villagers lived together as dependents, like relatives. By being generous to each other and having faith in the traditions and rituals of the community, there is respect for the rules and regulations of the

community. and everyone in the community is united. Collaborate in community development in all forms according to the occasion and still maintain the traditional way of life, including natural resources, forests, waterfalls, and buildings. This may be because it is a small village where travel has been difficult in the past. Therefore, there are not many investors coming in. Therefore, only local people live. Although social conditions will change the way of life from that of the elders' ancestors, who made an occupation as farmers in Miang, until now, the new generation has gone to study in the city and go to work elsewhere. The family did not live together like before, but there is still a clear kinship system; they still live in the same area or in the same house.

1.2 In terms of ways of life, livelihood, and local wisdom, Mae Kampong Village is a village with an identity that has inherited a way of life of sufficiency from its ancient ancestors, namely the village way of life "People-Forest-Miang". The village identity can be explained through various methods, including

1) Lifestyle identity: "The Identity of Pa Miang People" Mae Kampong Village has a history, background, and culture of more than 200 years. A main occupation that has only been transmitted since the ancestors' time, is gardening Miang and collecting Miang to bring the collected Miang for sale or trade to buy rice, fish, and food to earn their family, and it is still the main occupation for some villagers here.

2) In an identity sense: "Community Forest," under the ancient forest at Mae Kampong Village, has an important identity in that we can see Miang trees growing throughout the area in this community forest area. Some of them are over 150 years old, more than anyone can remember when this Miang tree was already in this forest.

3) In the identity sense: "Miang Indigenous Wisdom", is an important wisdom identity of the Lanna people and Mae Kampong Village, which has transmitted wisdom from ancestors in ancient times. Miang is a tree that grows naturally in the forested watershed areas of northern Thailand. Villagers in Pa Miang grow and collect Miang for sale. Mae Kampong village is conspicuous in its participation in preserving watershed forests and a perfect forest.

1.3 In terms of occupations and living, villagers have a way of life that is closely related to the forest. Most villagers live a simple life. Still, living conditions, activities, and consumption come from things that can be found locally or there might be stores in the neighborhood that sell self-sufficient goods like meat, food, rice, vegetables, fruits, and household products to highlight the community's reliance on agriculture and rely on agriculture for their livelihood from the woodlands around the hamlet with challenging travel. Besides people in the area, at present, there are people of various nationalities and races, including the highland people, the Lua people, the Khmu people, the city people, and foreigners who came to live there for the tourism business as well.

1.4 In terms of Miang planters as occupations, the identity of the Miang planters as a main occupation has been from the ancestors only, which is gardening Miang and collecting Miang to bring freshly collected Miang leaves to sell, or used to make fermented Miang in the old-fashioned way to be traded as a product in another form, income may be either cash or the exchange of goods such as rice, or it may be used to buy rice, fish, and food to feed the family. Miang is used in rituals, caring for guests at various events, and visiting the house even when it is not collected. Villagers have activities related to Miang all the time, such as preparing equipment for making Miang. such as tying Prepare fermentation tanks, fermentation tanks, and firewood for steaming. planting Miang trees Prepare to get rid of weeds around the garden, etc. Thus, there are activities related to Miang throughout the year that have been inherited for many generations. Additionally, there are currently groups engaged in other part-time activities such as coffee farming, winter fruit production, animal husbandry, traditional massage,

hammering, and bamboo weaving. constructing furniture out of wood, growing herbs, blacksmithing, mushrooming, and general contracting.

1.5 In terms of characteristics, villagers generally have a polite character, honor the guests, respect the elders and village philosophers, and generously help each other until it becomes a community culture, for example, from the activities in which villagers will come to help each other in work such as building houses, collecting agricultural products, weddings, funerals, ordinations, etc. There will be employment, but it will still be seen, assisting in community activities such as cleaning communities, and temples, community development, clearing grass, and weirs, planting forests, making fire break lines, etc., as well as sharing food with neighbors' relatives made from raised agricultural products or meat from animals.

1.6 In terms of economics, the Tourism Board of Mae Kampong Village allocates ecotourism money to shareholder members, uses it for strong community development, and uses it for the preservation of the community's environment and natural resources as its primary source of income. Assigned to this eco-tourism activity It is part of Mae Kapong Royal Project Hydroelectric Power Cooperative Activities Co., Ltd.'s activities because the village leaders want this ecotourism to be a revenue generator and distribute income to the community thoroughly because the villagers of Mae Kampong Village are all members of the cooperative in every household. Residual income after deducting expenses. Therefore, when a cooperative makes a profit, this profit comes in the form of dividends for all members. However, they are not yet prepared to take part in community tourism activities, and the villagers who are not yet prepared for this group still reap profits from tourist-related activities.

2. Results of analyzing the strengths, weaknesses, opportunities, and threats to reflect the best potential of the action learning resources through Miang indigenous wisdom in Mae Kampong Village, Chiang Mai Thailand.

2.1 The strengths consisted of:

1) Mae Kampong Village has been famous for its action learning resources through Miang indigenous wisdom for more than ten years.

2) Mae Kampong Village has beautiful natural attractions and abundant natural resources.

3) Mae Kampong Village has Miang indigenous wisdom as an identity, which is an important identity of the community.

4) There is a Miang Museum as a source of information and an exhibit of knowledge and wisdom about Miang and the community as the first and only place in Thailand.

5) The community participates in the management of eco-tourism. and of the community.

6) There are rules and regulations for community measures, tourism measures, conservation measures, and building area measures to conserve forest resources, conservation of wildlife resources, and conservative measures of rivers and creeks, as well as conservative measures of arts and culture.

7) There is a distribution of income to community members from ecotourism activities.

8) Traveling to reach the community is not far from the city. It does not take much time to travel; the tourists can go and come back in one day.

2.2 The weaknesses consisted of:

1) The older generation, who are still working, decreased Miang cultivation. It may be because they are getting older and cannot climb Miang trees to store and make Miang like before.

3) The new generation is not interested in knowledge of the Miang way of life according to the ancient wisdom of the community.

4) There is a lack of Miang quality production, and there are no Miang products that reach the tourist group.

5) There are no action learning activities related to Miang indigenous wisdom that are diverse and interesting.

6) There is a lack of public relations about the identity of the traditional Miang indigenous wisdom of the community and how valuable and interesting it is.

7) There is a lack of academic information about the use of Miang indigenous wisdom in various fields to promote action learning resources.

8) Facilities are not enough to meet the needs of tourists such as toilets, and architects for disabilities.

2.3 The opportunities consisted of:

1) Organize activities of action learning resources for tourists, schools, and agencies who are interested in learning in specific groups and in each age group to increase income for the community in the lifestyle of a one-day trip group or overnight group in various forms including

1.1) Cooperative cooking activities, eating traditional Miang dishes, etc.

1.2) Wellness activities for health and beauty in the form of tourism based on traditional Miang indigenous wisdom.

1.3) Art and culture group activities that are interested in traditional ceremonies such as the Pa Miang Ceremony, trekking, etc.

1.4) Activities to learn the way of life of the Pa Miang people, such as Miang indigenous wisdom to preserve the forest, etc.

2) Promote the creation of awareness in preserving and inheriting Miang indigenous wisdom for community people and tourists who visit to learn and realize the importance of the Miang indigenous wisdom that has inherited the identity since ancient times to remain

3) Request cooperation and support from various agencies in providing academic knowledge and a budget to increase knowledge for people in the community to be used to develop learning activities.

4) Develop available websites to keep current information to be used in tourism databases, such as maps and action learning resources for the community.

5) Develop information systems such as signposts to be available in Thai, English, and Chinese.

6) Preparing manual materials for presenting Miang indigenous wisdom to interesting tourists and people in the community to get to know and learn the value and interest of the Miang indigenous wisdom existing in the way of the community.

2.4 The threats consisted of:

1) The area in the community is quite limited both in part used as activities and routes for tourism activities suitable for tourists of each age generation such as narrow roads, hills, curves, etc.

2) Villagers rarely have time to provide Miang indigenous wisdom for action learning resources. They pay attention to providing homestay for business income.

3) The area of transportation is quite limited, such as the narrow street, traffic signs, and parking area.

4) As a result of popular consumerism trends, the new generation is not interested in consuming traditional Miang.

3. Results of studying guidelines of the action learning resources through Miang indigenous wisdom in Mae Kampong Village, Chiang Mai Thailand.

3.1 Environment: Review existing action learning resources, determine whether creating a resource is necessary for stakeholders, review published resources and materials, and decide whether they are appropriate for action learning resources if they can be modified (with permission) through Miang indigenous wisdom.

3.2 Awareness raising: encourage, support, and inform action-oriented activities and reflection through Miang indigenous wisdom in support of greater cooperation with wider development issues, goal information, understanding, and participation.

3.3 Global education: link local and global issues in terms of environmental, economic, political, and social aspects through Miang indigenous wisdom with appropriate action by the learner in an actor-centered manner that focuses on understanding, responsibility, and capacity-building action.

3.4 Life skills: empower personnel development to develop activities that promote the use of learning resources through Miang indigenous wisdom in the era of social change in learners both individually and socially to construct their own meaning as they learn about their local community and world society.

3.5 Public relations: development cooperation in marketing with a direct focus on agencies; developing learning resources through Miang indigenous wisdom; information technology system development via websites to be ready and can be used effectively by encouraging stakeholders to participate in the evaluation of the use of learning resources for development information. Learning resources can be used to organize effective learning activities in the future.

Discussions

The authors selected the significant issues to discuss as follows:

In terms of ways of life, livelihood, and local wisdom, Mae Kampong Village was a village with an identity that inherited a way of life of sufficiency from its ancient ancestors. This identity can be explained through various methods, such as lifestyle identity, community forest, and Miang Indigenous Wisdom. The main occupation of the community was gardening Miang and collecting it for sale or trade. The community was also involved in preserving watershed forests and a perfect forest. It was similar to Interatep et al. (2017, p. 275) studied the state of problems and development of local herbs consumption wisdom transfer for green living in the community, Srakaew province, this results in people who could use the herb in everyday life in the community gradually decrease. A new generation was uninterested in herb conservation and use, and there is no written record of wisdom. There were also not enough leaders and support organizations to transmit these ideas. Traditional medical knowledge was spread through telling and doing, not through a structured process. Herbs in the garden and forest around the home decreased as a result. It might have an impact on biological resources. By tending to the restoration of the forest as a source of herbs and nurturing the planted area in the garden surrounding the house for convenience and creating a beautiful environment for the community, the growth of the transfer of using traditional herbs wisdom should be supported. By covering every aspect of preservation, use, and processing for both food and medicine, we should systematically improve the pattern of wisdom transfer.

In terms of the environment that reviewed existing action learning resources, determine whether creating a resource is necessary for stakeholders, review published resources and

materials, and decide whether they were appropriate for action learning resources if they can be modified (with permission) through Miang indigenous wisdom similar to the finding of Pakkantorn & Ounvichit (2017, p.120-121) who studied the quest for a community learning management model for informed environmental decisions, implementing the environmental management principles. The students put their environmental management principles to the test at this stage to see if they work in real-world scenarios. They modify the rules to fit the situation locally. They can also set up a participation procedure so that locals can offer feedback on the management principles. Increased participation may result in the adoption of a local rule for environmental management and inspire locals' interest in collaborative environmental monitoring. It is quite different from the study of Teeranon et al. (2021, p.93) who studied the UNESCO factors affecting building Phayao learning city of Thailand, revealed that UNESCO characterized a learning city as a tool for improving the community well-being, life quality, and resilience through a variety of lifelong learning platforms, including the learning space, the workplace, and even the family. Learning cities require the efficient deployment of resources, such as people, money, rules, culture, and local knowledge. A learning city offers sustainable environmental protection in addition to benefits for the economy and the quality of community life. Likewise, Rizal et al. (2022) studied the development of sustainable coastal benchmarks for local wisdom in pangandaran village communities, it was found that the environment needs to be protected over time in order for it to be used as a big communal shelter rather than just being quickly exploited. Everyone has the right to a decent and healthy environment, which was proof that the environment is being protected and preserved. This indicates how the environment was guaranteed by and protected by the Constitution. It also directed the development of the concept of environmental preservation and protection.

In terms of awareness raising, it is encouraged, supported, and informed action-oriented activities and reflection through Miang indigenous wisdom in support of greater cooperation with wider development issues, goal information, understanding, and participation. Similar to Muenjaem (2021, p.231) who studied the consciousness raising in preserving Miang Pa Pae local wisdom through the participatory learning management integration, the results of creating and developing a model for creating awareness of the preservation of Cha Miang local wisdom of students through a participatory learning process found that a model for creating awareness in preserving Cha Miang local wisdom consisted of four components: the principles consisted of the principle of participation, learning management in the 21st century, and learning management that integrated local wisdom; the model objective was to raise awareness of the preservation of Cha Miang local wisdom; the process of raising awareness in preserving Cha Miang local wisdom consisted of raising awareness, preparing a manual of Cha Miang local wisdom; and conditions for success consisted of knowledgeable teachers and understanding of Cha Miang local wisdom learning management.

However, Matchimabura (2020, p.45) studied the promotion of citizenship awareness and service learning and found that citizens see the importance of participating in citizenship, e.g., becoming a member of the community and trying to develop the community, taking care of the community by trying to take care of its needs, development support economy or environmental protection, knowledge of how the state works, and knowledge of strategies to achieve the purpose of working.

In terms of global education, Miang indigenous wisdom is used to link regional and global challenges in terms of the environment, economy, politics, and social aspects with appropriate action by the learner in an actor-centered approach that emphasizes comprehension, responsibility, and capacity-building action in line with Rattanachuchok (2016, p.74-75) who studied an application of information technology for studying

conservation of local wisdom in the area of Muang Kaen Pattana Municipality, Mae Taeng district, Chiang Mai province, the findings revealed that the system development life cycle (SDLC) included system analysis and design, preparation of decomposition, context diagram, data flow diagram, and database design, preparation of media storyboards for presenting local wisdom information, and development of the system in collaboration with community representatives and creation of teaching and learning materials that helped conserve local wisdom, according to the findings. community involvement in the creation of an information system for instruction in the preservation of indigenous knowledge.

Correspondingly, Bateman (2022) indicated that indigenous wisdom right across the planet was grounded in what was called 'law of the land' not 'law of man', and what we were saying as wisdom keepers were arguing that without taking into account indigenous wisdom, indigenous knowledge, indigenous science, and indigenous law, it will be impossible to right-size the planet after COVID.

Moreover, Interatep et al. (2017, p.275) studied the state of problems and development of local herbs consumption wisdom transfer for green living in the community, Srakaew province, the results showed that the procedure should consist of three steps: education, attitude development, and skill training. The information should be transmitted using a range of techniques, including lectures, media use, case study analysis, and practice. It is important to offer learning tools like video. Students must focus on developing knowledge and a positive outlook on herb conservation and use in order to live sustainably in their communities.

In terms of life skills, the empowerment of personnel development to develop activities that promote the use of learning resources through Miang indigenous wisdom in the era of social change in learners both individually and socially to construct their own meaning as they learn about their local community and world society.

It was consistent with Wunthong (2016, p.81) who studied the effect of using an activity model for youth's life skill development in 21st. Century by local wisdom in the area of Phlaichumphon, Muang Phitsanulok, the youths showed their life skills mostly in the area of flexibility and adaptability, followed by initiative and self-directed, leadership and responsibility, productivity and accountability, and the least employed skills were found on social and cross cultural skills and the areas with the lowest behavior are social skills and cross-cultural learning. The most common behaviors in this area are behavior which was related to being able to recognize the difference in intelligence and current knowledge and the lowest common behavior is behavior that involved accepting differences between individuals.

It may be because of the highlight of Mae Kampong Village produces Miang as its main product. Miang is not only for sustenance but is also attached to the trading system. which is the main income of people in the community since the past It is the relationship of the dependence of the people of the highlands and the lowlands. At present, Miang trade has changed from exchanging rice with Miang came to a cash trade, which can be bought in the general market in the north, to a stepfather, and stepmother who is a middleman in buying Miang from the community to sell to various areas with a car to transport Miang instead of cattle traders. Serves to help connect the Pa Miang community with the network of markets both in cities and communities with the trend of consumerism, the new generation consumes less Miang. Tourism is the mainstay of the neighborhood economy. In order to adapt, the people grew different crops. assimilated into the forest while keeping Pa Miang to protect the forest environment and used as a component of the ecotourism businesses that the neighborhood runs to make money. community in the creation of an information system to support learning and the preservation of indigenous knowledge.

Conclusion and suggestions

It can be concluded that the Miang indigenous wisdom of Mae Kampong Village contributes to sustainable community development. The people in the Mae Kampong Village in Chiang Mai, Thailand, consume habits, ways of life, and wisdom. The inhabitants of the Mae Kampong neighborhood of Chiang Mai, Thailand. Only a few of the locals gave Miang any thought as a potential herbal remedy or supplement. Miang was used in numerous religious and regional rites in addition to being food and medicinal. Miang, such as Cha Miang farming and tourism, have changed the economic landscape of the community and are now the main source of revenue in several homes. The community's culture, economy, environment, and way of life have all come to embody Miang. Miang's sustainable development supports and promotes the old existing culture that might be neglected and turns it into a sustainable community-based local wisdom, and the community continues to value and maintain the Miang culture for present and future generations. Miang history and knowledge have come a long way.

New knowledge and the effects on society and communities

According to the studying of the action learning resources through Miang indigenous wisdom in Mae Kampong Village, knowledge of wisdom information found that participation in proposing local wisdom information and collaboratively selecting wisdom that should be preserved by representative groups within the community fully cooperated to support the information. It also helps to verify the accuracy of the local wisdom information was also added Miang indigenous wisdom, Miang ancient wisdom production, Miang trading wisdom in the past, cultural wisdom of farming Miang consumption in daily life, cultural wisdom uses of Miang and traditions, local tourist community, belief rituals, and introducing the wisdom of the Pa Miang people in connection with the principles of the King Rama IX' philosophy of sufficiency Economy Theory.

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The Social Networks Development for Establishing Measures for Preventing and Controlling the Negative Impacts and Controlling the Negative Impacts of Online Games Among Children and Youth

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Abstract

Online games are now the new mainstream of the gaming industry due to their ability to reach a wide range of people, especially children and young people, who may encounter negative impacts from playing online games. Therefore, this study aimed to examine measures to prevent addiction to games and the dangers caused by playing online games among children and youth by using various research and development processes. This research employed a purposive sampling technique with public and private stakeholders. The results showed that measures to prevent game addiction and the dangers caused by playing online games set for schools can be summarized as Prevent - Investigate - Precautionary - Activity creation - Remedy (PIPAR). Implementing the results from research studies emphasizes on driving at all levels concretely. As for the practical level, it should be implemented in an integrated way with routine tasks and operate in a network to promote creative online games and prevent game addiction and the dangers caused by games to youngsters on a continual and sustainable basis.

Keywords: Social network, Children and youth, Online games, Game addiction, Measures

Introduction

Since the COVID-19 outbreak, Thailand has been completely pushed into the Internet world. It was found that between 2019 -2020, internet users increased by more than 13%, from 44.4% to 57% (Statista Research Department, 2022)^b. In 2020, Thailand was ranked 5th in the world, with people between the ages of 16 and 64 using the Internet daily, spending more than nine hours per day on average (Kemp, 2020). Although it has lower internet access rankings, according to the survey in February 2022, Thailand was ranked 18th in the number of Internet users worldwide (Statista Research Department, 2022)^a, the number of people accessing the Internet continues to grow. In January 2021, the number of Thai internet users is approximately 48.59 million or 69.5% (Kemp, 2021), and will reach 77.8% in 2022 compared to the same month last year (Kemp, 2022).

Easy access to the Internet is a key factor that increases access to online games in Thailand. Another critical factor is the growth of smartphones. It is well known that the "gaming industry" is growing exponentially, especially in the current COVID-19 crisis causing people worldwide to use this service increasingly (Marketeer, 2021). It is estimated that the value of the global gaming industry was approximately 146 billion US dollars in 2019, which is higher than the value of the music industry and the global box office in 2019, two and three times, respectively. In 2021, there were 2.8 billion gamers, of which more than 2.5 billion people played games via smartphones, and in 2023, the game market will be worth up to 218 billion dollars (Marketeer, 2021). As for Thailand, at the beginning of 2022, the number of gamers reached 32 million, or 47% of all Thai people. It has a market value of over 1.1 billion US dollars, growing over 10% year-on-year (Marketeer, 2022).

If considered only economic impact, it is a good thing. Nevertheless, the impact on other aspects, mainly social and public health, may still be a problem that needs solution and prevention before it becomes a chronic social problem. More importantly, problems occur with children and youth who are vulnerable groups. They need to be protected from the adverse effects of playing online games. According to the Youth Radio and Media Association of Thailand's research, Thai children's game-playing affects behavior and health. For example, violent game content is inappropriate for the age range, or playing games that take too much time. According to the data collection among students in grades 1-6, including vocational colleges and universities, 3,292 students, or more than 85% of the participants, answered that they had played games. It was found that almost one-third played video games daily, and 10% played more than five hours a day. While on weekends, 18.05% of the sample played more than 8 hours a day (Social Communication Work Group, National Health Commission Office, 2021). In a study conducted by Bhatiasevi and Pholpirul (Bhatiasevi, 2020), it was found that more than 79% of children and young people play violent action games. While in many other countries, the age control of game players is taken very seriously, in Thailand, this is not the case, reflecting signs of neglect or a lack of understanding in letting Thai children and young people overly play games. The study also revealed that more than 40% of children who play games accepted that people say that he is addicted to video games and know that the game has gambling. Almost 20% have strong emotions, arguing with family and getting ruder. The most worrisome is that 5.71% of the sample group showed introverted behaviors by not going to school or not talking to anyone if banned from playing the game.

In mid-2019, the World Health Organization (WHO) officially announced that the state of gaming addiction is considered a disease, called a "Gaming Disorder," like drug addiction.

The main symptoms were being obsessed with games, spending more than three hours a day playing, irritability, and anger when told to stop playing or unable to play. The number of Thai children playing the games mentioned above and the number of people who may be addicted to games is relatively high. Classifying gaming addiction as an illness is a signal to prevent adverse effects on children and young people, such as hindering brain development. It is a developmental problem both physically and emotionally. It can also cause other problems, such as social skills and behavior problems. The deviant behaviors include imitating violence in the game, perceiving games as a virtual world, gambling, lack of relationships with people around, or even the delinquency of children and young people, which has often been seen in the news. At the same time, the children and young people who play too many games have poor physical health, academic performance, undesirable behavior, and social relations (Bjatiasevi, 2020).

The impact of excessive gaming seems obvious. The Thai government sector is aware of such concerns and try to prevent and solve game addiction problems among children and youth. Both of issuing some regulations and encouraging every community to have a public space for activities suitable for the residents' lifestyle and the children's needs to make good use of their free time (Department of Children and Youth, Ministry of Social Development and Human Security, 2020). However, such problems show no signs of diminishing, especially during the COVID-19 pandemic, when children and youth can spend more time with computers and smartphones.

In the ever-changing world of technology, online gaming is included as one of the sports. At the 2021 SEA Games in Hanoi, Vietnam, Thailand won a gold medal at the FIFA Games (Ayman, 2022), not to mention the global success that Thai youths were able to bring their teams to compete abroad and win the first prize with over \$107,000 in prize money (Sportskeeda, 2022). Inevitably, it leads to a strong impetus and motivation for children and young people to enter the online gaming industry. Thus, parents need to balance proper support with giving up otherwise young people may lose their futures. It leads to the search for appropriate solutions through the school and in conjunction with the creation of social networks to encourage measures to prevent and control the harmful effects of online games, with the acceptance of the changes that technology has brought. After all, they will grow up with online games.

Internet Gaming Disorder (IGD)

In the past, the Diagnostic and Statistical Manual of Mental Disorders Fifth edition: DSM-5 by the American Psychiatric Association (American Psychiatric Association, 2013) did not officially define gaming addiction as a disease. Nevertheless, it is classified as a category three disease that still needs more research by referring to game addiction under the name "Internet Gaming Disorder – IGD. Over time, the World Health Organization (2018) listed gaming disorder as a mental, behavioral, or neurodevelopmental disorder. It is classified as an addictive behavior in the ICD-11 for Mortality and Morbidity Statistics, playing games for long periods in which players cannot control themselves to play in the specified time despite the adverse effects on themselves (World Health Organization, 2018). These players often play continuously for more than 12 months (Son et al., 2021), or may be shorter than that if showing other severe symptoms that relationship problems with family members arise and become a social problem (Li et al., 2022). The symptoms can be divided into three levels (Young, 2009).

1. The symptom of playing games is caused by oneself or playing with friends. It is a group of friends with the same likes discussing the same game.

2. Infatuation, obsession, fascination, fun, enjoyment, and pride in being able to play games.

3. Being Addicted and preoccupied with games is similar to drug addiction, not eating, not sleeping, not doing tasks that should be done, causing negative effects on oneself and others.

However, based on the observation of children and adolescents addicted to games, their behavior is like substance dependence patients and pathological gambling patients, who want to win more when winning. So, they feel fun and enjoy playing the game and will feel frustrated and restless, neglecting the tasks of their daily lives when they are prevented from playing (Charoenwanit, 2014).

Game addiction can occur in both children and adults. In the case of a child, parents or guardians play the most critical role in supervising the gameplay. The impact of gaming, especially among those who play online games, is enormous. Children have several risk factors that are more susceptible to IGD, including stress, depression, anxiety, and financial problems (Kim et al, 2018). One of them is violence. Parents play an essential role in preventing and solving game addiction. In this study, it was found that the father-child communication style can mediate between aggression and gaming addiction. If the child has open communication with the father, it will reduce the chance of IGD. However, if it is problematic communication, the result will be in the opposite direction.

Online gaming addiction in children and young people can be explained through traditional theories, such as Freud's Psychoanalytic Theory. It considers personality-driven forces to come from physical and mental power, which are mental powers under the subconscious mind that aim to win against each other. It shows the instinct of aggression. Violence tends to be based on emotions rather than affecting expressions. In addition, Freud's ideas address the defense mechanism of displacement, to escape from the real world or from things that are not happy, causing children not to like studying because it is complex, confusing, and complicated. They tend to hide into playing games that make themselves happy. It is the mechanism of the body, an escape from the real world to protect oneself from problems (Koedprang et al., 2020).

Meanwhile, Bandura's Self-Regulation Theory proposes that it becomes a vital pathway for children to switch from playing games for pleasure to becoming addicted to them (Paulau et al., 2018). Because children and youth learn to regulate themselves, they will know how long the game playing is appropriate and not harmful. They would be just a game player for entertainment only.

Childhood is considered the age of imitation. According to a study by Hutarom (2007), the supporting factors for reducing online gaming addiction among youth in the sample group were family factors that could create discipline and be good role models for children. Factors relating to the youth include the ability to control themselves and awareness of the dangers of playing games. The obstacle factors that cause children to have game-addicted behavior are community environments that stimulate children's interest in playing games. Factors related to fun online games persuade children to like, excite, or make children use to replace what is missing in them, making them cling to friends and rely on them instead of good relationships within the family. An important mechanism is an environment that models both good and bad for children.

The environmental factor concept can be explained by Socio-Ecological Models that the behaviors of children and youth are often influenced by the social environment surrounding them. Paulau et al. (2018) stated that external factors that play a role in children's addiction to video games are three essential factors, namely family factors, whose results indicate that families with violence and lack of child supervision are more likely to cause children to develop IGD, a social factor, which manifests itself in interactions between players during online

games. If the interaction is much more robust, game-related factors can be seen that online games are more incentivized for children to play than offline ones. Moreover, modern games are designed to be beautiful with never-ending play and was rewarded with promotion in an environment that lures children into these game traps.

Establishing a collaborative network to create measures to reduce the negative impacts of online gaming on children and youth

A collaborative network means although individuals, groups of people or organizations are much different in terms of operations, culture, social capital, and goals, they can work together to achieve the goals that have been set together by supporting and helping each other (Camarinha-Matos & Afsarmanesh, 2006, p.28). This collaboration brings together the different strengths and weaknesses of the network as well as different abilities and resources to achieve the goals set (Muijs et al., 2010).

Numnam (2012) describes the working network, which consists of two theories. The first is the Exchange Theory; the exchange of benefits between each other is the main reason for making the network happen voluntarily. That is, each party sees the benefits that they will receive from joining the network. This will lead to a willingness to harmonize or join a network. Another theory is the concept of synergy, which the equation can explain $1 + 1 = 3$ or $2 + 2 = 5$, meaning that the synergy of work leads to a multiplicative or stronger result than each organization works alone, with the belief that combining forces will create multiplied values.

The use of collaborative networks to address IGD in children and youth in Thailand has appeared in several cases. Most of them have focused on suggesting that stakeholders with children and youth can take part in solving the problem. These stakeholders usually include parents, entrepreneurs, schools, and communities (Praiwanrat & Jitrasataporn, 2011; Watcharaach & Rukkwamsuk, 2020).

Meanwhile, China has imposed rules on video game playing among those under 18, requiring games to be played between 8 pm and 9 pm on Fridays, weekends, and public holidays to prevent IGD (Plavevski, 2021). However, it is impossible in Thailand to control children by setting such rules. However, coordination between the government, civil society, and the private sector is essential, while schools and family institutions are the ones closest to children and young people. Collaboration with related agencies will be a way to solve the problems of children addicted to games in the long term. It can be explained by Bronfenbrenner's Ecological Systems Theory which describes the outermost layer of the environment. It will result in a connection to the innermost level, which is the child itself (The Psychology Notes Headquarters, 2019).

Research Objectives

1. To study the situation, condition factors, and effects of online game playing among children and youth.
2. To develop collaboration network for setting the measures for preventing online game addiction among children and youth.

Methodology

This study uses Qualitative Research with the Research and Development methodology with five research steps, as shown in Figure 1. The details of each operation step, together with the study results, are shown as follows.

Step 1 (R1): The process aims to analyze and synthesize knowledge related to problem conditions, approaches, or measures used to solve the problem of online game addiction and the needs or proposals for development through the process of;

1. Documentary research by analyzing and synthesizing documents related to research studies, consisting of literature and research, both Thai and foreign, related to the nature and form of online games, problem conditions, conditional factors related to the problem, and the impact of playing online games among children and youth.

2. In-depth interviews with children and youth groups, experts, online game operators to obtain basic information about the problem condition related to conditional factors and the impact of playing online games among children and youth including the need to prevent and control online gaming and current measures or practices. The research tools were semi-structured interviews with key informants, who were willing to participate in the research using purposive random sampling and can be divided into:

- Children and youth in educational institutions from secondary and primary schools in Bangkok and its vicinity, four schools, totaling 18 people. They should have experience playing online games, spending at least three hours a day on the game, selected by teachers based on the aforementioned requirements.

- The family of the above students, totally 3 persons.

- Five educational institution representatives; two administrators from primary education institutions, two administrators from secondary education institutions, and one representative of the Office of the Basic Education Commission, Ministry of Education.

- A group of experts in psychology, psychiatry, sociology, and law enforcement (including representatives from the Technology Crime Suppression Division: TCSD and Cyber Crime Investigation Bureau: CCIB), totaling five people.

- Stakeholders are representatives from various sectors, including the public or civil society, Entrepreneurs involved in the gaming industry, Department of Children and Youth Affairs, Digital Economy Promotion Agency, Ministry of Culture, Film, and Television Review Bureau, and various related sectors, totaling 11 people.

In the data analysis in step 1, a typological analysis was used.

3. Requirements and proposals for the development of measures to prevent and control the negative effects of playing online games among children and young people.

Recommendations of key informants from educational agencies, law enforcement agencies, relevant agencies, and civil society about the prevention of game addiction and the dangers are as follows: 1) promoting knowledge and understanding to build immunity for students, teachers, and parents; 2) Educate parents on how to teach their children disciplines in playing games to their children; 3) Develop teachers to know how to teach in the course and develop learning materials about online games; 4) Use parental networks to communicate advice and suggestion; 5) Assessment, screening, and monitoring of online gaming behavior of children and youth; 6) Promote the organization of a variety of activities to divert attention from playing games; 7) Strengthen family relationships and networks to better take care of children and youth; 8) Build pride among children and youth in order to create valuable identity in the real world; 9) Educational institutions and network partners jointly organize activities to

enhance life skills; and 10) Correct and cure children and young people's online game addiction behavior.

Step 2 (D1) is a step in designing and building a framework for preventing game addiction and the dangers caused by playing online games among Thai youth and evaluating the systems and mechanisms for implementing measures. A total of six small discussion groups were held by the research team together with related experts, totaling nine people.

Step 3 (R2) is the step to verify the effectiveness of measures from the previous step. This step employs the method of Connoisseurship to examine the effectiveness of measures to prevent game addiction and the dangers of playing online games and to examine the system and mechanism for implementing the measures. The research participants consisted of experts in psychology, psychiatry, sociology, social work, education, media and information technology, including representatives from the Division of Children and Youth Affairs, Ministry of Education, Department of Mental Health, and other related sectors, totaling ten people.

Step 4 (D2) is the step to improve and develop measures to make them suitable and useable as a prototype. A workshop/small group meeting was held three times by the research team together with experts, totaling eight people. The first draft of the measures for the prevention of game addiction and the dangers caused by playing online games among Thai children and youth and evaluating the systems and mechanisms for implementing measures have developed as a product of this step.

Step 5 (Final step): It is the dissemination process to drive and expand the measures to prevent game addiction and the dangers caused by playing online games among Thai children and youth by organizing dialogues with representatives of essential agencies and those involved in implementing and driving measures in practice, totaling 15 people.

In analyzing the data in steps 2-5, content analysis was used.

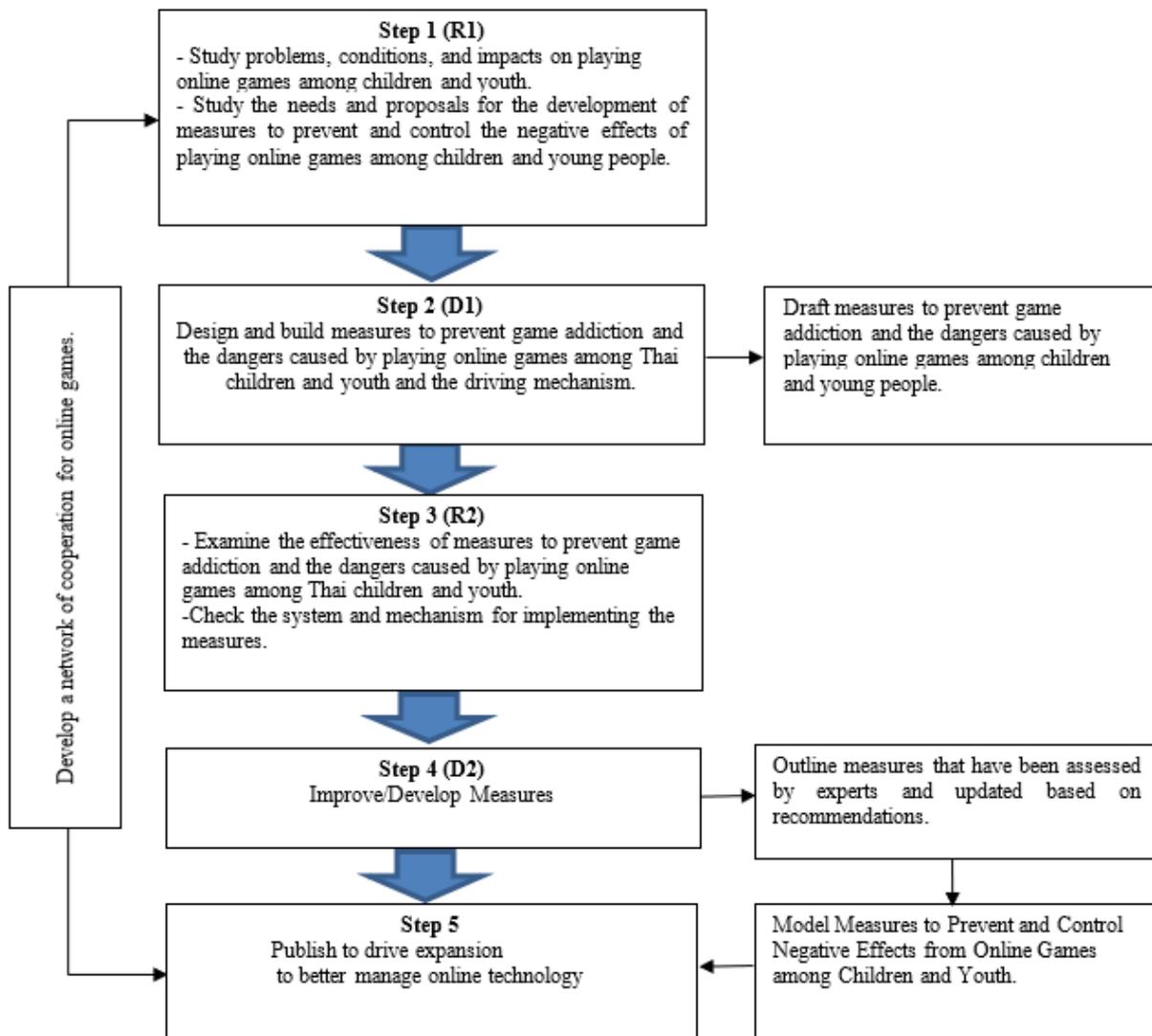


Figure 1: Research procedures with R & D research model to create a network and set measures to prevent and control the negative effects of playing online games among children and youth. (Source: Researcher, 2023)

Results

Result of the study in step 1:

Condition of the problem conditional factors and the negative effects of online games among children and youth in Thailand.

The current problems of online games among children and youth in Thailand reveal significant growth in the number of gamers. The number of video game addiction cases in children and adolescents is increasing yearly, together with deviant behavior problems. An interesting situation related to playing games for Thai children and youth is the growth rate of the game industry increasing. Most online game makers are foreign manufacturers. As a result, it is not easy to supervise game content. Currently, Thailand has declared e-sports to be a professional sport. However, there still needs to be a law directly controlling online games. Moreover, Thai parents rarely have time for their children; as a result, children are more likely to go online to play games.

Results from steps 2 – 5:

1. Model Measures to Prevent and Control Negative Effects of Online Games among Children and Youth

Based on suggestions from the above cooperation networks, preventive measures for game addiction and the dangers caused by playing online games for children and youth which has been given suggestions from stakeholders. It can be categorized into five sub-measures, which mainly focus on the mechanisms driven by educational institutions. Because it is an institution that is very close to the students with a focus on coordinating with the student's family. Measures can be summarized as "PIPAR"; Prevent - Investigate - Precautionary - Activities creation – Remedy. The main responsible body is the school committee and the parent network committee with supportive networks and/or agencies including the Ministry of Education, Office of the Basic Education Commission (OBEC), Educational Service Area Office, psychologist at the Office of Educational Service Area, Department of Children and Youth Affairs, the Coordinating Center for the Promotion and Protection of Children and Youth in Online Media Use (COPAT), Department of Mental Health, Department of Women's Affairs and Family Development, and hospitals or nursing homes in the study area. Details of each measure are shown in Table 1.

Table 1 ‘PIPAR’ Measures and Implementation Guidelines

Measures	Implementation
1. Prevent: Raise awareness and understanding among students, teachers, parents, and the community.	<ul style="list-style-type: none"> • Focusing on educational institutions to play the role of knowledge providers and promoters of the understanding of online gaming addiction preventive care, troubleshooting, and remedies, including raise awareness of direct and indirect dangers and dangers arising from playing online games and E-Sports to teachers, parents, students, and communities. It also trains teachers to apply knowledge about the proper use of online games in their teaching as well as knowing how to use the game addicted child test as well. • Establishing or using parental networks to communicate information about online gaming addiction among young people and practice observing their children, including emphasizing on creating joint activities between families and students to build good family relationships.
2. Investigate: search, assess, and screen online game addiction behavior	Emphasis on support for educational institutions to establish a school operating committee which is responsible for assessing, screening, categorizing risk groups based on online game addiction behavior among students in order to be able to monitor the risk group students appropriately.
3. Precautionary: Supervise and monitor online gaming behavior	Focus on educational institutions track online gaming behavior, gambling on online games, and playing E-Sport of students through the observation of the advisor. This may be a home visit or an online meeting with the student's parents.
4. Activities creation: Promote a variety of activities to create choices for students.	<ul style="list-style-type: none"> • Emphasis is placed on educational institutions to cooperate with external agencies in recreational activities, life skills enhancement activities, career activities, creative activities or other activities suitable for the age of students as well as the socioeconomic of family and local culture. • The acceptance of organizing e-sports game competitions in educational institutions along with educating about the discipline of a sportsman. Encouraging educational institutions to focus on honoring students in various abilities, not focusing only on academics for children to be proud of themselves. •
5. Remedy: Fixing and treating youth's addicted online gaming behavior	<ul style="list-style-type: none"> • Focus on educational institutions to coordinate with relevant agencies together with the implementation committee on the second measure to be able to classify students according to the level of severity of online game addiction behavior by assigning at-risk students with a mild to moderate level of severity or begin to have problems playing the game. • Class teachers, guidance counselors, and/or health teachers, and/or psychologists in educational areas are required to follow up, take care of, correct, and prevent recurring behavior problems. If the behavior does not improve, the educational institution shall follow the doctor's advice and coordinate with parents to refer students for public health treatment on a case-by-case basis or contact the MOE Safety Center* to solve problems urgently.

* A standard system developed by the Ministry of Education, Thailand, for helping students to have quality learning with happiness and mind and body protection. Students, teachers, and the general public can contact directly to MOE Safety Center through digital platforms, in case of feel unsafe.

2. The mechanism for driving the prevention network for game addiction and the dangers caused by playing online games among children and youth at the policy level in Thailand.

To implement the measures developed to be efficient and effective, there should be co-driven action from schools and various departments through the formulation of key policies by the ministry in charge of basic education, and coordinate policies with relevant agencies through key policy steps as shown in Figure 2.

3. Cooperation network developing for setting and implementing the measures for preventing online game addiction among children and youth.

This study has collected information from networks directly and indirectly involved in the prevention of online gaming addiction. The discussion meetings were held to create possible preventive measures in steps 2-5 in the above research process. However, these measures were not successful without the cooperation of the important networks. The major parties and their duty in the corporation network are shown in table 2.

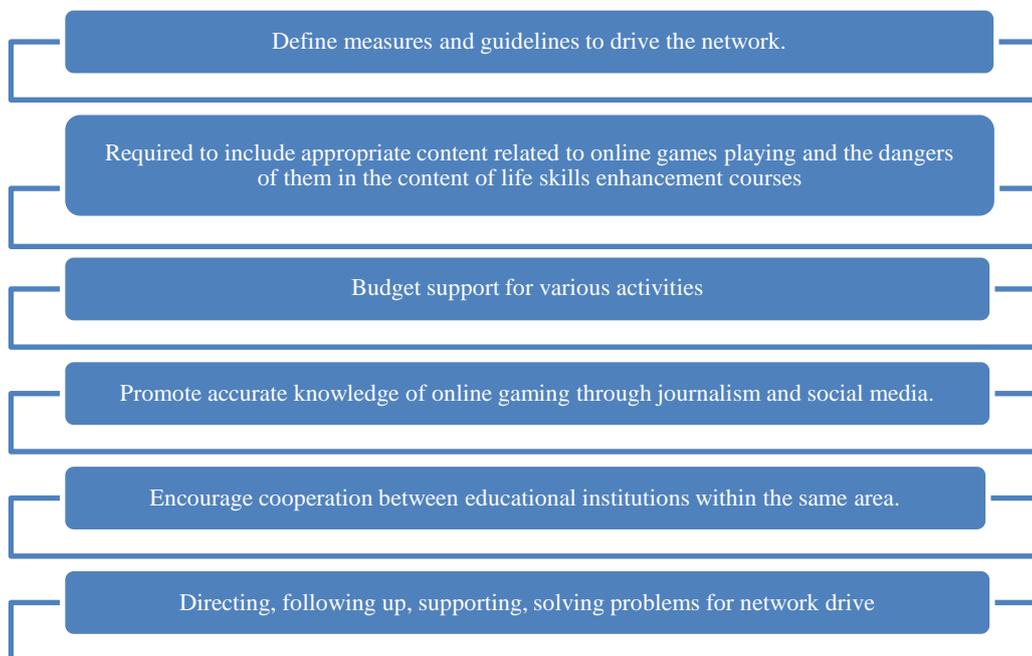


Figure 2 Policy mechanisms to drive the network for the prevention of gaming addiction and threats by playing online games children and youth in Thailand. (Source: Researcher, 2023)

Table 2 Scope of duties of each party in the cooperation network

Party	Scope of duty
Family	Reach out and create understanding with children or young people in their parents about the negative effects and potential dangers of playing online games. Engage children in determining appropriate online games.
Educational institutes	Corporate with parents for preventing and solving the negative impacts of online game. Encourage students to play creative and safe online games and instill gaming discipline in children and young people.
Ministry of Culture	The major player who plays a direct role in controlling online game content, especially in online game rating, together with related parties.
Ministry of Digital Economy and Society	Focus on promoting the production and development of creative and safe games for young people. Take into account the promotion of the economy along with encouraging entrepreneurs to have social responsibility as well.
law enforcement agencies	Receiving reports and prosecuting in case of hidden threats associated with illegal online games.
Thai Media Fund	Supporting grants to support and encourage studies, research or creative innovation, including the production of creative online games.
Department of Children and Youth Affairs	There is a legal role to directly supervise the use of online media among children and youth.
Entrepreneurs in online game industry	Emphasize the balance of promoting the game industry, showing social responsibility in protecting, and keeping children and young people safe from playing online games.
Civil society	It is an important social force to collectively monitor or observe online games that are not creative and safe for children and young people, and be a voice for the people.

Discussions

The development of a social cooperation network to jointly create measures to prevent game addiction and the dangers caused by playing online games among children and youth. The focus is on all social elements from the level closest to the child, namely family, community, and school, to the expansion of the network that connects the public and private sectors involved in the management of online games in all of Thailand. When considering the school as a center for preventing problems from game addiction, cooperation between sectors needs to be achieved. For the school, the parent agency that directly oversees is the Ministry of Education which responded to the efforts to drive networking and collaboration from affiliated schools as reflected in this research. This is a good sign for putting this research into practice. As for the cooperation model, there is also a need for strong support from the parents'

association and the surrounding community. Although studies on online gaming addiction are increasing in academic circles around the world, there is a void in specifying roles and responsibilities as well as very few concrete policies for different departments (Vondráčková & Gabrhelík, 2016). Even in Europe, few studies have identified specific policies to deal with the problem (Lopez-Fernandez & Kuss, 2020).

One may wonder why law enforcement is not applied instead of school-driven measures. Carras et. al. (2021) noted that although there are examples of legislative-based measures to tackle childhood online gaming addiction, such as the draconian policy of game time limits of China, these measures may not be the right way to solve the problem because of being deprived of playing games may lead to frustration and other inappropriate behaviors. Therefore, there may be better paths than using the law.

According to this research and development process, which has mobilized opinions from all digital media curation networks in Thailand, it was found that these networks see the problems arising from excessive online gaming among youth and the public. The same is true of the benefits found in playing online games. It is just that awareness has different levels depending on the level of exposure to the problem, which, of course, appeared with those under the Ministry of Public Health and under the Ministry of Education the most, because they are close to youth and who are exposed to aggressive behavior, poor grades, or poor health. The conclusions that go through the process of debate, discussion, and review during the development of such measures, give a clear picture of the concepts involved in educating and checking a prevent correction to reflect the importance of a knowledge-based educational approach. The idea is that education is more sustainable in solving problems. However, this concept requires much time (Kwon, 2011). Not only providing academic information but understanding the behavior of the audience that knowledge should be provided through a variety of activities and through media that is up-to-date and relevant to their interests and should also be given to those directly involved with youth education is one of the most important methods used to solve problems (Lopez-Fernandez & Kuss, 2020). In this regard, knowledge about health behavior to the adolescent population should be in the form of other entertainment activities which is an alternative for online game players as well as skills to control emotions in different ways including providing knowledge about the symptoms of online game addiction, so that young people can check themselves.

Why is it necessary to offer an alternative to enhancing happiness in addition to online gaming? This is because telling young people to give up something without a substitute organizing alternative activities is challenging. Schools should help young people engage with their school peers and enhance life skills. If an E- sport competition is held in the school, it can accurately disseminate the rules and facts of being a professional athlete. At the same time, it also honors students in aspects other than just academic achievements. The study found that many students addicted to games because they were not academically good and were considered as incompetent. Such a hopeless feeling of worthlessness inevitably drives him to escape from a world he is not accepted to another world, where he may become the king of the world of online gaming. It is therefore not surprising that they turn to a world that acknowledges their existence. This mental reward is very important at this age. It can be explained by Baumeister's escape from the self-theory concept (Kwon, 2011).

Making schools the foundation for preventing game addiction and the dangers of online gaming among children and young people is supported by Gaiha et al. (2021). At the secondary level using the school as a base, it can help reduce the risk of developing various addictions. The school alone would not be able to achieve the goal. Cooperating among the community, family, siblings, and friends as those monitoring the risk of online gaming addiction is essential.

To have such an effect, it is necessary to educate the community to blame for the dangers of gaming addiction, which not only affects the health of individuals but can also result in financial problems, which is one of the key variables in local crime. Otherwise, the community may not participate in solving the problem.

Education takes time to raise awareness. Nevertheless, the problem of online game addiction is still ongoing. Searching, evaluating, and screening youth who are likely or have symptoms of online game addiction together with supervision leading to a remedy is another proposed measure to jointly solve problems parallel to prevention and awareness raising. In other studies about addiction found the important of parent monitoring for undesirable behavior, because of communication, loving, supervision, and monitoring behavior of parents emerged as the most effective factor in reducing risky behaviors (Fang & Schinke, 2013; Kalinina et al. (2017). Kalinina et al. (2017) propose that it is not just the students and their families but also teachers and experts who is the heart of any unwanted behavior prevention program. At the same time, the implementation requires cooperation between the creative social networks of educational institutions to make such operations successful (Kwon, 2011). In this study, both operational guidelines were proposed, network drive mechanism and networks that are essential to all operations to strengthen the measures that have been developed.

As for the mechanism in driving the prevention network for game addiction and the dangers caused by playing online games among children and youth at the policy level in Thailand in this study, the focus is driven by the Office of the Basic Education Commission, Ministry of Education as the superintendent of basic education. This mechanism covers the implementation of measures and guidelines based on the results of this study. It is required to include appropriate content related to online play and the dangers of playing online games as part of the subjects related to life skills enhancement. The necessary budget has been allocated. It is a central agency that creates cooperation between schools in each educational area as well as being a part of publicizing information, knowledge about the dangers, and the proper use of online games through various available media as well as supervising the implementation of this measure in practice. A counseling process is established in case students are found to be at risk of being addicted to games. The researcher used a research process that brought representatives from all sectors and received excellent advice from representatives of the Office of the Basic Education Commission, who participated in every step of the research. When this research was completed, the researchers had to submit the study results to this agency for further implementation.

However, there is one unsettling realization: a collaborative network on online gaming issues. There are so many stakeholders in Thailand due to the legal scope that divides the responsibilities and administration into many national divisions, counting more than seven ministries, let alone the private sector involved in the online gaming business legally in Thailand and operators in the grey market. Although, throughout the research, representatives from the Ministry have always participated in developing measures and mechanisms based on this research, in practice, it still requires serious cooperation. This measures that issues related to online gaming among children and young people must also be brought to the government's attention. However, there still seems to be some light for practical action. When it was found that a bill was considered to regulate the game and the game business for the protection of children and youth is currently in the drafting process.

Conclusion and suggestions

The recent massive COVID-19 virus outbreak resulted in lockdowns and the emergence of online education instead of education in the original school area. The significant impact is not only on the decline in learners' ability to study. Instead, it creates a more conducive environment for children and young people to become more addicted to online gaming. As a result, the trend of online game addiction among youth in Thailand has increased so significantly that it is impossible to ignore this crisis. Measures to prevent game addiction and the dangers caused by playing online games for children and young people have therefore been developed through R&D research which focus on preventing and solving problems with no limitations on the growth of Thailand's online game industry as well as understand the new generation of children and young people growing up with the digital world. We cannot hinder or prohibit them from engaging in online games, just as we cannot hinder the advancement of technology. Therefore, this research proposes five measures that occur under the main concept, namely, Prevent – Investigate – Precautionary - Activities creation - Remedy, by setting the school as an important base to drive such measures. School is a very intimate environment for young people. However, pushing for such measures requires the cooperation of many stakeholders. Starting from surrounding communities Parents-Teachers Association and the authority governing schools in Thailand, the Office of the Basic Education Commission, Ministry of Education. The next circle are collaborations from complex agencies and sectors. Due to the laws of Thailand that define the roles and responsibilities of each agency responsible for a variety of online games, it sometimes results in confusion and overlapping of authority. Bringing measures from research results to the practical level, it is necessary to rely on policy-level agencies at the ministry level, such as the Ministry of Education, Ministry of Culture, and the Ministry of Digital Economy and Society. A system and mechanism for implementing measures must be established including a systematic follow-up of the results. In particular, the policy is communicated to operational units for a thorough acknowledgment to drive measures in the same direction and operate in a unified manner. However, this issue is still another concern in driving this measure to be effective in the future.

New knowledge and the effects on society and communities

Although there have been many studies on online gaming addiction in Thailand over the past decade, they have provided knowledge on the antecedent and consequence factors of inappropriate online game behavior among children and youth. But because of the pandemic of Covid-19, game addiction among young Thai people has never become as serious as it is present. Studying action research can provide opportunities for solving this problem by researching with the practitioners. This study proposes the measures created by asking the practitioners and responsible parties for the probability of success of these measures. So, the results of this study are ready to be applicable by approval from the relevant parties related to game addiction disorder among children and youth. The measures presented in this study should be trialed by the appropriate parties stated in the article in an actual situation as the final step for solving the problem of online game addiction before late.

Acknowledgments

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Administrative Strategies to Develop Innovators Among Secondary Science Teachers at Saint Gabriel's Foundation, Thailand

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Abstract

The purposes of the research Administrative Strategies to Develop Innovators Among Secondary Science Teachers at Saint Gabriel's Foundation, Thailand were to 1) create administrative strategies, 2) validate suitability and feasibility of administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand. In this research, a mixed method was applied. The data has been gathered from 11 secondary school directors, 110 staff at the management level and 149 secondary science teachers at Saint Gabriel's Foundation, Thailand in the academic year 2020; there were 270 personnel in total. The tools used to collect the data were questionnaires, interview forms, and focus group forms. The quantitative data was analyzed by using percentage, frequency, mean and standard deviation, whereas content analysis was used to analyze qualitative data.

The results of administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand consisted of vision, missions, goals, share values and 4 master strategies, 13 minor strategies, 28 measures, and 24 indicators. The master strategies were Strategies 1: Encourage and enhance science teachers to be innovation teachers containing 4 minor strategies, 10 measures, and 10 indicators, Strategies 2: Improve quality of science learning management to create innovation consisting of 3 minor strategies, 6 measures, and 4 indicators, Strategy 3: Create cooperative network for creative innovations containing 3 minor strategies, 7 measures, and 5 indicators, and Strategy 4: Effective management of innovative teachers comprising 3 minor strategies, 5 measures, and 5 indicators. Furthermore, the overview result of accuracy and feasibility validation of administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand was in high average.

Keywords: Administrative strategies, Innovators, Science teachers, Saint gabriel's foundation

Introduction

Thai society is transforming to knowledge and innovation-based society. Urgently necessary development of competitiveness, chain enhancement, value of agricultural products, value of industries, and services are mentioned in the furtherance of Thailand 4.0 policy (NESDC, 2016) which goes along with the Twelfth National Economic and Social Development Plan (2017-2021) in order to apply science, technology and innovation knowledge which is still performed less in the present. Lack of the forementioned knowledge causes low agricultural, industrial, and service production bases along with the major quality problems which are quality of people, quality of education, and quality of public service and public health service. High inequality leading to cleavages still exists in Thai society. One of main development issues in the period of the Twelfth Plan is innovation development. Innovation is used to drive the progress in all dimensions to enhance country's potential focusing on creativity and innovation development leading to innovation which contains high economic value in both production processes and models of new products or services. The issue about innovation development is also pointed out in the National Scheme of Education (2017-2036). (Office of the Education Council, 2017) It is the scheme for all organizations involved in education to apply as a guideline to develop Thai education. The scheme covers the development of education and learners of all ages; moreover, its purpose is to provide opportunities and equity in education, educational quality and standard, education aiming for employment and creating new careers under the Wisdom-Base Society, Lifelong Learning Society, and Supportive Learning Environment along with the vision "All Thai are provided quality education and life-long learning so that they live happily in the line with the Philosophy of Sufficiency Economy and changes in the 21st century world." Teachers are professional personnel whose major duties are teaching and supporting students' learning in various methods in both private and public educational institutions according to the National Education Act of 1999. (Office of the Education Council, 2013) The progression of technology changes learning style and the pursuit of knowledge from teacher-centered approach which teachers transfer knowledge to students to student-centered approach which students are able to learn by themselves. Therefore, it is necessary for teachers to upskill in accordance with the changes. (Dechakrup & Khangkhan, 2008) The education results report of conditions of teacher production and teacher development in Thailand in accordance with the study of countries which PISA scores are high shown one important feature of teacher development which is the competency building for teaching and learning in the 21st century and cooperative learning of teachers. (Office of the Education Council, 2015) It is inevitable for teachers to attempt new teaching style and assessment to produce knowledgeable citizens with skills for the 21st century. (Chiengkul, 2016) However, education system and personnel development in science and technology are still weaknesses since research and development personnel are inadequate for the enhancement of science, technology, research, and innovation into the advanced level. The proportion of the research and development personnel is low comparing to the number of the personnel in developed countries causing disadvantages of Thailand to develop economy and society in diverse dimensions. (Office of the Education Council, 2017) To improve quality and standard of the production of teachers, professors, and educational personnel according to the National Scheme of Education (2017-2036) (Office of the Education Council, 2017), it is discussed to proceed as the following (1) establish a mechanism for setting up policies and plans for teacher production and development to coordinate, manage, follow up, evaluate the results, and develop teachers leading to suggestions of budget allocation and resource mobilization to support research and development of innovation production, teachers, professors,

and educational personnel to enhance country development which is correspond with 20-Year National Strategy (2017-2036) and Thailand 4.0 strategy (2) design a system and model of the production of teachers, professors, and educational personnel which goes along with the policy. The system is developed with the cooperation of network of institutions producing teachers to recruit good and talented people who have faith in the profession to become teachers. (3) encourage, support, and advance institutions producing teachers, professors, and educational personnel, and develop institutions which are teaching operation units to achieve their highest quality and standards in fields of expertise. Panich (2012) stated that learning in the 21st century is changing, and teachers are necessary to enhance potential and upskill of the profession. Teachers are demanded to transform themselves to be “teachers for students in the 21st century”. In the similar way as Sinlarat (2016) he presented the idea of education 4.0 consisting of the production and development of learners which learners have opportunities to create new products expressing new idea and system called “innovation”. To create learners with ability to build innovation, teacher and student development is essential. The ability to analyze, synthesize, interpret, and the ability of doing are nor lonely mentioned, but the ability of building products is also focused. Education 4.0 is aiming for creativity and the transforming the creativity into products. The standards of national education in 2018 (Office of the Education Council, 2019) was stated that learners are required to be an innovative co-creator who have intellectual skills, 21st century skills, digital intelligence, creative skills, cross-cultural understanding, crossdisciplinarity, and entrepreneurship in order to create and develop innovations of technology and society aiming for creating opportunity and value for themselves and society. Therefore, to develop teachers to have the ability to build learners to be innovators, they are required skills, knowledge, understanding of innovation process, essential skills for building innovation, and being innovators. According to the assessment of strategic plan of Saint Gabriel’s Foundation, Thailand (2010-2015), the problem which needed urgent improvement was unsystematic and unclear resource management. The results of national standardized tests of some schools were low comparing to preeminent private and public schools in Thailand. Furthermore, students who studied in schools under the auspices of Saint Gabriel’s Foundation, Thailand had low critical thinking skills. The establishment of innovation of education was in low rate including lack of innovation, research, and knowledge exchange in school and among schools under the auspices of Saint Gabriel’s Foundation. These problems were direct responsible of administrators and teachers, and the development of teachers was urgently necessary.

Strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand are aware of the management of human resource development policies and plans, the development of courses, teaching management, and teaching advisory. The study of document and involved research found that educational research about the development of innovators among secondary science teachers were rare and the strategies and development guidelines were unclear defined. Hence, the study and development of school management strategy to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand are crucial; research results are valuable for teacher development leading to quality of students which goes along with the national education reform policy. Moreover, it will be an administrative guideline for schools providing fundamental education to enhance quality and to achieve the maximum benefit in the future.

Research Objectives

1. To create administrative strategies to develop innovators among secondary science teachers at Saint Gabriel’s Foundation, Thailand.
2. To validate suitability and feasibility of the administrative strategies to develop innovators among secondary science teachers at Saint Gabriel’s Foundation, Thailand.

Methodology

In this research, the mixed method which consisting of quantitative and qualitative research methods was applied. The methodologies of the research Administrative Strategies to Develop Innovators Among Secondary Science Teachers at Saint Gabriel's Foundation, Thailand were divided into 3 phases:

Phase 1: Qualitative data collection which the information of current and desirable conditions of the management to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand was collected from 11 secondary school directors, 110 staff at the management level and 149 secondary science teachers at Saint Gabriel's Foundation, Thailand in the academic year 2020; there were 270 personnel in total. Study variables are current and desirable conditions of the management to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand. Instrument used for data collection is a questionnaire of current and desirable conditions of the management to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand. The values of construct, the questionnaire was checked by 5 experts. It found that Index of Item-Objective Congruence (IOC) of all items was above 0.600. Therefore, the questionnaire was appropriate to use. The Cronbach's alpha statistic for reliability analysis was proved for the questionnaire with the result of 0.970 in current condition and 0.980 in desirable condition. This indicated that there was acceptable reliability. The analysis of current and desirable conditions of the management to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand was applied to a package program to find average, Standard Deviation (SD.)

Phase 2: Quantitative data collection collected from the focus group discussion among the academic experts, stakeholders, and researchers to draft administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand. Informants are 7 academic experts and stakeholders comprising an educational department committee of Saint Gabriel's Foundation, Thailand or the representatives of directors or deputy directors of schools under the auspices of Saint Gabriel's Foundation, Thailand, co-executives of the academic affairs and office of the director (Human resource), university professors of educational and learning management with the academic position, higher than or equal to Assistant Professor. The focus group discussion was arranged to draft administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, and the informants participated and discussed in the group. A study variable was an administrative strategy draft to develop innovators among secondary science teachers at Saint Gabriel's Foundation.

Instruments used for data collection are a dissertation proposal, SWOT analysis results, and an administrative strategy draft to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand.

Phase 3: The qualitative data collection used to study the suitability and feasibility of the strategy implement. The validation form of suitability and feasibility of the administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand was applied in this phrase, and the information was used to adjust strategies to a complete edition. Informants are 29 academic experts and stakeholders consisting of academic experts of educational department committee of Saint Gabriel's

Foundation, Thailand or the representatives of directors or deputy directors of schools under the auspices of Saint Gabriel's Foundation, Thailand, heads of science departments of schools under the auspices of Saint Gabriel's Foundation, Thailand, heads of planning and policy of schools under the auspices of Saint Gabriel's Foundation, Thailand, a university professor of science learning management with the academic position, higher than or equal to Assistant Professor, an academic expert of educational management who are proficient in strategic planning, and an innovative academic expert. Study variables are the suitability and feasibility of the administrative strategy draft to develop the administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand.

Instrument used for data collection is the suitability and feasibility validation form of the administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand. The analysis of the validation form of suitability and feasibility of the administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand was statistical analysis, such as mean, Standard Deviation (SD.). In addition, the analysis of opinions and additional recommendations on the administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand was the content analysis.

Results

The results of research Administrative Strategies to Develop Innovators Among Secondary Science Teachers at Saint Gabriel's Foundation, Thailand were analyzed, and presented the analysis in form of tables and description divided into 3 parts:

Part 1: Results of the study of current and desirable conditions of the management to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand

Table 1 The results of the internal and external environment analysis of current and desirable conditions and overview needs of the management to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand (Kaewyongphang et al., 2021)

The environment of schools under the auspices of Saint Gabriel's Foundation, Thailand		Current conditions		Desirable conditions		Needs		Environment analysis
		\bar{x}	S.D.	\bar{x}	S.D.	PNI modified	Group	
Internal	1. Strategies	3.69	0.61	4.46	0.47	0.207	Low	Strength
	2. Structure	3.63	0.66	4.46	0.49	0.229	High	Weakness
	3. System	3.67	0.65	4.50	0.51	0.226	High	Weakness
	4. Styles	3.90	0.63	4.59	0.47	0.178	Low	Strength
	5. Staff	3.64	0.65	4.51	0.52	0.240	High	Weakness
	6. Skills	3.71	0.55	4.58	0.45	0.235	High	Weakness
	7. Share values	3.84	0.60	4.61	0.46	0.200	Low	Strength
Average on all sides		3.73	0.52	4.53	0.41	0.216		
External	1. Social conditions	3.62	0.63	4.48	0.50	0.236	High	Threat
	2. Technology conditions	4.06	0.58	4.61	0.46	0.136	Low	Opportunity
	3. Economic conditions	3.55	0.61	4.32	0.54	0.219	High	Threat
	4. Politic conditions	3.61	0.65	4.44	0.58	0.227	High	Threat
	Average on all sides		3.71	0.49	4.46	0.43	0.204	

From Table 1: the internal environment analysis of current and desirable conditions and overview needs of the management to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand shows that the overview of current conditions is in high average group. (\bar{x} = 3.73, S.D. = 0.52) The consideration of each aspect found that the internal environment of styles has the highest average categorized in a high average group (\bar{x} = 3.90, S.D. = 0.63). On the contrary, the internal environment of structure which has the lowest average among the 7 aspects still categorized in a high average group (\bar{x} = 3.63, S.D. = 0.66). Besides, the overview of desirable conditions has the highest average (\bar{x} = 4.53, S.D. = 0.41) and the consideration of each aspect found that the internal environment of share values has the highest average which is in a high average group (\bar{x} = 4.61, S.D. = 0.46). The internal environment of structure which its average is the lowest among 7 aspects also counted in a high average group (\bar{x} = 4.46, S.D. = 0.49). The analysis of needs found that the highest PNI_{modified} is 0.240 and the lowest PNI_{modified} is 0.178. Hence, the high group of PNI_{modified} (Weakness) has the PNI_{modified} between 0.210 to 0.240 and the group with low PNI_{modified} (Strength) has the PNI_{modified} between 0.178 to 0.209. The internal environment categorized into groups of low PNI_{modified} or Strengths are the internal environment of Strategies, Styles, Share values. In contrast, the groups of high PNI_{modified} or Weaknesses consist of the internal environment of Structure, System, Staff, and Skills. The results of external environment analysis of current conditions of the management to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand has the average in a high average group (\bar{x} = 3.71, S.D. = 0.49). The consideration of the external environment spotted that technology conditions have the highest average and their average are categorized in a high average group (\bar{x} = 4.06, S.D. = 0.58) followed by social conditions (\bar{x} = 3.62, S.D. = 0.63). In contrast, economic conditions have the lowest average, but are still categorized in a high average group (\bar{x} = 3.55, S.D. = 0.61). Furthermore, the desirable conditions have their average in the high average group (\bar{x} = 4.46, S.D. = 0.43). Additionally, the consideration of the external environment found that Technology conditions have the highest average categorized in the highest average group (\bar{x} = 4.48, S.D. = 0.50). Economic conditions have the lowest average among 4 external environments, but their average is in a high average group (\bar{x} = 4.32, S.D. = 0.54). The analysis of needs found that the highest PNI_{modified} is 0.236 and the lowest PNI_{modified} is 0.136. It is divided into 2 groups which are the high PNI_{modified} group (Threats) - the PNI_{modified} between 0.187 to 0.236 - and the low PNI_{modified} group (Opportunities) - the PNI_{modified} between 0.136 to 0.186. Thus, Technology conditions are categorized in the low PNI_{modified} group considered as Opportunities, and the high PNI_{modified} group considered as Threats consists of Social conditions, Political conditions, and Economy conditions.

Part 2: The results of administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand consisted of vision, missions, goals, share values and 4 master strategies, 13 minor strategies, 28 measures, and 24 indicators. The master strategies were Strategies 1: Encourage and enhance science teachers to be innovation teachers containing 4 minor strategies, 10 measures, and 10 indicators, Strategies 2: Improve quality of science learning management to create innovation consisting of 3 minor strategies, 6 measures, and 4 indicators, Strategy 3: Create cooperative network for creative innovations containing 3 minor strategies, 7 measures, and 5 indicators, and Strategy 4: Effective management of innovative teachers comprising 3 minor strategies, 5 measures, and 5 indicators which the details are presented below.

Vision:

Secondary science teachers are innovators and be able to create innovations to develop students' quality to be the cooperative innovation creators.

Missions:

1. Develop innovators among secondary science teachers.
2. Promote science teachers to develop innovations for students to cooperatively create innovations.
3. Encourage science teachers to develop the association of cooperative network to create innovations.
4. Support management factors to promote and develop teachers to be innovators.

Goals:

1. Build science teachers to be innovators.
2. Create innovations for students to be cooperative innovation creators.
3. Create the association of cooperative network for students to cooperatively create creative innovations.
4. Design the management system to promote and develop teachers to be innovators.

Share values of Science Teachers (ITR):

1. Innovator: Creativity and integration
2. Team: Cooperation and teamwork
3. Responsibility: Social responsibility

Master Strategy 1: Promote and develop science teachers to be innovative teachers.

Minor strategy 1.1: Promote science teacher to apply and create creative innovations.

Minor strategy 1.2: Develop potential of science teachers to enhance innovators.

Minor strategy 1.3: Enhance the quality of classroom research to global innovations.

Minor strategy 1.4: Increase motivation of science teachers to be innovative teachers.

Master Strategy 2: Enhance the quality of science learning management towards innovations.

Minor strategy 2.1: Enhance the quality of science learning management by the integration of innovation processes.

Minor strategy 2.2: Promote students centered learning by applying various.

Minor strategy 2.3: Promote students and teachers to create creative innovations.

Master Strategy 3: Build the association of network to cooperatively create creative innovations.

Minor strategy 3.1: Develop the cooperative innovation network by the cooperation among departments of school and schools under the auspices of Saint Gabriel's Foundation, Thailand.

Minor strategy 3.2: Develop the cooperative innovation network by the cooperation among educational institutions and entrepreneurs.

Minor strategy 3.3: Build cooperative innovative network among parents, alumni, and communities.

Master Strategy 4: Efficiently manage innovative teachers.

Minor strategy 4.1: Efficiently develop departments for innovative management of the school.

Minor strategy 4.2: (1) Efficiently develop the management of innovative teachers.

Minor strategy 4.3: Improve the efficiency of innovative learning resource management.

Part 3: The results of the validation of suitability and feasibility of administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand were from 29 participants consisting of 7 academic experts of educational management and innovations, 11 directors or deputy directors and 11 heads of the science department of schools under the auspices of Saint Gabriel's Foundation, Thailand.

Table 2 The overview analysis results of the suitability and feasibility validation of the overview administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand

Items	Suitability			Feasibility		
	\bar{x}	S.D.	Interpretation	\bar{x}	S.D.	Interpretation
Vision	4.48	0.51	High	4.14	0.64	High
Missions	4.29	0.38	High	4.35	0.65	High
Goals	4.24	0.40	High	4.44	0.73	High
Share Values	4.33	0.37	High	4.33	0.59	High
Strategy 1: Promote and develop science teachers to be innovative teachers.	4.36	0.39	High	4.30	0.65	High
Strategy 2: Enhance the quality of science learning management towards innovations.	4.26	0.46	High	4.15	0.74	High
Strategy 3: Build the association of network to cooperatively create creative innovations.	4.28	0.42	High	4.30	0.71	High
Strategy 4: Efficiently manage innovative teachers.	4.31	0.44	High	4.25	0.70	High
Average on all sides	4.30	0.41	High	4.25	0.69	High

According to Table 2 The analysis results of the suitability and feasibility validation of the administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand, the suitability of the administrative strategies is in a high average level ($\bar{x} = 4.30$, S.D. = 0.41) and likewise the feasibility ($\bar{x} = 4.25$, S.D. = 0.69). The master strategy which is the most suitable strategy is strategy 1: Promote and develop science teachers to be innovative teachers followed by strategy 4: Efficiently manage innovative teachers. Furthermore, the most feasible strategies are strategy 1: Promote and develop science teachers to be innovative teachers followed by Strategy 3: Build the association of network to cooperatively create creative innovations, respectively.

Discussions

Interesting issues were discussed as followed,

According to the internal and external environment analysis of the current conditions of the management to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand, the current conditions of schools under the auspices of Saint Gabriel's Foundation reflected that the administrators focused on and promoted the teacher development to create innovations. Moreover, teachers had potential, skills, creativity and were willing to develop themselves. However, the organizational structure of schools needed a department, which is directly responsible for planning, monitoring, and evaluating the development of both innovative teachers and teachers who lack motivation to improve the innovation development of themselves. The consideration of technology conditions found that there was the technology development which contributing to the innovator development of teachers. Besides, social and politics conditions affected the promotion of innovator development, but the consideration of

economic conditions showed the decrease of economic and income of students' families leading to the less activity support from parents. The analysis results of desirable conditions shown that the administrators and teachers were aware of the potential development of the institution and teacher development to create innovations and promote students to cooperatively create creative innovations in the next 3-5 years. The results also found that, schools well prepared to develop teachers to be innovators; additionally, the administrators and teachers expected for the school management which develop teachers to be innovators. Furthermore, the analysis of desirable conditions found the average of every aspect of desirable conditions was consistent with one another according to the administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand.

Master strategy 1: Promote and develop science teachers to be innovative teachers consists of 4 minor strategies, 10 measures, and 10 indicators. The strategy focuses on the promotion and development of basic information, skills, and attitude of science teachers by supporting the budget, technology for innovation development, encouraging teachers - participants of the projects- to continue studying the innovation development, and providing learning management for teachers such as seminars and training to raise their awareness of the importance of entrepreneurship and necessary skills for innovation. The enhancement of the quality of classroom research to global innovations can be operated by the budget support and providing research fund for classroom research and permanent jobs to enhance towards the innovative research and to publish the research in academic journals. The increase of teacher motivation to develop teachers to be innovators is significant for the promotion and development according to the principle of human resource development. The survey of science teachers in schools under the auspices of Saint Gabriel's Foundation, Thailand found that teachers request for the motivation reinforcement such as compliment, rewards, promotion leading to the innovation development - innovative thinking - of teachers which are agreeable with the study of Prajan & Chaemchoy (2018) found that the methods to develop innovative thinking of teachers consist of self-improvement – workshop, work study, continued study, and the potential development of technology, learning management, creating environment, learning, and knowledge integration.

Master Strategy 2: Enhance the quality of science learning management towards innovations comprises 3 minor strategies, 6 measures, and 4 indicators which enhance the teachers' full time job performance – design learning management for students. The strategy provides workshops to increase efficiency of learning management by the integration of innovation processes and promote students' careers through various innovations which corresponds with Emo (2015) who studied the motivation of teachers initiating innovation for the Midwestern community, USA. The results found that the motivation of innovation was from the necessity of learning management development which changed it into the professional development, and the personal boredom avoidance. Therefore, teachers initiate innovations according to the teaching failure, and their experience or other teachers'. The change effects which are from the professional development includes to encourage teachers to independently initiate innovations which appropriate with learning management of their classrooms and provide time for curriculum development and the variety of learning management. To reduce study time and provide more opportunities for students to cooperatively create creative innovation, teachers are openly provided an opportunity to determinate criteria for the evaluation of students' innovation development; additionally, teachers improve the processes of innovator which are consistent with the study of Kittiworapan (2016) which is discovered that the teacher development for the students' quality- thinking skills- can be enhanced by applying techniques which applied project in learning management can develop students'

thinking skills. After the cooperative workshop, teachers gained knowledge and understood the learning activity arrangement by applying the project techniques. Moreover, teachers had knowledge, ability, and lesson plans by applying the project technique. Both teachers and students effectively performed and arranged activities to enhance students' quality – thinking skills, by applying projects in learning management.

Master Strategy 3: Build the association of network to cooperatively create creative innovations comprises 3 minor strategies, 7 measures, and 5 indicators. The strategy promotes the development and the building of innovative network, the innovation exchanges and entrepreneurship information among teachers in the school, the creation of PLC network among schools under the auspices of Saint Gabriel's Foundation, the creation of a Memorandum of Understanding (MOU), and an arrangement of activities contributing to the innovations and entrepreneurship among state and private agencies, alumni, parents, and entrepreneurs which support the study of Prajan, O. and Chaemchoy S. (2018). The study found that the methods to develop innovative thinking of teachers need the development by creating communities, professional learning, building network, and team exchange. The monitoring and reflection of the communication, cooperative innovative development, entrepreneurship in the country and overseas countries, and communities lead teachers to the innovator development; additionally, process skills and entrepreneurship, team management and creating network, and social responsibility and consciousness lead to the development of innovative thinking of teachers.

Master Strategy 4: Efficiently manage innovative teachers consists of 3 minor strategies, 5 measures, and 5 indicators. The strategy focuses on the management development aiming to efficiently manage innovative teachers. The development was initiated by raising awareness of the administrators about world's changes and innovations. The establishment of internal departments was caused by the cooperation among various departments which were special agencies comprising board directors with clear duties and responsibilities. The analysis of innovator development needs, the school strategy review and preparation of innovative curriculum, the system improvement of innovative development process of innovative teachers are parts of the strategy including the evaluation criteria affected the rewards and compliment of teachers with outstanding achievement in innovation development and the establishment of innovative center contributing to the innovation of both teachers and students.

The results of the suitability and feasibility validation of administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand shown that the suitability and feasibility of strategies were in high level, since the researchers studied the environment and guidelines of management to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand by collecting information from the administrators, secondary science teachers at Saint Gabriel's Foundation, Thailand, and the experts of educational management, the experts of learning management and the innovation experts who provided factual information. When the internal and external environment were discovered, the researchers analyzed the environment to identify strengths, weaknesses, opportunities, and threats, then, the TOWS Matrix table was created to formulate strategies. The drafted strategies were from the focus discussion group among academic experts, stakeholders, and the researchers. In addition, the suitability validation form applied to validate the strategy draft to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand was validated by the academic experts, director, and head of science department (Secondary) of schools under the auspices of Saint Gabriel's Foundation, Thailand. The strategies can be applied to develop the teachers' innovator which are agreeable with the study Creating Innovators through setting up organizational Vision, Mission and Core

Values: a Strategic Model in Higher Education of Aithal (2016) which found that higher-educational institutions succeeded to achieve their goal – the creation of innovator– through vision, missions, goals, and share values need teamwork, respect, responsibility, ethics, manners, social services, communication, characteristics and capacity, scientific thinking ability, excellence pursuit, the courage to innovate and learn to continuously improve throughout life. Moreover, the strategies are consistent with the study the Development of mechanisms to drive the production system and develop high-performance teachers for Thailand 4.0 of the Office of the Education Council (2018). The development system of high-performance teachers for Thailand 4.0 consists of 1) Personnel who or organizations which are responsible for the teacher development should be teacher preparation institutions, institutions, and teachers, 2) Teacher development styles are the mixed development among on-the-job training, off-the-job training, self-learning through online courses and additional learning media, 3) Numbers of hours spent on teacher development should be mixed development among on-the-job training, off-the-job training, self-learning through online courses and additional learning media, 4) Teacher development management system should be managed by the affiliated agency in the educational service area with the national and spatial networks, 5) People who should be responsible for teacher development management system with spatial network is the affiliated agency of province, the main responsible agency, 6) The allocation of teacher development should provide the opportunities for institutions and teachers to spend the budget for personal teacher development - on-the-job training and self-learning.

Conclusion and suggestions

The Administrative Strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand consist of vision, missions, goals, share values and 4 master strategies; (1) Promote and develop science teachers to be innovative teachers, (2) Enhance the quality of science learning management towards innovations, (3) Build the association of network to cooperatively create creative innovations, (4) Efficiently manage innovative teachers; 13 minor strategies, 28 measures, and 24 indicators.

The suggestions were presented according to the research The Administrative Strategies to Develop Innovators among Secondary Science Teachers at Saint Gabriel's Foundation, Thailand as below.

1. The department of education of Saint Gabriel's Foundation should create policies to promote and support the teacher development and learning management which are consistent with each other such as the creation of strategies, the determination of success indicators, the set of development style, reward criteria, the overview of the participation of teachers in schools under the auspices of Saint Gabriel's Foundation in innovator development. Moreover, the administrators should be promoted to attend seminars and trainings to raise awareness and comprehend the process of innovation development including to the cooperation among educational agencies and innovation businesses, and entrepreneurship both in the country and abroad. The budget allocation and the creation of storage system for innovation storage of schools under the auspices of Saint Gabriel's Foundation are able to be implemented and developed the learning management.

2. The institutional administrators should study and be aware of the importance of the world changes and focus on the innovator development of teachers and students. The vision of institutions is determined involving in the potential development of secondary science teachers to be innovators by developing the basic knowledge, skills, teachers' good attitude to be

adequate for the integration of leaning management which caused by training, seminar, workshop, field study, the motivation promotion and support of teachers to focus on the innovator development of teachers.

3. The institutional administrators should promote teachers to create innovation and apply technology through various methods for leaning management, encourage teachers and students to cooperatively create creative innovations, build network of innovative teachers, establish professional learning community (PLC) of innovation in school and schools under the auspices of Saint Gabriel's Foundation, Thailand. Furthermore, the establishment of innovative development agencies and the entrepreneurship of state and private agencies, alumni, the communication of creative innovations to the community, and the teacher and student encouragement to present innovations in the national and international race are part of the development.

4. The institutional administrators should efficiently develop the teacher development system, establish an agency with a committee responsible for determining project plans, serious and continual monitoring, designing curriculum of innovative teacher development, budget allocation, the efficient innovative development, planning the budget allocation and resource funding for the management of innovative teacher development. Additionally, the criteria determination to participate in the innovative teacher development, the rewards of innovation development for teachers, and the establishment of innovative center to collect and learn innovation and entrepreneurship of teachers and students should be developed.

New knowledge and the effects on society and communities

The results of creation and validation of administrative strategies to develop innovators among secondary science teachers at Saint Gabriel's Foundation, Thailand are comprising vision, missions, goals, share values, 4 master strategies, 13 minor strategies, and 28 measures as presented in the following figure 1.

Vision: Secondary science teachers are innovators and be able to create innovations to develop students' quality to be the cooperative innovation creators.			
Missions: (1) Develop innovators among secondary science teachers, (2) Promote science teachers to develop innovations for students to cooperatively create innovations, (3) Encourage science teachers to develop the association of cooperative network to create innovations, (4) Support management factors to promote and develop teachers to be innovators.			
Goals: (1) Build science teachers to be innovators, (2) Create innovations for students to be cooperative innovation creators, (3) Create the association of cooperative network for students to cooperatively create creative innovations, (4) Design the management system to promote and develop teachers to be innovators.			
Share values of Science Teachers (ITR): (1) Innovator: Creativity and integration, (2) Team: Cooperation and teamwork, (3) Responsibility: Social responsibility			
Strategy 1: Promote and develop science teachers to be innovative teachers.	Strategy 2: Enhance the quality of science learning management towards innovations.	Strategy 3: Build the association of network to cooperatively create creative innovations.	Strategy 4: Efficiently manage innovative teachers.
<p>Minor strategy 1.1: Promote science teacher to apply and create creative innovations. (1) Support budget and technology contributing to the innovation development for teachers participating in the innovative teacher development projects, (2) Support technology, innovation for learning management, and the evaluation enhancing the technology and innovation skills of teachers.</p> <p>Minor strategy 1.2: Develop potential of science teachers to enhance innovators. (1) Organize seminars raising awareness of the significance of innovation development, (2) Provide workshops of innovative thinking skills, innovation processes, and entrepreneur skills for teachers, (3) Encourage teachers to study in the innovation development programs.</p> <p>Minor strategy 1.3: Enhance the quality of classroom research to global innovations. (1) Support research and publication funds of the innovation development to the global innovations, (2) Develop quality of research development from classroom research to innovation research, (3) Enhance quality of classroom research with international standards.</p> <p>Minor strategy 1.4: Increase motivation of science teachers to be innovative teachers. (1) Compliment teachers for outstanding innovation and promote them to the higher position, (2) Award the innovation teacher models.</p>	<p>Minor strategy 2.1: Enhance the quality of science learning management by the integration of innovation processes. (1) Create new curriculums and activities promoting innovation creation and students' careers by providing teachers to independently set the criteria of students' innovation learning evaluation, (2) Determine the learning management focusing on cooperative learning of innovation development between teacher and students and promote teachers to use media and innovations in learning management.</p> <p>Minor strategy 2.2: Promote students centered learning by applying various. (1) Determine the learning management focusing on cooperative learning by applying various innovations, (2) Provide workshops increasing teachers' potential to have knowledge and ability to create cooperative learning management by applying various innovations.</p> <p>Minor strategy 2.3 Promote students and teachers to create creative innovations. (1) Decrease teaching time and increase learning time by decreasing some lessons and focusing on the integration for teachers and students to create creative innovations, (2) Set criteria of learning evaluation of students focusing on the cooperation of the creation of creative innovations.</p>	<p>Minor strategy 3.1: Develop the cooperative innovation network by the cooperation among departments of school and with schools under the auspices of Saint Gabriel's Foundation, Thailand. (1) Organize projects of innovative learning exchange and entrepreneurship of teachers in a school and among schools under the auspices of Saint Gabriel's Foundation, Thailand, (2) Build the Professional Learning Community (PLC) of innovation and entrepreneurship in a school and among schools under the auspices of Saint Gabriel's Foundation, Thailand.</p> <p>Minor strategy 3.2: Develop the cooperative innovation network by the cooperation among educational institutions and entrepreneurs. (1) Create the Memorandum of Understanding (MoU) of innovation with educational agencies, entrepreneurs, state and private agencies in the country and overseas countries, (2) Arrange field studies and seminars to exchange information with educational agencies and entrepreneurs.</p> <p>Minor strategy 3.3: Build cooperative innovative network among parents, alumni, and communities. (1) Support parents, alumni, and communities are supported to participate in the learning exchange and innovative support, (2) Set the establishments of parents, alumni, and communities as learning resources of innovation model, (3) Arrange projects which cooperatively developed innovation and technology transfer among parents, alumni, and communities.</p>	<p>Minor strategy 4.1: Efficiently develop departments for innovative management of the school. (1) Arrange projects providing knowledge and understanding of innovation development to the administrators of schools under the auspices of Saint Gabriel's Foundation, Thailand, (2) Establish agency responsible for innovation development and innovation development committee appointed clear duties and responsibilities - the operation of the analysis of needs, strategy validation, project evaluation leading to curriculums and projects contributing to the innovators development of teachers.</p> <p>Minor strategy 4.2: Efficiently develop the management of innovative teachers. (1) Develop the system of innovative teacher development process and the information system supporting the management of innovative teachers.</p> <p>Minor strategy 4.3: Improve the efficiency of innovative learning resource management. (1) Develop the system storing innovative work of teachers in schools the auspices of Saint Gabriel's Foundation, Thailand, (2) Establish an innovation center and provide the innovation consultation in a school.</p>

Figure 1 The Administrative Strategies to Develop Innovators Among Secondary Science Teachers at Saint Gabriel's Foundation, Thailand including Minor Strategies and measures (Source: Researcher, 2023)

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CLIL or EMI? A Case Study of Non-English in-Service Teachers Teaching Reflection in an International School

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Abstract

Content Language Integrated Learning (CLIL) and English Medium Instruction (EMI) have been adopted in many institutions ever since the use of English is required for businesses, education, and job opportunities. This results in the establishment and development of international schools countrywide in EFL countries especially in Thailand as an alternative educational route for those wanting to experience an international learning environment and/or simply to enhance English language ability. The aim of this case study is to investigate the context that non-English in-service teachers reflect when teaching in an international school context. Nine participants who are currently teaching in a large international school in Bangkok were recruited for a semi-structured interview on their instructional strategies for non-English subjects. Thematic analysis was used as an approach to thematize the transcript in the pedagogical reflection of CLIL and EMI. Although an international school is expected to fully adopt the EMI practice, the finding shows that most teachers' teaching practice reflects the CLIL approach. The influence of choosing CLIL as a major approach was due to concerns in readiness relating to essential vocabulary necessary for learning content subjects and students' native language background. Although a clear boundary of CLIL and EMI could not be clearly defined in current literature, recommendations on future research and teacher's training are discussed.

Keywords: Content integrated language learning, English medium instruction, Teacher training, International school, Non-English teachers

Introduction

As the English language seeps through the vein of the economic and political sections around the globe, countries belonging in the Krachru's outer concentric circle (Kachru, 1990) are now integrating the use of English language in all levels of education to be able to compete in the global arena. While there are various concepts, teaching approaches and practices to integrating the use of the English language in class, the focus of this study will be on two major ones: CLIL (Content and Language Integrated Learning) and EMI (English Medium Instruction). It must be noted that EMI is not an approach, but it is a phenomenon that takes place in teaching contexts which is highly contextualized. CLIL, however, has been employed in many schools for a long time and the definition is quite clear in itself. According to McDougald (2016), CLIL is an approach in teaching not only content but also language. CLIL is an approach in which students are taught content (such as science, history, or mathematics) in a foreign language (Ball & Kelly, 2016). The focus is on developing language skills while also learning the content, rather than just teaching the language itself. This approach is often used in bilingual or multilingual education programs, and it can be beneficial for students as it allows them to learn both the content and the language at the same time. The other related concept that diverges away from CLIL is that of EMI. According to Zhang & Jocuns (2022), EMI is a practice in which all subjects are taught in English, regardless of the students' first language. The major differences between EMI and CLIL, however, is that the English language lesson is not integrated in the EMI practice.

With the increased demands for international schools worldwide (Hayden, 2011), both practices may be used as pedagogical framing. It must be noted that with EMI, the pedagogical framing is problematic as there is currently no literature that could provide the 'how to teach' in EMI. The existence of EMI could simply be a phenomenon that takes place in a classroom. Teachers in an international school in EFL context may have different experiences compared to those of ESL countries, especially in students' language ability where students from different countries and backgrounds come together to learn a common language. Different teaching practices and approaches are often claimed to be used by international schools, where students and teachers from different countries and backgrounds come together to learn in a common language. Although students in an international school are expected to have a certain level of language proficiency to learn in heavy-content classes, parents whose child may not be proficient in English may also enroll their child in an international school with the main purpose and desire to improve their child's English language proficiency. It turns out that various levels of students' language proficiency will be present in an international school in each academic year and will be put to learn together in content classes. As a result, content teachers play a major role in making sure that students understand the content through the use of the English language. The international school would then play a role of not only providing a child with traditional math and science curriculum but also a language school in itself.

Research studies have shown that there is confusion between the concepts of CLIL and EMI among educators. For example, Coyle et al. (2010) mentioned that while some educators were familiar with both practices, many may not understand the differences between them. Such confusion was also found by Marsh & Wolff (2007), who found that educators in Hong Kong were unclear about the differences between CLIL and EMI and often used them interchangeably. Other studies of educators in Spain, for instance, also found that the approaches of CLIL and EMI created confusion for language teachers and could cause negative

implications for language teaching and learning. Lasagabaster & Doiz (2017) also pointed out that the two teaching practices cannot be implemented efficiently in the classroom if there are struggles to distinguish them from the beginning. It must be noted that although Doiz et al. (2013) found that some educators in Spain were unclear about the two practices, this does not mean that it affects the quality of language and content instruction. In recent years, EMI and CLIL have been discussed in many schools and contexts. Some schools claim that they are aligned with the CLIL approach while others may focus more on EMI, especially in tertiary education. Although these are not clear cut, many international schools and large institutions claim to align their teaching practices broadly to CLIL or EMI. In Thailand, for instance, students studying at international schools appear to be mostly Thai with various levels of English proficiency. However, it is unknown whether teachers, which are mostly foreigners, modify or simplify their language production in class. There is very limited research on teachers' talk or teacher use of language in an international school. It is, however, expected that an international school would encourage teachers and students to use English language authentically throughout the teaching and learning process, similar to the school in the western countries such as the United States or Canada. Many international schools in Thailand claim themselves to be of the same or equal quality in that of their branch from the UK or the US. This is possible to hypothesize then that EMI would be adopted in teaching and learning in an international school, not the CLIL. It is, however, currently unknown in the literature whether this is actually the case.

There is a call for more research in CLIL and EMI as most research done were in Spain with other countries remain understudied (Graham et al., 2018). For instance, the teaching practices between CLIL and EMI by engineering lecturers teaching in an English program at a Spanish university was recently explored. Qualitative result from an interview indicates that engineering lecturers attach no importance to language integration in their lesson (Aguilar, 2017). In other words, EMI is a practice chosen by the engineering lecturers who may feel that their role in the classroom is not to teach English. Although Graham et al. (2018) claimed that Spain is the most studied of CLIL when compared to other countries, recent systematic review by Ruiz-Cecilia et al. (2023) now finds that most research analyzed in CLIL and EMI is now from the Asian continent. This reflects an expanding interest in Asian countries in approaches to teaching content and/or language in secondary and tertiary education. EMI, however, has been mostly examined through the lens of tertiary education. An investigation of EMI in universities worldwide, especially in countries where English is labelled as a foreign language, has been examined. Many still focuses on the unclear role of content subject teachers. For instance, a growing concern of the role of lecturers were discussed especially on the unclear boundary of non-English subject lecturers and their development to English language specialist to teach English for Academic Purposes (EAP) or English for Specific Purposes (ESP) (Dearden, 2018). Others focuses on students' preference of EMI teachers. For instance, a study by Inbar-Lourie & Donitsa-Schmidt (2020) found that the characteristics and language ability that content lecturers should have to be preferred by students are related to the expertise of subject matter, ability to stimulate positive learning experience, effective instructional strategies, and familiarity of students' local language. From Inbar-Lourie & Donitsa-Schmidt (2020) findings, this implies that EMI teachers or lecturers who are non-native speakers of English need to be aware that the English nativeness is not anymore a disadvantage when compared to native speakers of English. Although content lecturers are not always native speakers of English, this does not mean that students will prefer EMI lecturers who are native English speakers.

The exploration of CLIL and EMI in secondary education, specifically in international schools of EFL context is very limited. As there is an increase in the demands of English ability among young generation to compete in the global arena and future job opportunities, many parents are turning to international school as a priority option when considering ways to enhance English language ability of their pupils. Research on international school in Thailand is very scarce, mostly focusing on different factors that affect learning achievement. For instance, Naite (2021) explored the impact of parental involvement on academic achievement in an international school and found positive correlation between parental involvement and academic performance. However, one might have to consider the time spent in class and instructional strategies delivered by teachers. The use of language as a medium is one important factor that contributes to successful academic performance. Relating closer to research on teaching approaches in an international school, a study by Apas & Ventayen (2019) investigated gamification in the teaching process. Although positive findings of implementing gamification elements were found, there were also issues relating to the clear description of the use of different gamification elements as well. The current case study closest to this current study is that of Tang (2020) who investigated the challenges and importance of teaching EMI in an international college in Thailand. Challenges were found to be relating to aspects of linguistics, culture, structure, and institutional-related identity. To add on to current study in EMI and CLIL in Thailand, this case study takes a position of integrating the boundaries of examination by incorporating CLIL into the teaching approaches. While EMI can be viewed as an interesting phenomenon, it is still unclear whether non-English subject teachers can move away from the CLIL in actual situations where majority students may not be native speakers of English. Due to the gap in literature on CLIL and EMI in international school context of EFL countries, this case study intends to investigate:

- What two concepts (CLIL and EMI) do non-English subject in-service teachers in an international school reflect when teaching in class?

Objectives

Current understanding in the role and usage of English to teach students by non-English subject teachers in an international school in an EFL context is very limited in the literature. Therefore, the objectives of this research are 1) to investigate non-English subject in-service teachers' teaching approaches in an international school and 2) to explore the teaching phenomenon with the emphasis on CLIL and EMI in an international school by non-English subject in-service teachers.

Methodology

Research Design

The research design of this study is that of qualitative by using semi-structured interview as a research tool. As the purpose of this study is to explore reflections of teaching approaches by teachers, this research tool appears to be appropriate. To support the selection of semi-structured interview as a tool, Rubin & Rubin (2011) mentioned that semi-structured interviews give benefits in terms of flexibility, rich data, participant centeredness, and contextual understanding. As this research study takes place in a specific context, an international school in Thailand, the contextual understanding of both the researchers and the participants are well aware of. This approach allows for in-depth exploration of non-English teachers' reflections on CLIL and EMI in an international school.

Sample

To avoid a conflict of interest in doing this research study, the name of the international school will remain anonymous. The participants involved in the study were nine non-English subject teachers working in a large international school in Bangkok, Thailand. The author used purposive sampling to recruit the participants. There are nine participants in total involved in the semi-structured interview. Table 1 Summarizes the details of nine participants in accordance to their educational background, years of teaching experience, grade level taught, country of origin and their native language.

Table 1 General background of participants

Name	Education	Years of Teaching Experience	Grade Level	Country of Origin and Native Language
1 Afreedaa	Master in Applied Biological Science	4	10-11 (Science)	Sri Lanka (Sinhala)
2 Alang	Bachelors (English) + (Accounting)	10	7-9 (Math)	Cameroon (French and English)
3 Faranak	Bachelors of Visual Communications	5	1-7 (Social Studies)	Iran (Persian or Farsi)
4 Iliia	Masters in Education	7	K - 12 (Social Studies)	Russian (Slavic or Russian)
5 Ketaki	Masters in Business Administration and Master's in Education	10	K - 12 (Business)	India (Hindi)
6 Kevin	Below bachelor's level	15	Primary and Lower Secondary (English and Homeroom)	British (British English)
7 Phurin	Bachelors in Business and Economics	3	Secondary and Upper Secondary (English and Chinese)	Thai (Thai)
8 Racid	Bachelor of Science and Commerce Major in Data Processing and BS in Education	16	Lower Secondary (Social Studies)	Philippines (Tagalog)
9 Swati	Master of Education in Teaching Technology	7	K - 12	India (Hindi)

Research process, Data Collection and Analysis

There are two major stages of data collection. In the first stage, the study was proposed, reviewed and approved by the head of the academic department of the international school. The consent form was sent out via email to the teachers at the international school for interview recruitment which was signed and collected before the interview stage. This is to ensure the confidentiality and anonymity of participants during the data analysis stage. A comfortable quiet room was set up and provided at the international school for the interview. As one of the researchers was currently employed in the school, an appointment was made to interview the teachers which took approximately four days to complete due to conflict of school schedule and researchers' availability. In the second stage, the data was collected through a semi-structured interview. Six questions in the interview were relating to the reflection of the

teaching approaches by the teachers without the mentioning of CLIL and EMI concepts. To increase the quality of the interview process, the author ensures that there were no distractions. In addition, the author explains the interview purpose, address terms of confidentiality and interview format, indicates interview duration, and asks for permission to record. The transcripts from the interview were annotated by labeling relevant words, phrases, or sections with codes that reflect the teaching approaches/phenomenon (CLIL or EMI). The conceptualization of data was created and categorized into different themes. interview Examples of the questions were:

1. *“Do you have to modify and simplify the language when teaching your students?”*

The purpose of this question was to determine if teachers simplify their language when teaching to suit students’ needs. If so, this would imply that the teacher is aligned with the CLIL more compared to the EMI. Although CLIL can overlap with EMI, the purpose of communication in CLIL is for students to get both content and language with ease. Another sample of an interview question was:

2. *“When you explain a particular topic to your students, do you feel like you need to adjust the language for particular groups of students (perhaps the ones you feel are less proficient)? If so, do you later plan out the lesson to integrate the English language activities in your future classes?”* The purpose of this question was to find out whether the teacher integrates the language learning component into the lesson. If yes, this means that the teacher aligns more with CLIL and less on EMI.

The interview lasted approximately 15 minutes for each participant. All the audio recordings were later transcribed for further analysis. Thematic analysis is the approach used for this qualitative study which is a qualitative method that involves identifying themes and patterns in the data. The process of analysis will include familiarization with the data, coding the data, generating initial themes, reviewing, and refining themes, and defining and naming themes.

Results

Vocabulary knowledge as an influential factor for selecting the CLIL and EMI

The in-service teachers from an international school feel that students’ level of English proficiency is quite high compared to the traditional public school in Thailand. Although most teachers claim students’ language proficiency to be quite advanced, most are still concerned about students’ knowledge of vocabulary. Teachers appear to tackle this problem in various ways by providing them with vocabulary practice tasks prior to starting the science and math lesson or even explicitly explaining the vocabulary to them in advance prior to starting the lesson. Students spend time on understanding vocabulary that would be required in the science and math lesson. In the process of learning vocabulary, teachers appear to use both approaches of EMI and CLIL which depend on practice tasks given to students and how the learning would be assessed.

- *Actually because I’m a science teacher, I would go more into detail in the science concept. But for writing, I would go into detail on the structure of grammar so it depends on how they’re going to be assessed. So yes, I integrate some English lessons into science. (Afreeda)*

Yes, basically we are working in the CLIL. I am a math teacher and teach it in English so I have to work with language alongside as well. I have to emphasize on the vocab like the keywords. This is what I do before the lesson. (Alang)

I think I need to explain the vocabulary because the students don't ask me normally. It happens that some of them ask for some vocabulary, but most of them usually don't. So I think that maybe some words are not familiar to them. I need to explain. First, I will explain it. And if it's needed, I will give them some examples. And sometimes I ask them to bring some examples, but mostly, it's successful in this case, because you know, the class goes noisy. I don't hear them. I can't ask them for examples. (Faranak)

Although this is a case study in an international school context, the use of native language is unexpected. In addition to the CLIL and EMI, which is the focus of this article, some teachers encourage students to use their native language (Thai) as an exchange of knowledge and interpret the intended meaning of the vocabulary in the learning process. This reflects the practice of translanguaging in education where native language (Thai) is seen as a linguistic repertoire in the teaching and learning process. Online tools such as computers and online dictionaries were used as well and collaboration among peers is also encouraged.

First, I asked the students to interpret the vocabulary in their language, and they helped their friends. And after that, if they can find the meaning of that description at the end of the unit, I will have my laptop and we search for the words using a dictionary together. But you know, it's step by step first, I asked them to do it by themselves first then as a group. (Faranak)

Students' native language as an influential factor for EMI and CLIL

Participants appear to modify the use of English in class. However, this could be argued in the literature whether this is the case of EMI or not when a teacher modifies the language for his students by making it simpler than it actually is. Such use of teaching strategy is due to students' native language. As most of the students are not native language speakers, their proficiency of English is not comparable to those of native speaking children. Hence, consideration of students' native language is still an important factor that influences the use of classroom language by teachers. In turn, this influences the selection of EMI and CLIL for teachers as well. The data below indicates that there is an overlap of EMI and CLIL in the teaching and learning process. In other words, there are modifications of language in class and teachers modify their production of English in a continuum where appropriate.

We do have to modify the language because English is not their first language. Right? So yes, modification of the language was needed. I definitely have to modify the language. (Ketaki)

I do [modify the language] because in Thailand, English is not their native language. I try to modify it and make sure that they understand it clearly. They would not know what to learn if they didn't understand science. (Afreeda)

I do have to simplify my language in order for them to understand it. But regarding the teaching in the normal class, in the international program, I

usually do not simplify the language. So students will have some experience with communicating with me through academic language as well. (Ilia)

The concern by Kentaki, Afreeda, and Ilia is similar to Phurin where students' native language is a factor that affects how teachers select the use of CLIL and EMI. However, Phurin's case is different from the rest as he is a native Thai speaker. Although he teaches in an international school, he does not appear to only rely on the EMI and CLIL approach. Instead, he switches to Thai in the part where he feels students do not fully understand the materials when EMI or CLIL is already implemented in class. Such approach appears to reflect the phenomenon of translanguaging in the classroom. This is similar to Fanarak where teachers encourage students to use their native language in some stages of learning as a tool to help them better understand the materials.

I made sure to use the easiest words I know so that they will be able to understand. This also depends on the class. If the class is weak, I'll then try to speak slowly and make sure to articulate well and use simple words instead of a more advanced level.

Because I can speak two languages. First, I will try to explain it in English. If they can't understand it, that's it. But if they can't, I'll try to translate it into Thai to be able to translate into English with them.

I made sure that I translate some words into Thai so that they are able to catch up, at least follow along. Because usually I'll try to speak English 100% and conduct all my activities and explanations that way. (Phurin)

CLIL as a major teaching approach

Overall, the data indicates that in-service teachers in an international school adapt both CLIL and EMI. It must be cautious here that CLIL and EMI can overlap. However, the weight seems to lie more on the CLIL approach where language lessons are integrated into the science and math lesson. This is not surprising as there is no currently available literature on how to teach EMI as it is contextually based. In addition, the result is not unexpected as most of the students in an international school are not native speakers of English. Although some may have non-Thai parents, the environment outside of school still forces students to use Thai in their daily lives. Most in-service teachers from an interview mentioned the need to explain and expand the meaning of a word and express the concern especially in the understanding of vocabulary knowledge. Different teachers use different strategies for their lesson. Alang, for instance, provide essential vocabulary and make sure that students are acquainted for the key vocabulary they will see in the lesson. On the other hand, Ilia focuses on the elaboration of particular vocabulary by using a digital tool to express in pictures and asking students about it. Kentaki, however, appears to focus on the accuracy of spelling a vocabulary. With Swati, the challenging vocabulary will be noted to incorporate them into future lesson.

I do that at the beginning of every topic/chapter. I want to make sure that vocabulary is acquainted. Let's say every two weeks I let them study chunks of vocabulary before introducing a chapter. (Alang)

Since my all my students are teenagers above 16 years old in this school, I have to use the language which they might understand according to their level of

proficiency and use different topics and language that they use in normal life such as informal language more recalled.

If you would like to explain the verb or adverb, let's say, dizzy. The first thing I will do is I would go to Google, I will go for pictures show the meaning of this word in the picture. And next hour hopefully probably will show it on myself. How would it feel if you feel dizzy?

I ask students to prepare a few sentences so they can have some practice by writing and using integrating this new vocabulary in their writing as well. (Ilia)

I will give them a word. They have to give the they have to write or we have to discuss the definition. Like for example, there are five words I'm doing today, okay. So, first two words, I will do it with them. I will give them the definition myself. (Ketaki)

I tend to get them speaking, as they're learning from the book. Then throughout the week, I'll ask them, what does this word mean? And how to spell this word? (Kevin)

I am trying to understand their vocabulary knowledge. I want to make the vocabulary easier so they can learn and easily understand. And yeah, in future I will incorporate the vocabulary they don't know in my lesson plan. (Swati)

Discussions

The result of the study clearly shows that most teachers are concerned about their students' readiness in the English language. This is partly due to the fact that most of the students in an international are non-native speakers of English. Teachers' evaluation on students' current language ability forces non-English teachers to incorporate English lesson into their teaching practices. Although the practice of CLIL and EMI is not a clearcut boundary, it is possible to pinpoint that EMI is incorporated within the CLIL teaching approach. With the CLIL approach, however, it seems that science or social study teachers need to be trained in how to effectively integrate the use of English language lesson into their content subjects. Based on the data from the result, however, very few teachers demonstrate how language is incorporated into the lesson. In addition, there is no evidence that the method that non-English teachers used to improve students' English ability is effective.

This study leads to a call for more non-English teacher training. The lack of students' vocabulary knowledge forces teachers to prepare students with essential vocabulary. Alang, for instance, focused on key words when teaching math. However, it is still unclear how many keywords Alang prepared, the criteria for selecting keywords, and what approaches or activities he used to teach math vocabulary. In addition to Alang, Fanarak also incorporate vocabulary teaching into his lesson. However, Fanarak appears to predict students' vocabulary knowledge based on his observations. It is unclear whether or not a pre-assessment on vocabulary is given prior to starting the course. Since these teachers are not focusing on teaching English, the method or approaches used to assess and teach vocabulary may be overlooked. Referring to assessment, Afreeda was the only participants who appears to give importance to assessment focus on the skills of writing when teaching science. She stated that it all depends on how

students will be assessed. Similar to the other participants, however, it is still unclear how she incorporate the vocabulary lesson into the writing assignments or practice.

Since the context of this study is that of an international school in a country where English is a foreign language, students' native language acts as an influential factor in teachers' English production. In other words, teachers reported that they modified their English language production when teaching in class. Ketaki and Afreeda, for instance, modified their English language production by making it simpler for students to understand. Afreeda mentioned that this is to make sure that students understand the content. This could be implied that both teachers appear to realize that authentic use of English may not effectively deliver the content needed. In turn, it is still debatable whether the modification of English to make it simpler is the one of the characteristics of EMI. If the purpose of the modified form of the English language is to deliver content effectively, could this be a form of EMI? There have been very few research articles that discuss this characteristic of EMI. The authenticity of language use in EMI appears to remain unsolved and underdefined.

Conclusion and suggestions

Content and Language Integrated Learning (CLIL) and English-Medium Instruction (EMI) has been a growing interest in the field of education and research in recent years (Coyle, Hood & Marsh, 2010; Lasagabaster & Doiz, 2016). In countries where English is labelled as a foreign language, these two practices have been discussed and implemented to different levels of education to attract students whose aim is to be able to use English fluently in the competitive global playground. In Thailand, for example, EMI is implemented in many universities. Many international schools in Thailand, for instance, have labelled themselves to adopt the CLIL philosophy in teaching and learning. This case study uses a qualitative approach to investigate the approach that non-English in-service teachers in an international school rely on. Although there is an overlap of the concept of CLIL and EMI, the teaching strategies by teachers appear to reflect the CLIL approach to teaching non-English subjects. Finding shows that CLIL approach is apparent due to several factors. These prominent factors include students' lack of vocabulary knowledge and their native language. These major factors appear to influence the teaching approaches by teachers. Although EMI can be a useful practice, backgrounds of students in an international school in EFL countries forces teachers to implement the CLIL approach instead for learning and comprehension effectiveness. In addition, it is unclear how EMI could be taught in the classroom.

The result of this study shows that non-English in-service teachers in an international school heavily rely on the CLIL approach to teaching non-English subjects. Teaching and preparing essential vocabulary for the lesson appears to be of one major concerns. However, the study on teacher development, especially in non-English subjects in EFL context is very limited. This leads to the questions of effectiveness in the design of a vocabulary lesson that non-English teachers implement in class. Future study could investigate the effectiveness and strategies non-English in-service teachers use to teach students in class. As Hillyard (2011) has mentioned that the need for CLIL training for teachers is needed for primary, secondary, and tertiary levels to provide teachers with confidence and quality lessons. In terms of methodology, future researchers could triangulate the instruments by including an audio record from an interview, a video record, and a journal into analysing the approaches and effectiveness of the lessons. This study hopes that future research could make use of this case study as a

springboard for a more in-depth investigation of the popular teaching approach of CLIL and EMI in an EFL context.

New knowledge and the effects on society and communities

This case study provides a contribution of knowledge into the field of English language teaching, especially in the context of an international school. From the study's findings, it could be implied that non-English teachers teaching content heavy subjects in an international school emphasizes the CLIL approach. In addition, the result of the study indicate that non-English teachers need more training on how to incorporate language lesson into the lesson plan as English is used as a medium to teach. Current literature on international school focusing on non-English in-service teachers is very limited. This study could be used as confirmation and verification of their claim in using the CLIL approach in international. Although EMI takes place in the context of an international school, the 'E' is of question in what type of 'E' it is. The result shows that the 'E' in EMI is that of 'the modified form E'. Teachers reported that English is modified into simpler form for students to understand the content. This means that authenticity of language use in an international school in countries where English is a foreign language need to be further explored. The authenticity and effectiveness of language use compared to international school in countries where English is a second or native language need to be investigated. In other words, if CLIL approach is chosen, a question that parents and those involved in education may consider is whether the language used in an international school in a country where English is a foreign language is authentic and comparable to international school of those in Western countries.

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Cyberbullying among Children and Youth in Thailand: Measures to Combat It

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Abstract

Thai youths are being confronted with cyberbullying, which becomes more prevalent online. This may turn into a major and reoccurring problem that is difficult to get resolved. As a consequence, the objective of this research is to better understand the issue of cyberbullying among Thai children and to develop regulatory measures to protect young people from cyberbullying, with an emphasis on integrating collaboration throughout the five-stage of the research and development approach. The study encompassed the participation of elementary and secondary school students from four schools, along with their families, educators from the same schools, experts, and a group of stakeholders from educational institutions, law enforcement departments, and relevant government and civil society organizations. The study's five stages included a total of 96 participants. The findings revealed that cyberbullying among children and young people is widespread and takes many different forms. The circumstances related to cyberbullying arise from a youth's lack of understanding of the consequences of bullying, as well as their familial background and social environment. The measures developed to protect youth from cyberbullying included regulatory measures for schools (developing teachers, encouraging students, gaining access to the family, surveillance, and caring) and legal measures (modernizing the law, promoting legal literacy, and protecting youth). The emphasis should be on all levels, including policy and operational. While expanding the study's findings, it should be implemented in a way that integrates with usual responsibilities and operates network-connectedly in order to consistently and sustainably prevent and resolve problems.

Keywords: Cyberbullying, Measures, Online harassment, Online safety, Integrating cooperation

Introduction

Nowadays, online technology is highly significant in daily life, particularly the use of the internet, which is becoming more accessible and requires more time spent exploring the online world each day. Cyberbullying is a form of online threat that can present itself in a variety of ways. According to Strom & Strom (2005), cyberbullying is the intentional harming of people using digital technology in order to cause them hurt, threaten them, or make them feel hopeless. According to UNICEF (2021), cyberbullying may occur on social networks. It is behavior intended to frighten, anger, or humiliate the target. Cyberbullying, as previously defined, focuses on the use of digital technology to hurt or eliminate a target. What is fascinating and worrisome about cyberbullying is that a perpetrator may not be detectable or visible and therefore be able to commit acts of violence against anyone at any time; also, the victim may react in the same way, switching from victim to perpetrator. Because of this, cyberbullying can be easily committed and has profound consequences.

In Thailand, cyberbullying is categorized into eight distinct types, which are as follows: 1) Exclusion occurs when a person is removed from an online group, such as by being sacked, banned, or unfriended from a Line or Facebook group. 2) Cyberstalking is the activity of stalking someone on the Internet, such as through sending emails, messages, pictures, videos, or tagging victims in unwanted posts. 3) Gossip in the form of publishing or sending comments that damage others' reputations, terminate a relationship, or weaken the confidence of the victim. 4) Outing and trickery are practices that include exposing other people's personal information in public places or disseminating misleading data in order to harm or profit others. 5) Sexual harassment interferes with the dignity and privacy of the perpetrator, such as via two-pronged speech, criticism of appearance, or online dressing. 6) Impersonation is a means to mislead people or damage a person's reputation. 7) Cyber threats are violations of others' rights committed via aggressive behavior, such as sharing insults and slanderous comments. It involves taking a negative or strongly opposed position against something. 8) Flaming Is engaged in combat by posting messages that provoke hatred. (Daopradab, 2017)

Regarding cyberbullying among youth, a study examining cyberbullying channels on social media platforms among Thai youth found that Facebook was the most frequently used platform for cyberbullying, followed by Line, Instagram, and Twitter (Inthanon, 2020). In this research, the researcher addressed both online bullying by other people and online bullying by young people against one another. The actions taken were determined to be both intentional and unintentional. Bullying is caused by a lack of attention or awareness, such as when a parent publishes an amusing image of their kid because they think it's charming. Perhaps a teacher gently posts a photo of a kid struggling with a book, but children may be used to making jokes or posting to one another, which might make them feel embarrassed. Concerning bullying behavior that intends to have an effect, such as posting or addressing comments using crude language, emphasizing feelings of inferiority, humiliating, denouncing, or making false pretenses of something that might tarnish, etc. As for the cyberbullying that children or young people commit against one another, it may be the result of conflicts or disputes offline that carry forward into the online world. Because each side has its own group, the conflict could grow more serious as a result (Tudkua & Sabaiying, 2017). In addition, if it spreads widely, there can be unanticipated consequences from something as simple as being teased, which might tragically lead to a child committing suicide.

Further, in a study on cyberbullying among junior high school students in Thailand (Prachachart online, 2018), The study revealed that approximately one-third of Thai children had encountered instances of online bullying, either as victims or perpetrators. According to the survey results, a significant proportion of the participants, namely 34.6%, reported engaging in bullying behavior towards others, while 37.8% reported being victims of bullying. Additionally, 39% of the respondents agreed with their involvement in the bullying incident, which led to continuing the cycle of cyberbullying behavior. Regarding the consequences of cyberbullying, several effects have been identified. A study revealed that 2.2% of individuals refrained from attending school due to bullying. Additionally, 6.6% of participants reported that their families failed to comprehend what was happening and instead intensified the issue by blaming or aggravating them. A further 8.3% experienced a breakdown in their friendships as a result of misunderstandings arising from the bullying. A significant number of participants, 9%, reported experiencing sleep disturbances. Furthermore, 18.6% expressed a desire for revenge, while 23.1% reported experiencing negative emotions such as depression, anxiety, or stress. Finally, 32.1% of participants reported feelings of anger. Furthermore, according to data from the National Institute for Child and Family Development at Mahidol University in 2019, 28% of Thai children thought cyberbullying was normal, 39% felt that it was enjoyable, and 59% were engaged in cyberbullying. It makes sense that cyberbullying behaviors arise from a lack of understanding of the effects of online interpersonal interaction, a lack of media literacy, impetuosity, as well as the basic nature of online communication that allows the hiding of one's real identity. This encourages acts of bullying (Yuwakoson, 2023).

Theoretically Predicting Cyberbullying

The phenomenon of cyberbullying has been examined through the lenses of several fields of study. Barlett's study in 2017 has contributed to the understanding of cyberbullying theory and the possibilities for prevention (Barlett, 2017). Many theories from the fields of social science, psychology, and communication have provided empirical evidence supporting being able to predict cyberbullying perpetration. There are notable theories that may effectively explain the occurrence of cyberbullying among young people in Thailand. One such theory is the General Strain Theory, which has been crucial in expanding its applicability to embrace various types of criminal and delinquent behavior. Merton (1938) stated that the gap between aspirations and expectations caused stress or frustration, which eventually drove individuals to participate in crime as a means of achieving their objective. This theory is in line with the findings of Patchin & Hinduja (2011), who looked at the connection between school-age children's levels of stress and their propensity to engage in bullying behaviors. The findings showed a significant association between the levels of stress, anger, and frustration among students and their tendency to participate in both traditional bullying and cyberbullying.

The Routine Activity Theory states that crime occurs when there is 1) a probable perpetrator, 2) a suitable victim, and 3) a lack of a competent guardian (Cohen & Felson, 1979). According to this notion with reference to cyberbullying among Thai youths (Amaraphiban, 2016), cyberbullying may occur because 1) the perpetrator decides to act after determining if cyberbullying is easily committed and difficult to detect. 2) The behaviors of today's youth leave them subject to cyberbullying. They have been causing victimization since they may be online friends or strangers. 3) Youths may simply obtain it online and adopt it until it becomes routine, without parental restrictions. Such situations may result in anger, a negative mood, and hostility, according to the General Aggression Model (GAM) (Kowalski et al., 2014), a useful and comprehensive theoretical framework that combines both person and environmental components. The GAM suggests gender, personality factors, psychological states, technology use, and situational factors like provocation and perceived opportunity to respond violently. This notion is in line with the findings of Chantana

Papattha and Napaporn Phuphet's study (Papatthe & Phuphet, 2019). This paper is a data analysis and synthesis of studies on cyberbullying among Thai youths conducted between 2011 and 2018. According to the findings, there are six reasons for cyberbullying: 1) the anonymity of cyberspace; 2) a starting point from the real world; 3) a spoilt youngster; 4) freedom in technology; 5) the temptation to get someone back; pranks; and 6) not thinking about consequences. Based on the research findings, character traits, psychological factors, the use of technology, and situational aspects all influence Thai youth's cyberbullying behavior.

According to the Social Information Processing Theory (SIP), a social problem-solving deficit is what causes aggression. Aggressive children were inclined to attribute hostile behavior to insecure circumstances and had difficulty processing social information (Dodge & Crick, 1990; as cited in Espelage et al., 2013). A recent study suggests that proactive and reactive aggressors' social cognitive processes may overlap more than previously expected. Bullies may also have interpretative problems since reactive aggression has been connected to both bullying and victimization (Schwartz et al., 1998; as cited in Espelage et al., 2013). The Social-Ecological Model considers the complex interactions that take place between individuals, relationships, communities, and social factors. It helps us comprehend the diversity of circumstances that put individuals at risk of getting into or committing violence. Significant data supports the application of the social-ecological model in Guo and colleagues' work (Guo et al., 2021). The study focused on the social-ecological aspects related to various cyberbullying roles. The findings linked cyberbullying roles to individual, family, peer, and school-related factors. Cyberbully and cyberbully victims each have distinct predictors. The findings show that role-specific cyberbullying interventions should include both common and distinctive aspects.

Previous Research Studies

According to international research studies, the majority of studies attempt to find patterns and factors that influence cyberbullying and offer strategies for addressing and resolving cyberbullying incidents. Research that focuses on prevention and solving issues through education as the basis and emphasizes the collaboration of family networks provides significant findings. Su and colleagues examined the role of families and schools in preventing cyberbullying in their study (Su et al., 2021). The focus is placed on the administration of student care and mentoring systems. This study involved a collaborative effort between educational institutions and families. In addition, Gabrielli and others (Gabrielli et al., 2021) conducted a study that examined the strategies employed by educational institutions to reduce the incidence of cyberbullying among adolescents. The development of programs and guidelines aimed at preventing and resolving issues is a crucial aspect of promoting mental wellbeing. These initiatives may involve strategies such as improving cognitive resilience, improving coping skills, and encouraging a high quality of life.

A large number of research studies conducted in Thailand pertain to exploratory inquiries into the patterns, causes, and effects of cyberbullying. Some articles discuss the incorporation of guidelines for addressing and preventing situations of bullying, along with reviews of legal measures intended for reducing and solving such problems. The studies done by Amornthip Amaraphiban (Amaraphiban, 2016) on the causal relationship between cyberbullying and bullying behavior among young people in educational settings, as well as those done by Oranong Dechamane and colleagues (Dechamane et al., 2020), provide evidence of this. Thanyakorn Tutkua and others have looked at the prevention methods for cyberbullying behavior among secondary school students (Tutkua et al., 2019). A program focused on preventing cyberbullying behavior has been developed, which involves the promotion of cognitive skills, analytical thinking, and awareness. Regarding research on Thai legislation, Methinee Suwanakij (Suwanakij, 2017) conducted a study on the legal measures in place to protect young people from online social network bullying. Moreover, Duangden Naksiharat (Naksiharat, 2018) conducted a comparative analysis of the laws and regulations governing

cyberbullying prevention and control in the United States and Thailand. The study also examined the attitudes and legal challenges associated with addressing cyberbullying in Thailand. Compared to the laws of other countries like Canada, the United States, and the United States.

Following a review of both local and foreign studies, as well as a review of relevant theories. The conditions that contribute to cyberbullying have been identified, including directions for preventing and solving issues that need a network of collaboration and improving the legislation to support the effort. As a consequence, the researcher is compelled to seek an answer to the research problem. What is the present situation regarding cyberbullying among Thai children and youth? What conditions contribute to cyberbullying? What are the limitations in dealing with it? What measures should be put in place to ensure the protection of Thai youth?.

Methodology

The main objectives of this research include: 1) studying the prevalence of cyberbullying among Thai youths, including an in-depth examination of existing prevention and resolution strategies as well as the enforcement of relevant laws; and 2) promoting collaboration in order to develop mechanisms for monitoring the safety of Thai young people with regard to cyberbullying. The methodology and findings of the study will provide insights into addressing practical challenges and developing products that may be effectively used and expanded via a collaborative network, ensuring harmonious functioning.

Research design and Participants

The research employed the Research and Development (R&D) approach. Purposive sampling was employed to locate 96 participants throughout the five stages. The following are the research approaches and participants at each stage:

Stage 1 (R1): Research and Data Collection comprises the analysis and synthesis of pertinent information pertinent to the study's objectives. This is the classification of research approaches:

1) *Documentary research* involves the analysis and synthesis of legal and law enforcement evidence relating to cyberbullying in Thailand and other countries. The unit of analysis consists of documents and research studies on cyberbullying among youth, and information on the websites of international officials on cyberbullying law and enforcement in five countries: the United States, the United Kingdom, Australia, Singapore, and China. The research instrument used a guideline for documentary analysis.

2) *In-depth interview* to find out about the problems of cyberbullying among youths, the factors that cause cyberbullying, the need to prevent and address cyberbullying, and existing strategies or practices for combating the problem. A semi-structured interview guideline was used as the research instrument. The participants in the study are a group of key informants totaling 33 persons, with the following inclusion criteria:

2.1) Children and youths who have experienced cyberbullying at least once from four schools in Bangkok and its surrounding or neighboring regions, two of which are primary schools and two of which are secondary schools, these are 4 students each school, for a total of 16 students.

2.2) A group consisting of 3 parents of students who had at least one encounter with cyberbullying.

2.3) Expert groups and stakeholders: a total of 14 persons with expertise in online media or work experience related to children and youth for at least one year, which included representatives from the Office of the Basic Education Commission (OBEC), the Cyber Crime Investigation Bureau (CCIB), the Technology Crime Suppression Division (TCSD), the Child

Online Protection Action Thailand (COPAT), the Digital Economy Promotion Agency (DEPA), the Media Fund, civil society organizations with work experience or research on the use of online media by children and youth, child and adolescent psychiatrists, and psychologists.

3) *Focus group discussion* to collect data on cyberbullying situations, relevant conditional factors, the need to prevent and deal with cyberbullying, and current strategies or practices. The question guideline for the focus group was employed as a research instrument. Participants in the focus group discussion included the following: It is a group of teachers from educational institutions in the study area, including instructors, guidance teachers, and administrative teachers of students, who have had encounters with cyberbullying. They were elementary school teachers from two schools along with secondary school teachers from two schools, for a total of four schools and 20 individuals.

Stage 2 (D1): Initial Product Development is a step toward developing regulatory measures for preventing and dealing with cyberbullying among children and young people. Using six workshops operated by the research team in collaboration with law enforcement experts, experts from both elementary and secondary institutions, experts from the Office of Educational Service Area, and professionals from the Queen Sirikit National Institute of Child Health, a total of 9 people participated

Stage 3 (R2): Design Validation/Product Trial is a step in which the draft of regulatory measures for preventing and dealing with cyberbullying among children and young people, divided into 1) regulatory measures for schools and 2) legal measures, is examined and assessed for effectiveness. The school regulation measures were put in place at one of the example schools. The effectiveness of the regulatory measures was examined via focus group discussions. The focus group consisted of five people: teachers, supervisors in the educational region where the school was located, and an expert from the Office of the Basic Education Commission (OBEC). Participants in the examination of the legal measures included five people: law enforcement officers, a representative from Child Online Protection Action (COPAT), a psychiatrist from the Queen Sirikit National Institute of Child Health, and a representative from the Thai Media Fund. This stage had a total of 10 people participating.

Stage 4 (D2): Product revisions serve as a step toward enhancing the effectiveness of regulatory measures, which are divided into regulatory measures for schools and legal measures, with the emphasis on improving the measures so that they are suitable and can be used as a model, as well as evaluating the systems and mechanisms for implementing measures. The study team engaged in a partnership with a panel of experts consisting of professionals from the fields of psychology, sociology, and law enforcement. This group of experts included a total of 8 people. The collaboration used a workshop-based approach, which was conducted on three separate occasions.

Stage 5: Dissemination and Implementation refers to the dissemination process that will encourage the extensive implementation of regulatory measures to prevent and address cyberbullying among youths. The study employed seminar and dialogue techniques, and the participants were professionals from various sectors and agencies responsible for implementing the measures with at least one year of professional experience or involvement in the field of cyberbullying policy or expertise. Collaboration has been emphasized throughout research and development, a total of 16 individuals.

A summary of the research process is shown in Figure 1.

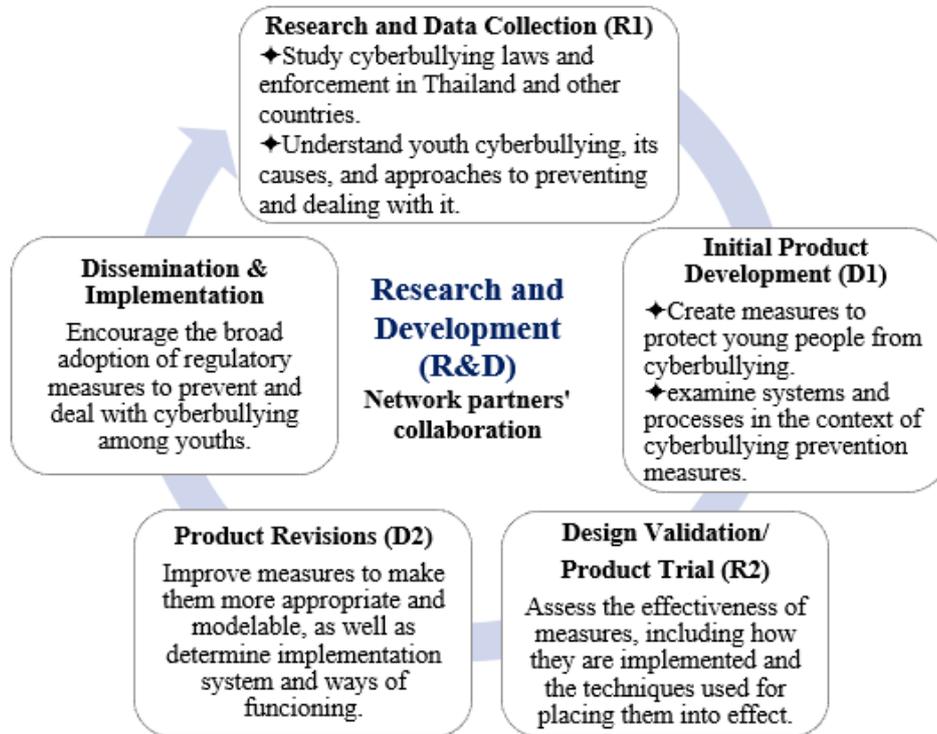


Figure 1 The research and development process (Researcher, 2023)

Data Analysis and Creditability

For data analysis, qualitative content analysis was employed. The following processes comprise the analytical process: 1) data preparation; 2) defining the unit or theme of analysis by classifying the content into themes; 3) developing categories and a coding scheme; 4) pre-testing the coding scheme on a sample; In order to ensure consistency, 5) coding all the text by applying the coding process to the data, 6) assessing the consistency of the coding employed after coding the whole data, 7) drawing inferences on the basis of coding or themes by exploring the properties and dimensions, identifying the relationship, and uncovering patterns in order to present the analysis, 8) Presentation of results that were supported by secondary data and quotes from the developed code.

The process of verifying the credibility of data comprises an internal audit that examines the appropriateness of the analytical technique and adherence to established procedures, as well as presenting evidence that supports the findings. The method for carrying out an external audit using Triangulation involves employing various data collection sources and methods, such as in-depth interviews, focus group discussions, and documentary analysis. Furthermore, many theories have emerged for an interpretation of the phenomenon, and the investigation involves the participation of multiple researchers.

Research Ethics

The present study has been granted research ethics approval by the Human Research Ethics Committee of the Faculty of Social Sciences, Police Cadet Academy. Before starting data collection, the researcher clarifies the preliminary information in the research study with the research participants. It must be shown in the participant information sheet, including requiring the research participant to express his or her intention to participate in the research by signing an informed consent form. In addition, the researchers maintained respect for informants by not adding anything to the memorandum or transcript that was not the informant's statement.

Results

The present problems associated with cyberbullying among Thai youths

In the current situation of cyberbullying among children and youth, it was found that there are still widespread problems and many variations, including mocking posts that use text or images to point out the inferiority or alienation of others, posting messages back and forth between parties who have previously had dissatisfaction or quarrels, making jokes about the other's parents, or posting messages criticizing teachers.

"I grew up being non-congenital, and you will find words from childhood friends, both online and in real life, criticizing gender." (students)

"There was a lot of rudeness and bullying. It started with only two individuals, and soon their mutual acquaintances got involved." (teacher)

In terms of the characteristics of those who participate in cyberbullying, it may begin with a quarrel between two parties. Cyberbullying is believed to become more prevalent as more people engage, typically involving acquaintances from the same social group. Group leaders have a forceful personality, and their capacity to exercise influence over other members of the group may lead to the group engaging in bullying behavior. In terms of victim characteristics, a considerable majority of them display inferiority or alienation tendencies, which are often insulted by others who know them. The mockery thrown at those who identify as the third gender is especially striking.

"The group's leader is a mischievous kid who has friends who support him in his teasing." (teacher)

The ways of coping employed by victims of cyberbullying are diverse and multifaceted. The majority of young people choose to stay passive, not responding, while a minority decides to fight. Certain groups of children, on the other hand, utilize verbal exchanges to seek advice or express their frustrations, and some children prefer to communicate their concerns about being bullied to the bullying child.

"If I am being bullied, I have assured him that this abuse cannot be imposed on anyone else. To be insulted in such a way is quite annoying, and I don't recognize anybody enjoying it." (student)

The main factors that cause cyberbullying among youths The study has revealed that there are four factors that cause cyberbullying. These factors are as follows: (1) *The cognitive understanding of bullying among young individuals* is inadequate, particularly in relation to the use of online platforms and social media. This lack of knowledge and misunderstanding can result in ignorance about the consequences of bullying behavior. (2) *The role of family upbringing and surroundings in cyberbullying* can be seen when parents allow unsupervised or unguided access to online media for young people or when the perpetrator of cyberbullying was raised in a dysfunctional family setting. As a result, people regularly use various kinds of expression to draw the attention of both their peers and the outside world. A troubled upbringing may encourage children to model violent behavior and to believe that physical force may be used to resolve conflicts. (3) *Technology and social media* are factors that make cyberbullying more severe and widespread because it is readily duplicated and circulated. In addition, people might simply engage in bullying. (4) *In terms of current laws and regulations*, it was discovered that Thailand does not have legislation explicitly addressing the issue of cyberbullying, and there are limitations in applying existing laws to various forms of cyberbullying.

"This is due to the lack of digital media literacy, which includes things like not realizing that our actions leave digital footprints or that whatever we publish online could and will be sent to others." (representative of the media fund)

"Perhaps he grew up in a bullied household. When he was in a setting where violence was being used to solve problems, he remembered that if he employed violence, the problem would be solved." (teacher)

Cyberbullying legislation and its enforcement in Thailand and abroad

Findings based on a documentary analysis of legal and law enforcement issues associated to cyberbullying are as follows:

1. The examination of Thai laws related to cyberbullying revealed the lack of legislation that addresses cyberbullying. Currently, similar laws have been implemented; however, there remain limitations on the widespread embrace of various facets of cyberbullying. Consequently, attempts have been made to enhance the laws to encompass diverse expressions of bullying, although the additional provisions are inadequate in addressing every case of cyberbullying. Moreover, the absence of a precise definition of cyberbullying can be noticed in existing laws or proposed bills. The absence of definitive legislation leads to numerous limitations on the enforcement of cyberbullying.

2. The findings of a comparative analysis of the laws and enforcement of cyberbullying laws across six nations, including Thailand, the United States, the United Kingdom, Australia, Singapore, and China, revealed that Thailand, the United States, and the United Kingdom share similarities in that each of their federal governments has yet to establish explicit laws pertaining to cyberbullying. Similarly, difficulties arise when attempting to implement the remaining legislation to combat cases of cyberbullying. The issue of bullying, including cyberbullying, is governed by state laws in the United States, with a particular emphasis on cyberbullying among young people. The educational institutions of each state are responsible for monitoring and carrying out measures to handle and deal with such issues. Additionally, it can be noticed that the United Kingdom has a greater number of laws pertaining to the issue of bullying in comparison to Thailand. Several entities prioritize safeguarding children on online platforms. China, Singapore, and Australia exhibit a strong emphasis on the issue of cyberbullying. Singapore employs legislation to address both online and offline bullying, while Australia has enacted dedicated legislation pertaining to the issue of cyberbullying. In the context of China, while there is no distinct legislation pertaining to cyberbullying, the remaining laws serve to safeguard individuals from such forms of bullying. The provisions incorporated in the agreement aim to safeguard children and youth from online bullying, with a clear emphasis on the protection of victims of bullying across all three countries. The Chinese government places significant emphasis on the implementation of stringent legal measures to hold consumers accountable, as well as those who are responsible for watching over and controlling the online activities of children. China's legislation mandates that various sectors carry responsibility for preventing problems, which is an interesting aspect of the country. In Singapore, it is prioritized to immediately address complaints and protect the safety of those impacted. Australia maintains a rigorous system of oversight and governance, featuring a diverse array of regulatory agencies responsible for addressing instances of online abuse and regulating online services.

3. Factors influencing law enforcement effectiveness: The results highlight the following key issues for law enforcement: (1) Based on each country's problem circumstances, it was found that countries with an increasing number of cyberbullying problems enhanced their awareness of the necessity for law enforcement. (2) Government policy leads to more rigorous enforcement of the law. (3) Legislation that lacks a clear definition of cyberbullying, making it difficult to interpret for law enforcement, including the imposition of penalties that may lead to

disagreements between the need to recognize the offense and the consideration of the rights of those who are bullied. (4) Raising awareness of the dangers of cyberbullying among people who are unaware of the consequences of cyberbullying; as a consequence, there were no complaints from the persecuted side, which might result in a more severe and ongoing problem. (5) Collaboration between online media providers or platform suppliers (6) Collaboration among educational institutions in the prevention and resolution of issues (7) The complexities of cyberbullying tactics make it difficult to enforce the law. Documentary analysis on this topic is in line with in-depth interviews of key informants, as stated below:

"Almost all of the work we do on bullying is done in a way that clearly violates the law, such as attaching pornographic images to bullying posts; this will be discovered very frequently. In terms of publishing parodies, maybe it is not an offense, so people did not notify the police." (Representative of the Royal Thai Police)

Collaboration to develop cyberbullying safety regulatory measures for children and youth

1. Cooperation network recommendations for monitoring youth cyberbullying,

The outcome is based on suggestions provided by key informants from educational institutions, law enforcement agencies, associated agencies, and civil society. These recommendations ought to be employed in the formulation of regulatory measures aimed at overseeing the safety of young people against cyberbullying. There were three crucial issues, as follows: (1) *Promoting educational institutions' responsibility in combating and preventing cyberbullying* by focusing on the proper understanding of teachers, students, and families, as well as the development of educational institutions' systems and mechanisms to support problem prevention and resolution. (2) *Encourage the spread of knowledge as well as legal measures to prevent and combat cyberbullying.* Educating teachers, students, and parents about cyberbullying and improving cyberbullying legislation should be done proactively. (3) *Establish a collaborative network to prevent and resolve cyberbullying issues.* Due to the ease and speed with which online platforms can be accessed, cyberbullying is becoming more prevalent. To prevent and solve this issue, network partners from the educational, law enforcement, government, and private sectors, including civil society and people, should work together.

"School policies must be explicit. It must be a top concern not to accept bullying or any form of violence. Creating a culture of safety in schools is one approach. (representative of the Department of Mental Health)

"Encourage students and teachers to understand media literacy as well as becoming actual digital citizens. This will reduce the issue of cyberbullying" (representative of OBEC).

"I would like relevant agencies to educate us about the law. The realm of online law involves both teachers and students, as well as parents." (School Representative)

2. The development of safety monitoring measures with regard to cyberbullying among youths,

The researchers co-developed the measures to monitor the safety of Thai young people against cyberbullying with network partners participating in research at distinct stages of research and development. It is the product of a synthesis of cyberbullying issues, existing operations for preventing and addressing problems, and law enforcement circumstances, as well as recommendations for the development of measures from those who participated in the study. The proposed measures have been tried at educational institutions, and stakeholders have assessed their effectiveness. Finally, there have been measures developed that are comprehensive and possible to implement and expand. The regulatory measures developed by this study include the following main issues: firstly, the promotion of the roles and mechanisms of educational institutions in preventing and resolving cyberbullying problems; secondly, the promotion of knowledge and legal measures to prevent and respond to cyberbullying problems; and thirdly, the development of

cooperation networks to collaboratively prevent and resolve cyberbullying problems. The research team and partners from various sectors who took part in the study collaboratively developed the measures for monitoring cyberbullying safety among children and youth. In addition, In order to ensure comprehensive safety monitoring and maximize positive consequences for children and young people, The measures have been divided into two distinct categories: (1) Regulatory measures for educational institutions and (2) Legal measures to monitor cyberbullying safety among young people. Each category comprises sub-measures. Incorporating the operational approach of both measures for achieving pragmatic consequences. Figure 2 illustrates the relevance of collaborating in a network and provides a brief overview of the measures derived from the research study.

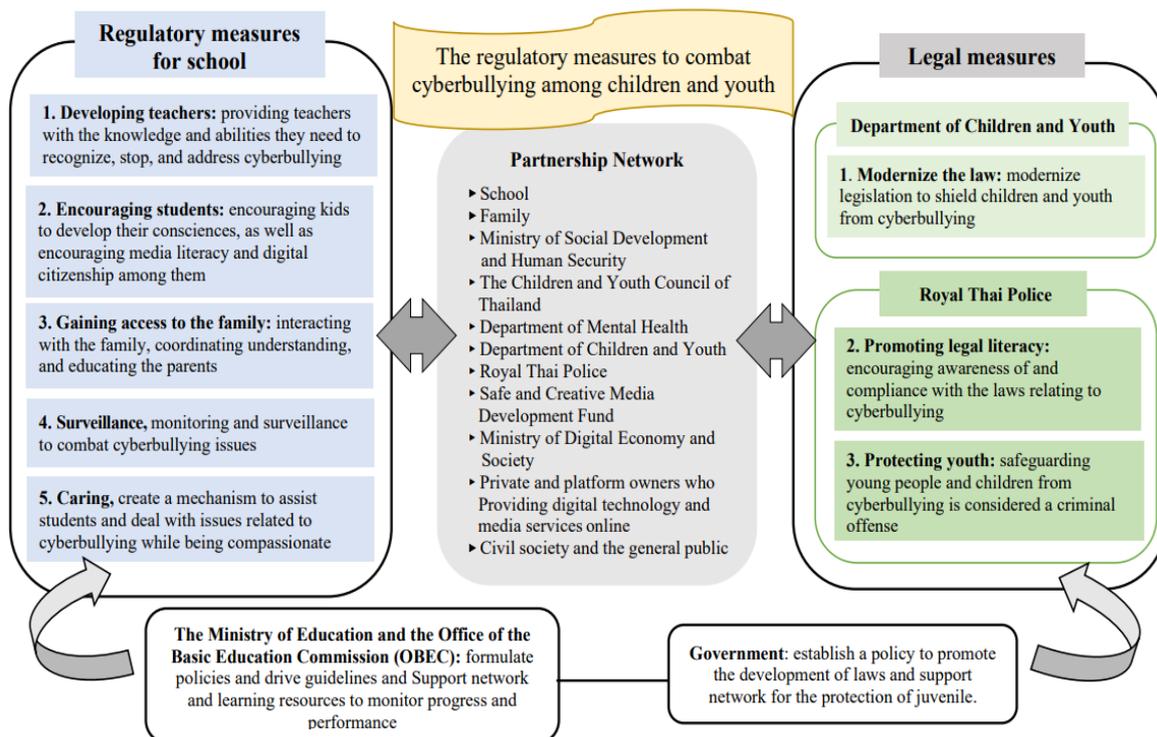


Figure 2 An overview of the measures utilized to combat cyberbullying among Thai youth (Researcher, 2023)

As illustrated in Figure 2, the regulatory measures for educational institutions encompass five practical guidelines, namely: developing teachers; encouraging students; gaining access to the family; surveillance; and caring. The legal measures discussed in this paper have resulted in researchers and participants from various networks to deem it essential to take action, despite acknowledging the inadequacy of Thailand's existing legislation in effectively addressing the growing issue of cyberbullying. The study additionally revealed a lack of awareness and understanding regarding the matter among people, that includes students, teachers, and parents. This involves to the essential significance of closely monitoring cases of bullying, which is deemed illegal, and promptly offers support to young people who encounter these acts of bullying. Moreover, for the successful implementation of both measures, it is essential to establish a clearly defined policy that not only supports but also enhances the operational mechanism at the practical level. The proposed mechanism should be structured as a collaborative network consisting of various partners. To enhance the collaborative potential of this network, it is essential to develop a well-defined strategy.

Discussions

The present problems associated with cyberbullying among Thai youths

This study revealed various aspects of cyberbullying among Thai youths. The phenomenon described has a similarity to worldwide bullying tendencies (UNICEF, 2021; Securly, 2018). These patterns encompass a variety of actions, such as the distribution of mocking content or Fabricated data on online communities with the intention of publicly humiliating individuals, engaging in impersonation, and sending messages that are physically, mentally, or threateningly abusive. The occurrence of patterns of cyberbullying is commonly observed in typical situations. Additionally, the present study discovered various factors that are associated with cyberbullying among Thai children and young people. These factors encompass a lack of knowledge and understanding of cyberbullying, the influence of familial upbringing and environmental factors on cyberbullying actions, the impact of technology and social media platforms, as well as the existing laws and regulations. These various factors associated with cyberbullying behavior discovered in the research findings can be explained by *the Routine Activity Theory* (Cohen & Felson, 1979), which states that because of their youth, young people who frequently use online platforms exhibit consistent patterns of behavior because they display a deficiency in control and awareness of their surroundings. The inadequacy of protection and supervision from an individual's family or guardians is a significant leading factor. As a consequence, children are vulnerable to being subjected to acts of bullying. In addition, the research findings are consistent with the findings of a study by Nattharat Samo (Samo et al., 2014), which came to the conclusion that the anonymity of online spaces contributes to the ease and convenience of bullying as a cause of cyberbullying. The legal aspect is consistent with Suwanakij's study (Suwanakij, 2017), which showed that there are limitations to the application of pertinent laws. The absence of specific laws leads to a lack of legal control over cyberbullying. The primary purpose of the law is not to serve as a simple way of preventing and addressing incidents of cyberbullying. Furthermore, there are a greater number of interconnections among the various factors that contribute to the occurrence of cyberbullying as opposed to isolated factors that singularly give rise to it. It is imperative to take into account and establish connections between various factors in order to effectively prevent and resolve issues.

Cyberbullying legislation and its enforcement in Thailand and abroad

According to a study of cyberbullying legislation in Thailand and other countries, Thailand lacks a law that addresses this issue directly. There are limitations in applying existing laws to various forms of cyberbullying as compared to other nations that prioritize law enforcement to penalize perpetrators, particularly while it concerns juvenile victim protection. Based on these findings and explanations, it is crucial that the approach for reducing and resolving cyberbullying concerns begin with the development of a comprehensive policy that offers a clear framework for preventing and addressing these challenges. It is also suggested that the legal framework be expanded to include a broader spectrum of cyberbullying instances. Laws that restrict law enforcement officers' activities limit their options. Thus, the prevention and resolution of problems in young people involves collaboration across multiple connected networks, especially educational institutions. This is due to the fact that some possibilities and areas are easily accessible to children and youth. This notion is consistent with the findings of Gabrielli et al. (2021) study, which focuses on school-based strategies for decreasing cyberbullying among adolescents. According to the study findings, preventative and remedial efforts should begin with a comprehensive analysis of the cyberbullying situation in order to build an accurate plan of action focused on preventing potential issues. Furthermore, the study

emphasizes the need to work with parental networks to successfully address cyberbullying problems. Policies and networks are recognized as critical measures at the educational level. Attempts are being made in this regard to improve law enforcement and promote cyberbullying prevention among youths around the country. Educational institutions are a significant mechanism for collaborating with relevant networks and law enforcement organizations to prevent and deal with broad problems. Furthermore, in dealing with the issue of cyberbullying, legal measures must be precise as well as straightforward.

Collaboration to develop cyberbullying safety regulatory measures for children and youth

The recommendations provided by cooperation networks in this study. There were the crucial issues, including promoting educational institutions' responsibility in combating and preventing cyberbullying, encourage the spread of knowledge as well as legal measures by educating teachers, students, and parents, and establish a collaborative network to prevent and resolve cyberbullying issues. All of the suggestions made for dealing with cyberbullying are in line with a study by Methinee Suwanakij (Suwanakij, 2017), which examined recommendations for preventing and dealing with cyberbullying issues in educational institutions, as well as educational institutions' responsibilities and approaches. There are requirements for increasing awareness of cyberbullying among young people, including recommending that schools take actions to prevent and deal with this issue seriously. Communicating with students and teachers, as well as their parents and a network of cooperation, necessitates educational institutions coordinating with social media service providers to ask for cooperation in the management of inappropriate deletion of information and coordinate the referral of those with mental health problems from bullying to specialized services. This approach emphasizes educational institutions as a critical mechanism. The emphasis is on developing a network of collaboration based on the duties and expertise of each department. Because present Thai legislation does not support all forms of cyberbullying, the focus is on establishing clear regulations and rules for educational institutions, including being cognizant of the gathering of bullying evidence for investigation (Suwanakij, 2017). The establishment of a collaborative network with law enforcement agencies could help educational institution workers comprehend the law and formulate explicit rules and regulations, including guidelines for safeguarding children against cyberbullying, which is recognized as a form of offense.

This study focuses on proposing regulatory measures to protect children and youth from cyberbullying. There are two distinct kinds of measures: regulatory measures for educational institutions and legal measures to oversee cyberbullying safety among young people. The regulatory measures for educational institutions include five practical guidelines: developing teachers; encouraging students; gaining access to the family; surveillance; and caring. The developed guidelines are in line with *the Social-Ecological Model theory*, which considers the influence of complex interactions between individuals, relationships, communities, and social factors that lead to cyberbullying (Gou et al., 2021). As a result, the issue must be addressed from all angles to eliminate the various factors that are at the root of bullying behavior. An outstanding illustration of this concept in practice is a study by Swearer and colleagues (Swearer et al., 2006) aimed at developing "a social-ecological model for bullying prevention and intervention in early adolescence" for preventing cyberbullying behavior and to prevent young people from being victims of cyberbullying. The program at hand encourages a wide range of roles. The parties involved are as follows: 1) Community: work with law enforcement, religious leaders, and community leaders to eliminate bullying and victimization. 2) Individual: support bullied and traumatized children with both internal and external concerns. 3) Parent: include family members in the intervention. 4) School: evaluate and address bullying with school personnel. Protect oneself

against workplace bullying. 5) Siblings: foster positive sibling relationships. 6) Peer: Clear up the notion that peer bullying is acceptable.

The legal measures mentioned in this study emphasized the crucial need of monitoring bullying, which is illegal, and providing immediate support to young people who are bullied. It also is consistent with Metinee Suwanakij's (Suwanakij, 2017) study, which proposes the implementation of legal strategies in the United States. The aforementioned comprises educational regulations defined in the State Education Codes and penalties imposed by law. Each approach has distinct advantages and disadvantages. This study suggested that Thailand should consider implementing both options. Educational institutions are encouraged to prioritize the implementation of precise measures for the purpose of monitoring cases of cyberbullying, including those that are considered illegal. Additionally, it is recommended that efforts be made to enhance the awareness and comprehension of relevant legal matters among students as well as teachers. Legal proceedings related to criminal laws can be a subject of controversy with respect to taking legal action against children and young people who engage in acts of bullying, owing to their relative lack of maturity. Hence, it is necessary to further consider improving Thai laws to align with the country's particular context.

In order to effectively implement both measures, it is critical to establish a well-defined policy that supports and strengthens the operational mechanism at the practical level. This mechanism should take the form of a network of partners, requiring a deliberate strategy to improve the network's capacity to collaborate. The aforementioned references to the study of Thipwimol Sangsuwan (Sangsuwan, 2018), which indicate that the establishment of a network was effectively accomplished. The amount of collaboration and the quality of relationships developed among the relevant parties are both important in achieving the specified goals and objectives within a specific work process. The establishment of a strong network enhances the possibility of successfully resolving policy advocacy challenges and strengthening negotiation as a bargaining chip. It is critical to have a continual development and learning process. The present study elucidates the beneficial outcome of the collaborative network in measure implementation. The collaborative approach to integrating multiple sectors has been shown to produce greater synergy in preventing and minimizing the impacts of cyberbullying among young people than enabling one agency or each unit to function alone.

Conclusion and suggestions

Thailand currently lacks specialized laws addressing the problem of cyberbullying. The research of children and adolescents in educational settings reveals that there are still limits when it comes to dealing with the problem of bullying, which is a serious threat to the well-being of children and young people. Cyberbullying, both intentional and unintentional, continues to be an issue. For victimization by peers among youths as well as victimization by adults against young people, educational institutions serve as crucial mechanisms. It has the ability to act as a connection between families, organizations, and various sectors, enhancing interaction and collaboration. To address preventative and problem-solving efforts, it is critical to seek the construction of legislative measures that permit comprehensive safety oversight at the same time. As a result of this research study, cyberbullying safety measures for children and young people were established, including measures for educational institutions and legal measures.

The implementation of measures in all dimensions is emphasized in the overall picture of educational institutions. This involves the cultivation of teachers' accurate knowledge and comprehension, thereby enabling the transfer of acknowledged comprehension to students and parents. In accordance with the requirements for students, the same significance must be given to

fostering mindfulness and advancing media literacy and digital citizenship. It is imperative for parents to prioritize the enhancement of their parental knowledge and collaboration with educational institutions in the monitoring and provision of care for their children and young people. Furthermore, it is important to enhance the systems and mechanisms of educational operations to oversee occurrences and provide support to students. The effective management of operations necessitates collaboration among the various networks and all parties involved, contingent upon the corresponding duties and expertise of each agency. The focus of established legal measures lies in utilizing legal mechanisms to safeguard the well-being of children and young people rather than turning to punishments. Enhancing legal regulations and disseminating legal awareness among the general public and law enforcement personnel can reinforce the efficacy of educational institutions' mechanisms, thereby enhancing their capacity to prevent and resolve issues concerning the safety of children and young people all over the country.

In order to successfully apply research results to policy, governments must develop policies that promote the adoption of study-derived measures. Advocating for legislative changes focused on reducing gaps and legal limits is especially important. Furthermore, emphasis should be placed on encouraging coordination among the appropriate authorities in order to properly implement the imposed measures. The policy-level authorities in charge of implementing measures at educational institutions are the Ministry of Education and the Office of the Basic Education Commission. It is critical to properly consider the system and processes for implementing the measures at educational institutions, with a particular focus on developing a systematic follow-up. The policy is successfully promoted to educational service areas and educational institutions to achieve broad acceptance, supporting coordinated efforts and efficient operations. Educational institutions, especially in the context of education, serve as the principal engine for executing the policies. Executives should participate in frequent interactions to build understanding among workers. This may be accomplished by including relevant data as well as developing essential knowledge and skills in the curriculum and lesson plan. Additionally, executives should provide monitoring, follow-up, and assistance inside educational institutions' student care and promotion systems. In addition to collaborating organizations, it is essential that help or support be offered in accordance with the organization's function and expertise so that educational institutions do not operate in isolation. Considering that we have discovered that some perpetrators of cyberbullying are children and young people who are still immature, it is critical that any revisions to the current law pertaining to this issue be subject to careful examination and compliance with established legal measures. The prioritization of preventive measures over repressive ones is crucial for safeguarding the well-being of children and young individuals. Furthermore, while measures derived from the study findings are validated for their effectiveness and practicability via the process of research and development, those who are mainly responsible for the measures must maintain ongoing and consistent collaboration with network agencies and communicate to promote comprehension regarding the implementation of the stated measures in order to achieve sustainable benefits. It is possible that there will be opportunities for engagement in the form of a forum wherein individuals can exchange knowledge and insights regarding implementation as well as the consequences of all the measures. The present study is going to focus on the integration of various agencies, encompassing educational agencies, other governmental agencies, and civil society. However, it may not have garnered widespread attention among people in general. Hence, it is critical for the government to promote various approaches to communicating with the public by seeking the involvement of mass media to extensively campaign against cyberbullying and serve all segments of the population in Thailand.

New knowledge and the effects on society and communities

The new knowledge gained from this study serves as the "core idea" for developing measures to protect children from cyberbullying. Adopting "a comprehensive approach" to the prevention and resolution of cyberbullying among youths is crucial. The primary purpose of the educational institution is to enhance information transmission and foster a secure and safe environment free from bullying. This involves employing legal measures to protect the well-being of children and young people. Figure 3 illustrates the new knowledge gained from this study.

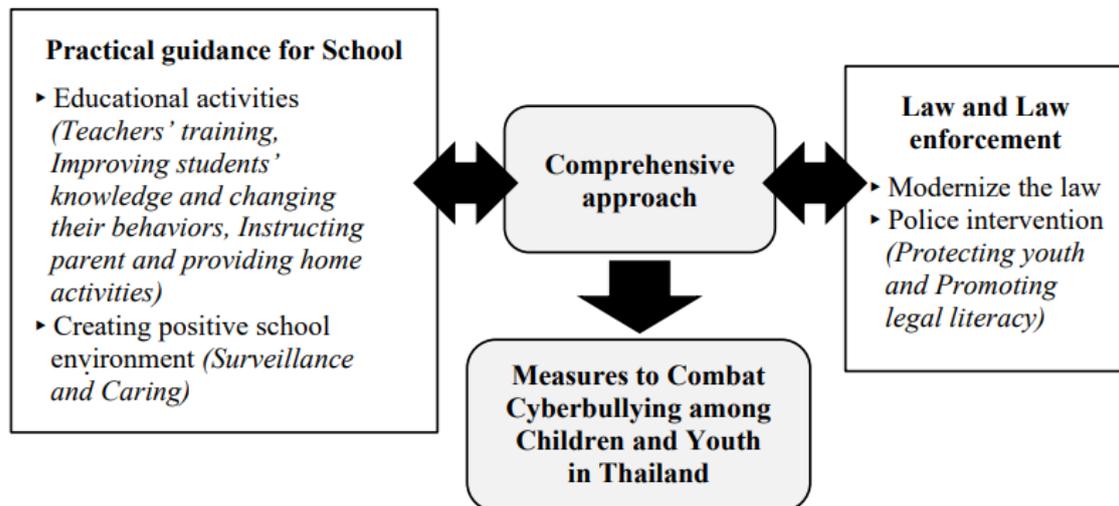


Figure 3 The theoretical implications for developing measures to combat cyberbullying among children and youth in Thailand (Researcher, 2023)

The notion of a "comprehensive approach" has resulted in the establishment of "Measures to Combat Cyberbullying Among Children and Youth in Thailand," a set of guidelines for educational institutions and law enforcement organizations that has yet to be clearly established. There is an especially pressing need to improve laws that encourage effective management and resolution of cyberbullying occurrences, including guidelines for the development of relevant cooperation networks, in order to set a mechanism to drive the implementation of the measures seriously. Moreover, the current study is a crucial aspect of research and development (R&D) continuity. Collaboration is being practiced between researchers and participants from various sectors in order to contribute to the development of measures that emphasize the well-being of Thai youth. This involves encouraging appropriate behavior while using online media. The research discovered two interesting positive outcomes: higher awareness among cooperation network partners about the dangers of cyberbullying among youths and the establishment of response guidelines that match the agency's varied duties and responsibilities. The Ministry of Education is in charge of developing policies and putting them into action to provide a secure online environment for young people across different educational institutions.

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Ways to Teach English after the COVID-19 Era

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Abstract

This article tries to illustrate the circumstances of teaching English in the New Normal following the global spread of the COVID-19 pandemic, which has led to an essential role for online education. The objectives of this study were to examine the evolution of English language learning, from traditional methods to the "New Normal," focusing on the integration of technology in contemporary language education, explore the ways to teach English through online platforms and analyze the advantages, disadvantages, and limitations of online learning. The data was collected using quantitative and qualitative methods. Quantitative data was gathered using a questionnaire while qualitative data were derived from books, research, articles, and relevant news sources. The study sample comprised 200 undergraduate students from Phetchabun Rajabhat University during the 2566 B.E. academic year. This study aligns with active English language learning and is attuned to productive language learning, adapting to the New Normal era's changing dynamics for effective learning and fostering communication-focused English instruction in this context. This is regarded as active learning English language instruction and is also connected to productive learning language instruction, which adapts to the New Normal era in accordance with the changes that occur to adjust and learn effectively the New Normal as same as implementing communication-focused English instruction in the New Normal. Promoting teaching and learning in the twenty-first century has a form and objective that attempts to give students the opportunity to acquire and practice various skills on their own, regardless of time or space constraints. The study results indicate that students held a neutral stance ($\bar{X} = 2.83$, S.D. = 1.91). It showed that students could cope with the situation. The COVID-19 pandemic forced a rapid and widespread shift to online learning, with profound effects on education. The COVID-19 pandemic accelerated online learning adoption, offering flexibility and safety. The advantages include accessibility and convenience, allowing remote education. However, it revealed the disadvantages such as the digital divide, hindering equitable access. Challenges like decreased social interaction, distractions, and mental health issues also emerged, impacting the overall educational experience. Educational institutions should enact policies for coordinated training, encouragement of content development, knowledge-sharing sessions and managing best teaching practices for the best of everyone.

Keywords: Learning english, Online teaching, The new normal, Application

Introduction

English skills have become paramount in today's world, whether for direct communication, internet use, computer programming, or academic pursuits. Graduates proficient in English, encompassing speaking, reading, and writing, have a distinct advantage in both domestic and international job markets. Consequently, higher education institutions are increasingly emphasizing English language education. Moreover, the government is actively promoting educational reforms to enhance the quality of Thai citizens' learning experiences, enabling them to reach their full potential.

In the current digital age, the internet is ubiquitous, providing a wealth of resources for English language development. Students now have access to a wide array of materials to enhance their English skills and prepare for language exams. The availability of online resources, including lessons, informative websites, and skill-enhancing videos, can significantly facilitate English language learning. These resources can be complemented by assessments to gauge proficiency levels effectively.

The emergence of the COVID-19 pandemic situation has spread around the world, it has greatly affected the lives of Thai people in history. Human beings have gone through many pandemic crises, but never once have the impact on humans, society and the world covered a wide dimension because this virus not only results in sickness and loss on the individual level. The outbreak of the coronavirus continues to affect every dimension and almost every country in an era where the environment changes, emerging diseases, and lifestyles suddenly enter the “New Normal”, which causes learning to live a New Normal way of life to protect yourself and others. Including the online teaching system has come to play a very important role during this period. This adaptation requires students and teachers to plan the content in the lesson concisely and get the main idea in that chapter. Therefore, it is not uncommon to give time to study comprehensively and appropriately when teaching in an online classroom.

The learning trend of the new generation in the digital age has changed from the past due to technological advancements that have resulted in a dramatic change in learning styles, especially online learning. The online study model has been widely seen today and it will grow even more because it can answer the knowledge of modern people very well. The learning model is suitable for the information age. Is a model that can use technology to benefit everyone can learn as appropriate. Individual interests and abilities drive new learning styles, such as online courses or other learning channels such as images, audio, video, social media, and games. This is a good opportunity for the new generation to choose a learning style that is suitable for themselves, from a survey of the behavior of the new generation sample group (Gen Y, Gen Z). It was found that the knowledge that this group needs more is work knowledge skills life skills and knowledge in daily life, respectively (Office of Knowledge Management and Development, 2017)

Online teaching is another form of educational innovation that can change the traditional way of learning to a new learning that uses technology to help teach. In addition, another meaning also means distance learning, learning through the web as well Online teaching will be learned via the Internet in the form of a computer, using modern technology combined with the Internet network, creating a high-quality interactive education without the need to travel, convenient and quick access. , anywhere, anytime, which creates lifelong education for the online teaching population, is self-study through the Internet, learners can choose to study according to their own preferences. In terms of learning content, it consists of

text, images, audio, VDO and other Multimedia. These will be sent directly to students via Web Browser, both students, teachers, and all classmates, making it possible to communicate, Consult, exchange ideas in the same way as learning in general classes by using E-mail, Chat, Social Network, etc. For these reasons, online learning is suitable for everyone, anytime. Online media play a role in improving English language teaching for Thai people, so it should be another option that can reach people wider and faster. Communicating through online media channels is a technological tool that will help stimulate and train people to use the language in real life. It is also a technology that helps to practice language outside the classroom. In real life, it can be said that online media is a technology that can play a role in improving a person's English.

Furthermore, self-directed learning is a way of learning that is in line with changes in the current situation because it is a learning that allows individuals to initiate learning on their own, making learners motivated to study and have good learning. In addition to a new education that emphasizes center-based learning, independent learning is learning in which students are responsible for planning, implementing, and evaluating their own learning progress.

As barriers from the outbreak of the COVID-19 pandemic affected Thailand, Thai's government imposed strict measures of lockdown by announcing to close the schools, colleges, universities, and all educational institutes for a temporary period to control the spread of the virus and this has generated challenges to the education system in Thailand, disrupting the normal teaching and learning process. To ensure the continuity of the educational process, face-to-face online classes were promptly switched to online mode, to save students' academic year and curriculum. However, this sudden shift from onsite education to online education has caused many challenges in its implementation, infrastructure, resources, adoption, effectiveness, and interaction between teachers and learners. There are many issues concerning the use of eLearning to deliver effective lessons to students at home during the pandemic crisis when Thai school campuses are temporarily closed while learning must continue. One of face-to-face learning classes such as an English class may become less efficient, a researcher is interested in the advantages and disadvantages of English online learning and find the way to improvise them for further English online learning.

Objectives

1. Examine the evolution of English language learning, from traditional methods to the "New Normal," focusing on the integration of technology in contemporary language education.
2. Explore the ways to teach English through online platforms.
3. Analyze the advantages, disadvantages, and limitations of online learning.

Literature review

The term "New Normal" is defined by the Oxford Dictionary (2021) defines the New Normal as "a situation that used to be unusual but is now what you should expect". It refers to a situation or phenomenon that originally was unusual, unfamiliar to people, not standard, and then there was some cause or crisis. So, there is a change to make that situation or phenomenon become normal and standard.

Boonsiriphan (2020) said that "New normal" means a New Normal or a new way of life. It means a new lifestyle that is different from the past due to something affecting the patterns and practices that people In a society that is normally familiar and predictable, it must change to a new way under new unfamiliar standards such as ways of thinking, ways of learning, ways of communicating, ways of doing things, and managing. It can be concluded

that "New Normal" means a New Normal or a new way of life, a new way of life that is different from the past due to something affecting, in this case, the pandemic of COVID-19.

English plays an increasingly important role today as a teaching tool. and the pursuit of knowledge in science, mathematics, economy, information technology, communication, and occupation, resulting in the need to develop a curriculum structure according to the changing circumstances of the global society that directly affects the learners. In this regard, Menyam (1999) proposed a principle for learning English that should start learning from the sounds of English first. The learners should be trained enough to see that English has a system of pronunciation, vocabulary and grammar that can be used in further communication. Instructors should consider the complexity of the language, which is a major obstacle in communication, and should allow students to practice repeatedly until it becomes familiar and automatic in the end. In addition, the choice of vocabulary to be taught in the early stages should be vocabulary from real situations, meaningful and interesting to increase the vocabulary for learners, classroom activities should be spoken in real situations. Relevant to the learner and should be a short and real conversation. In teaching, the teacher must speak clearly, correctly, and not too slow, should use a normal speaking speed so that the students get used to it, and should use the sentence patterns and vocabulary that the students are learning before adjusting to new words and new sentences, as well as the use of modern technology that is appropriate for a variety of activities will help to learn language learning for students. Based on these principles, it can be concluded that teaching English should start with vocabulary, listening, answering questions, speaking in various situations, reading, and finally writing. Later in the teaching of English for communication purposes, teaching and learning has been developed by using it as a main concept in teaching English in Thailand for over 2 decades, but it has not been as successful as it should be. It may be the result of studying for the exam, mainly focusing on teaching grammar and memorizing vocabulary, not learning to really focus on communication, causing learners to be unable to apply to real situations because of lack of discipline and motivation to practice the use of English. However, with the changing social conditions, English has become more important in everyday life or can be said to be a part of everyday life, such as movie tickets, device manuals, electronics, food and drug labels, Information signs, even websites, games, and various applications on smartphones use English as the main language, so it is no longer possible to deny the use of English in everyday life. Teaching and learning are not a process of transferring knowledge, but a promotion of lifelong learning skills for individuals. The learning framework of the P21 Network (2023) proposed that learners must possess the 3Rs skills, emphasizing reading skills, writing skills and numeracy skills in mathematics (Arithmetic's). These are the foundation necessary for learners to learn and the 8Cs are Critical Thinking and Problem Solving skill, Creativity and Innovation skill, Collaboration, Teamwork and Leadership skill, Cross-Cultural Understanding skill, Communication, Information and Media Literacy skill, Computing and Media Literacy skill, Career and Learning Self-Reliance skill, and Changed skill, and Panich (2013) proposed 2 more skills (2Ls), Learning Skills and Leadership, to make learning management in line with the changes that have happened.

Teaching English with the application of various media, such as inserting English lyrics into the content, is considered important in communicating meaning, transferring knowledge to others, conducting activities, and social coexistence. For this reason, learning English aims to provide individuals with the ability to use English for communicating properly and appropriately according to situations, occasions and facts that occur in society.

However, English language teaching has set standards and language proficiency levels that show clear and concrete performance, such as the level of language skills and knowledge that is expressed in the form of observable behavior. and can be measured. For example,

Krashen et al. (1995) proposed a Natural Approach (NA) that divides second language development into five levels: 1) Preproduction or Silent period, where new language learners tend to spend time learning new words and practicing pronunciation. Learners may use a nod or shake of their head instead of answering “yes” and “no”. 2) Early production: learners begin to use communication language or speaking skills to answer short questions or creating short phrases but may still be grammatically incorrect. 3) Speech emergence: learners can respond in a second language with short sentences. Learners gain more comprehension and begin to read and write in their second language. 4) Intermediate fluency: learner can communicate both verbally and in writing using more complex sentences. and 5) Advanced fluency: learners need to have continuous opportunities to speak a new language to achieve fluency in the language. Learners need to practice using the language regularly to increase their fluency and confidence.

Teachers of English to Speakers of Other Language: TESOL (1995), the author describes the level of knowledge of English divided into 2 levels as follows: 1) Beginning or L1, learners have limited understanding of English or do not understand, answer Respond to simple commands and questions with a nod or shake of your head instead of speaking. As learners gain more understanding, they begin to imitate others' answers using single words or simple phrases. 2) Emerging or L2, Task-based Instruction (TBI), where task-based instruction in a language is a teaching approach to building new knowledge and developing learner abilities by learning new things while Learners can understand the language characteristics. This teaching model places more emphasis on learning theory than language theory, such as 1) various forms of language, 2) language structure, 3) language functions, and 4) interaction between learners and teachers. and creating student-learner interactions with mediation work. The components of the task are aims, inputs, operations, roles, and outcomes, which include a variety of activities such as question-and-answer sessions, discussions and role-plays, pairings, storytelling from pictures, discussions and decisions, comparisons, data sorting and classification, etc.

Task-based language teaching can be very well integrated into this concept of communicative language teaching for learners because it is a hands-on teaching style. which provides an opportunity to develop analytical thinking and problem-solving solving in order to complete the work according to the specified goals as Intarasuta et al. (2017) proposed the idea that teaching English as a second language or a foreign language focus on performance communicative competence, the development of learners to be able to use the language to communicate and have knowledge of the core language along with the use of communicative language suitable for various situations through task based instruction. This is a teaching method for learners to develop meaningful use of language and combine them with critical thinking skills, initiative to solve problems and use them to work together as a team to complete activities or tasks.

However, the author agrees on the point that the educator becomes the role of advocate in teaching and learning so that the learners create new knowledge through critical thinking from learning English. In this regard, the use of language through various communication activities in line with research results, both at home and abroad, many jobs have brought the focus of work to develop listening, listening ability, reading and writing, including grammar and English for the profession. Referring to research that mentions the development of teaching and learning of English teachers has been continuously developed, such as Yaboonwan (2021) has conducted research on the development of learning activities the use of digital technology for teaching and learning with infographics that affect digital literacy of student of teacher's faculty of education Silpakorn university. The research instruments were 1) interview form with experts as a guideline for developing learning activities on the digital technology for

teaching and learning with infographics. 2) a lesson plan activity on digital technology for teaching and learning with infographics. 3) Infographics on the application of digital technology for teaching and learning. 4) Measuring Digital literacy 5) An evaluation form for teaching media design and 6) a questionnaire on satisfaction with learning activities on the digital technology for teaching and learning with infographics that affect the digital literacy of student's teachers. The research result reveals that: 1) The results of digital literacy of student's teachers Before and after participating in learning activities. The digital literacy scores after participating in the activity were significantly higher than the pre-activity test scores with a statistically significant difference at 0.01 2) The results of a study of media design for teaching and learning of student's teachers overall is at a good level. 3) The results of a study of satisfaction with learning activities on digital technology for teaching and learning with infographics with the highest level of opinion.

Pakdeewanich (2022) has conducted research on Technological Pedagogical and Content Knowledge Model in Language Education to Develop English Speaking Communication Skills of Secondary Students in Digital Disruption Era. The research findings found that 1) The study of TPACK Model in Language Education lesson plans to develop English speaking communication skills consisted of the unit topic: Iron Chef Watbanma School included of 4-unit plans were Unit 1: In the kitchen. Unit 2: In the garden. Unit 3: I can cook. Unit 4: Create my own dish. with 5 teaching stages (PRCPR Model) 1) Plan 2) Research 3) Collaboration 4) Reflection 5) Public Presentation. The IOC was at 1.0, the quality of the lesson plans was at a very good level. 2) The results of the post-test of English-speaking skill showed an average score of 78.50%. More than 60 percentages of students were reached in English learning achievement.

Pengwong (2018) has conducted research on Effects of Using Animation Films to Promote English Listening Abilities Among Grade 10 Students at Soemngam Witthayakhom School, Lampang Province. The result of this study revealed that 1) all lesson plans to promote grade 10 students' English listening abilities by using animation films as media were qualified and suitable to use. 2) This study also revealed that the students' English listening abilities were higher after being taught through animation films as a media at the .05 level of significance and 3) the students had a high level of satisfaction with learning through animation films.

The current generation of Thai learners appreciate being given choices, the opportunity to express their personal opinions, and the quality of 'sanook'- having an element of playful fun in work, school, and with their friends (Phanich as cited in Santhuenkeaw et al., 2019). In a survey of 310 Thai undergraduate university students concerning the usefulness of eLearning conducted by Imsa-ard (2020) early during the pandemic, disagreement was expressed with the following statements; online learning (81%) supports the communication between instructors and students, (71%) enhances the quality of learning (58%) encourages sufficient access to education, (42%) Instructors could organize the lessons efficiently, (61%) is more comfortable than face-to-face classrooms, and (55%) I am willing to learn online in the future. The overall results indicate that although Thai university students have the technological skills, they fail to recognize many of the significant benefits of eLearning.

How Thai Teachers are Coping with COVID-19 eLearning. One especially noteworthy and positive trend is that school leaders are beginning to open up to a new mindset of promoting a collaborative school culture among all staff where knowledge sharing is valued and trying out new ideas without fear of failure (Alqahtani & Rajkhan, 2020). In a survey by Marinoni, Van't Land and Jensen (2020), the staff welcomed the opportunity to explore different types of online learning strategies (hybrid, blended, and mixing synchronous and asynchronous). In

another survey by Lim & Wang (2016), Thai teachers expressed more confidence in exploring the potential of flexible learning and the belief that this will lead to further innovations. An important concern for teachers with low proficiency in English is that the majority of quality online learning content is in English, which they may not be able to translate easily. (Lim & Wang, 2016). Thus, one strategy would be an incentive for Thai teachers to develop their own content, which is contingent on the support of the school administration.

The research review mentioned above reveals the potential development of English language teachers who try to adapt teaching techniques to suit their learners perfectly, whether it is the use of interactive media with English infographics and the use of vocabulary in the students' daily routines to converse instead of speaking Thai. All of this is the development of teaching and learning in the present era before the Covid-19 situation.

Methodology

Based on the significance and value of learning English during the COVID-19 pandemic, this article draws on previous research and theories to analyze the current situation and emerging trends in online English learning in the "New Normal".

Through an analysis of past teaching and learning experiences, it is evident that English language acquisition is a complex undertaking in Thai society. The qualitative research methodology employed in this paper explores the evolution of online teaching and learning from the past to the present, enabling an accurate explanation and analysis of present-day events. This approach provides a comprehensive understanding of the current situation and serves as a valuable resource for guiding future online English language instruction.

1. Quantitative data collection

A sample of 200 undergraduate students of 2566 B.E academic year from Phetchabun Rajabhat University was selected using simple random sampling. Participants completed a questionnaire gauging their opinions on various aspects of online learning, including memorization, language clarity, lesson review, knowledge accuracy, correspondence to needs, changes in reading or writing strategies, and motivation. The data collected were analyzed using descriptive statistics in SPSS, generating mean scores and standard deviations. The range of weight arithmetic mean is divided into 5 levels for interpretation as follows:

1.00 – 1.49 means Strongly Disagree

1.50 – 2.49 means Disagree

2.50 – 3.49 means neutral

3.50 – 4.49 means Agree

4.50 – 5.00 means Strongly Agree

2. Qualitative data collection

Information was gathered from a variety of sources, including 5 books, 3 research papers, 10 articles, and 6 relevant news. This qualitative data underwent a comprehensive analysis to understand the evolution of online learning from past to present.

3. Data analysis

Both quantitative and qualitative data were synthesized to address the research objectives and inform the study's findings. The integration of these data sources provided a holistic understanding of the current state of online English language education. These research methods enable a comprehensive exploration of the subject matter, facilitating a deeper understanding of the transformation in online English language education in Thailand's "New Normal."

Results

During the year 2020-2021, the outbreak of COVID-19 in different countries is different, but the important thing is to focus on self-protection by wearing a mask, washing hands often, eating hot food and using personal equipment, working from home, keeping a social distancing together with government measures that reduce the movement of people, whether it is the closure of various places, as well as closing the city or closing the country, etc. There is a word that the "New Normal" of the Thai education sector should be a new weight to deal with the original problem, the phenomenon of COVID-19 that causes students to not go to school, teachers cannot manage teaching as before, causing a new awareness of what is really important and essential to student learning, such as existing core curriculum being too bulky and inappropriate for the individual child's context, and lack of dress and hairstyle rules. importance when children learn at home, etc.

First of all, the author would like to explain the meaning of the word "New Normal" that originated from the outbreak of the COVID-19 virus. That results in changes to work, strict health care, even management to learn to adapt, new life in various ways, such as eating, traveling, talking, economics with important to the well-being of people or even education. These all affect the lives of humanity around the world, the pandemic situation of the COVID-19 disease that occurred in late 2019 to 2020 so quickly and severely that it spread throughout world wild. A lot of people are sick and dead, which is a loss that humans need to prevent themselves to survive by changing various behavior in life that is different from the same way of life, resulting in a way of life called "New normal". Educational institutions need to urgently change their learning management methods to develop teachers' teaching and learning to be online to reduce confrontation until becoming a 100% online learning management. It is necessary to maintain social distancing between students and teachers, refrain from traveling to class, refrain from gathering in large numbers, refrain from many activities organized to develop students, wearing masks, defending thesis online, refrain from religious preservation activities such as an online candlelight vigil, Loi Krathong online, etc.

Online teaching is an educational model characterized by systematic teaching design, well-defined learning objectives, adherence to educational theories, content delivery using information and communication technology, and a primary focus on internet utilization. This approach empowers learners to access educational materials and engage in learning regardless of geographical constraints or time limitations. E-learning content typically comprises multimedia elements, including text, images, videos, audio, and, crucially, interactivity between students and teachers. The management of e-learning relies on dedicated software systems that automate various administrative processes, from enrollment to assessment (Sikkhaman, 2011).

A comprehensive analysis of student opinions indicated a neutral overall sentiment ($\bar{X} = 2.83$, S.D. = 1.91). When assessing specific aspects, sorted by average from highest to lowest, the following findings emerged; Lesson review received a neutral rating ($\bar{X} = 3.37$, S.D. = 1.90), Changes in reading or writing strategies were rated as neutral ($\bar{X} = 3.27$, S.D. = 1.90), Language clarity were perceived as neutral ($\bar{X} = 2.77$, S.D. = 1.92) Correspondence to individual needs was rated as neutral ($\bar{X} = 2.62$, S.D. = 1.93), Knowledge accuracy received a disagree rating ($\bar{X} = 2.49$, S.D. = 1.89), Motivation was also rated as disagree ($\bar{X} = 2.48$, S.D. = 1.92), Content Memorization received a disagree rating ($\bar{X} = 2.40$, S.D. = 1.89), respectively.

The data shown summarize each topic as in Table 1. The data shown summarize each topic as in Table 1.

Table 1 Means and Standard Deviation of Opinion

Overall	\bar{X}	S.D.	Result
1. Content memorization	2.40	1.89	Disagree
2. Language clarity	2.77	1.92	Neutral
3. Lessons review	3.37	1.90	Neutral
4. Knowledge accuracy	2.49	1.89	Disagree
5. Corresponds to need	2.62	1.93	Neutral
6. Changes in reading or writing strategies	3.27	1.90	Neutral
7. Motivation	2.48	1.92	Disagree
Total	2.83	1.91	Neutral

These results suggest that students expressed a mixed sentiment regarding online learning. Many aspects received neutral ratings, indicating a lack of strong positive or negative opinions. However, there were disagreements regarding effective knowledge accuracy, motivation, and memorization of content. These findings reflect the fact that students faced challenges and adjustments when transitioning to online learning. It is important to note that online learning is a relatively new concept for many students, and the challenges experienced may take time to address and resolve fully.

At the same time, online learning has both advantages and disadvantages that clearly show that students must study only the theory and have fewer opportunities to study in practice, which depends on each course, focusing on the content or practice to create understanding in each subject, which may be taught in a variety of ways, such as having quizzes sent during class or may be sent to the instructor's email. And another form is that the teacher arranges groups according to numbers and opens a small online meeting to brainstorm ideas for group work and may have a presentation before the end of each subject, including the online exam. It may be an exam camera through online media.

Advantages of studying online

1. Be able to choose to study according to the level of knowledge and interest

The advantage of online learning is that parents can help their children plan their studies according to their interests and skill levels, known as child-centered learning. What are you good at, what do you like, what do you want to learn? These will help guide the education system that makes children happy and fun to learn Including having the freedom to choose to study what the children are interested in

2. Teaching content is always up to date

It can be said that this is an important point that should not be overlooked because the content that is up to date and always updated can help children to always know new things, stay up to date with various situations and changes, and practice skills and gain necessary knowledge, can be applied in daily life and in the future In addition, parents are confident in the content and can sit and study with their children.

3. Always go back and review

No worries about not being able to catch up with friends or not understanding what the teacher teaches because children can go back and review from beginning to end until they understand at any time. Unlike studying in a classroom where you must study together with your friends, you can't go back to study or review the point that you don't understand.

4. Study schedule and place are flexible

There is no need to worry about the study schedule as children can choose a time that is convenient for them. They can also choose a place to study where children feel comfortable and can concentrate on studying as well.

5. Reduce the pressure to study when studying in the classroom

Many children may feel pressured when assessed to value total academic achievement over learning interest and joy. In addition, being pressured by being compared to other peers in the class, causing a feeling of inferiority, which when children feel pressured, stressed, and unhappy, will cause children stress, anxiety, lack of concentration, affecting academic performance and the relationship with the people around you eventually. Online learning can help reduce this stress because children won't feel the need to compete or be compared to anyone. It also encourages children to dare to ask and dare to express their opinions without fear of making mistakes.

Disadvantages of online learning

1. Children may lack concentration in learning

Some children may have trouble sitting for long periods of time, so parents should find a quiet space. Find online courses that allow children to interact with teachers, allocate time for learning and activities to match with the "golden time" that is available each day, in the morning from 9:00 AM to 11:00 AM and 2) the afternoon between 3:00 PM to 4:00 PM, including breaks in each class should not be more than 20 – 25 minutes.

2. Do not interact with others

Online learning deprives children of interacting with their classmates, leading to social development. Instead of engaging with classmates in group work together, eating and playing together during lunch breaks, children are more likely to engage with their peers in class otherwise they will be alone and then do everything by themselves, especially children who are entering their teenage years. In fact, at this age, it is the age that needs friends and needs understanding from the same generation. Parents may want to try adjusting themselves to be friends with children to help strengthen this aspect of development.

3. Must create self-motivation to study

It's difficult for children to focus on the screen for long periods of time. Therefore, parents may need to be motivated by choosing a small class. Teachers can take care of them thoroughly, have questions and answers. Classes are equipped with games to encourage children to have fun and want to learn.

4. Efficient learning equipment must be used.

Having access to effective learning materials is essential to making online learning effective. But of course, not every parent can afford that expense, be it a tablet, laptop or phone that can connect to the internet and both postpaid and top-up internet bills. The payout is quite high.

5. Parents must spend extra time taking care of them.

Many people understand that learning online just leaving the child in front of the screen is enough, but no, parents still need to keep a special eye on their children so that they do not sneak in to watch YouTube or play games. It can be said that parents cannot take their eyes off their children.

Limitations of Online Learning

Online learning in the COVID-19 situation, schools must be ready in areas such as teachers, students, and parents, including online learning management systems, media technology, and tools that support learning. learning such as computers, tablets, smartphones, and the Internet (Neadpuckdee et al., 2020) from the research of Chowprasith et al., (2019). It was found that there were high levels of problems in the curriculum, teachers, students, learning

management process, assessment, and Internet network signals. This corresponds with Ferri et al. (2020) who studied information about managing online learning during COVID-19. It was found that there were problems with internet connection and lack of electronic devices needed for students, teachers and students lacked digital skills and students lacked teacher interaction, resulting in lack of motivation to study from the problem of online learning. Schools should study about students' online learning behavior and listen to feedback to plan effective online learning management that is suitable for the school context (Thomas, 2020).

As the limitations in learning English, it is affected in terms of students not understanding the content being taught because of unstable internet frequency or may occur in the event that students are not ready in terms of equipment. These causes may be obstacles to teaching and learning, which has some research that has studied the problems that arise from online teaching, such as Thonghattha (2021) has conducted a study on the condition of online learning management in the situation of the pandemic of Coronavirus Disease 2019 (COVID-19) of teachers in the foreign language learning group of schools. Pak Phanang, Nakhon Si Thammarat Province, found that 1) the most popular application used by teachers in online learning management is the Line application (88.23 percent) and the least Google Meet (23.53 percent). 2) The problems that teachers encountered in online learning were problems with electronic devices, Internet connections, and programs used for online learning were the most common, financial problems, and student behavior problems were management. Time and self-responsibility of students. In addition, family problems also cause some students to work to relieve family burdens while at home.

Hengpaijit (2021) has conducted a study on Readiness for online learning of Siam University students during COVID-19 found that 1) during the pandemic of COVID-19, online learning played an important role in the educational system by hardware, software, and environmental factors, knowledge, comprehension, learners, and educators influence online learning. 2) Problems from online learning caused by internet problem school supplies availability of students and place of study 3) After the COVID-19 pandemic, each student has different learning preferences, such as online learning, on-campus learning, and blended learning.

As the result of advantages and disadvantages show that Thai teachers' resistance to changing their teaching techniques is the major challenge holding back innovation in teaching methods. To overcome this problem, leadership and administrative support is needed. According to Piamsa-nga & Poovarawan (2020) the reasons Thai staff falls into habits of rote-learning, spoon-feeding and teacher-centered activities is due to overloaded schedules and time-consuming administrative paperwork. Prior to the pandemic, very few Thai teachers had taught entire courses online. To compound the problem, teacher training in Thailand had generally been both ineffective and inadequate even prior to the pandemic. Also, research by Imsa-ard (2020) reveals that the majority of Thai students prefer face-to-face classrooms to online learning and most of them are not willing to learn online in the future and a minority, accounting for 11.2%, preferred learning through learning only. Thai students lacked motivation and self-discipline, and these characteristics were deemed unsuitable for eLearning, especially given the lack of technical support and infrastructure at the time. It was also noted that Thai students learn better in groups, in adherence with the social constructs of Thai collectivism, which emphasize respect for seniority and favor the group over the individual. (Charnbhumidol et al., 2020)

Alqahtani & Rajkhan (2020) state to achieve successful learning during the pandemic, students must be responsible for their own attitude and commitment, practice appropriate social distancing measures, and self-motivate. Furthermore, self-efficacy, high task value, and

recognition of the benefits of eLearning are also important (Amir et al. 2020). If the education system is able to accommodate the characteristics of the students to a significant degree, learning is likely to be more meaningful and retained longer.

However, online learning is a key feature of technology to make the most of learning that can happen anytime, anywhere, depending on the availability of students without limiting interactions only in the classroom. In addition, teachers can give instant feedback to students without having to wait for class time because learners need self-direction, which means self-observation, self-judgment, and self-reaction to become competent of the person in self-control operations consciously and the intention of studying every time to change the response to learning English with understanding, which can be thought before acting, but there are still many limitations that may cause negative effects for some students as well.

Discussions

English is becoming increasingly important as a teaching tool and the pursuit of knowledge in various fields such as science, mathematics, economy, information technology, communication, and occupation. Instructors must consider the complexity of the language as a major obstacle to communication and allow students to practice repeatedly until it becomes familiar and automatic. The author emphasizes the importance of teaching English for communication purposes, which has been developed as a main concept in Thailand for over two decades. However, the traditional approach of teaching English that focuses on teaching grammar and memorizing vocabulary has not been successful in applying English to real situations.

The COVID-19 pandemic has had a profound impact on the global education sector, leading to the emergence of the "New Normal" in teaching and learning practices. Educational institutions worldwide have had to swiftly adapt to changes in teaching methods, shifting from traditional classroom-based instruction to online learning. This shift represents a paradigm change in both teaching and learning, placing a heightened emphasis on technology's role in the educational process.

The adoption of online teaching has its advantages and disadvantages. One of the benefits of online learning is that it allows for greater flexibility in terms of time and place of learning. Students can access their learning materials and lessons from anywhere and at any time, making it easier to manage their schedules. Moreover, the use of multimedia resources, such as images, videos, and audio, can enhance the learning experience and provide a more engaging and interactive environment for students.

During the COVID-19 pandemic, online learning presented a double-edged sword of advantages and disadvantages. On one hand, it offered a lifeline for education continuity when traditional classrooms were rendered unsafe, providing a degree of flexibility that allowed students to tailor their learning to their unique circumstances. The accessibility of digital resources and tools expanded the horizons of education, granting learners access to a vast array of materials and the ability to collaborate with peers from around the world. Additionally, online learning forced educators to innovate, promoting the development of new teaching methods and technologies that could potentially enhance future educational practices. However, this shift to virtual classrooms was not without its drawbacks. Many students struggled with the lack of face-to-face interaction and the isolating nature of remote learning, leading to decreased motivation and engagement. Technical issues and unequal access to high-speed internet exacerbated educational disparities, leaving some students at a disadvantage.

Furthermore, concerns about academic integrity grew with online assessments, as cheating became a pressing issue. In sum, while online learning served as a crucial tool for maintaining education during the pandemic and offered opportunities for growth, it also underscored the need to address the digital divide, foster engagement in virtual settings, and find a balance between traditional and online learning in a post-pandemic world.

However, online learning has both advantages and disadvantages. One of the advantages is that students can choose to study according to their interests and skill level. The content is always up to date, and students can always go back and review what they have learned. The study schedule and place are also flexible, and it reduces the pressure to compete or be compared to anyone. However, some disadvantages include a lack of concentration, a lack of interaction with others, the need to create self-motivation to study, the requirement for efficient learning equipment, and the need for parents to spend extra time taking care of their children. There are also limitations to online learning, especially during the COVID-19 pandemic, such as the lack of electronic devices, internet connectivity issues, and a lack of digital skills, among others. Schools must study students' online learning behavior and listen to feedback to plan effective online learning management that is suitable for the school context. To address these challenges, teachers must create effective online learning environments that foster engagement and participation. This involves designing a systematic teaching approach that includes clear learning objectives, effective teaching strategies, and appropriate technology integration.

In conclusion, the "New Normal" of teaching and learning has emerged as a response to the COVID-19 pandemic, leading to a shift towards online learning. While this approach has its advantages and disadvantages, effective teaching practices that prioritize student engagement and support can help overcome the limitations of online learning. As the world continues to adapt to the ongoing pandemic, it is essential to embrace new and innovative teaching methods that can provide high-quality education to students.

Conclusion and suggestions

Online learning is a blended learning arrangement that uses online lessons via a website where students can take advantage of the key features of technology: learning can happen anytime, anywhere depending on the availability of students without limiting their interaction to the classroom. However, if online learning is a requirement or an unavoidable event. This will make students uninterested in studying or learning, and it will provide no benefits.

The new generation (Gen Z) pays less attention to other fields of study and is more specific about what they are good at without relying on teachers or classrooms to not relying on institutions because Gen Z tends to use specialized knowledge by Studying through the Internet to follow and study, do not want to work in a company, choose to be a short-term work or Freelance format, do not focus on qualifications because they believe in Skill or specific skills that they are good at and do not like the rules and the main purpose of life is to own a business or be your own boss, but the Thai society and working system still require a degree in education as a ticket for the majority of Gen Z people.

As learning, Motivated individuals will become enthusiastic and strive to achieve their goals as they learn. Motivation can occur for a variety of reasons, including: 1. Intrinsic Motivation is a stimulus or drive that comes from within a person. It can be an attitude or attitude, an idea, an interest, an appreciation, or a desire to be curious about things. It is a condition in which a person desires to perform actions or behaviors on his own to feel

competent and capable. It is not caused by external stimuli such as a desire to learn because you want to know and understand something, or a desire to complete difficult tasks because they are challenging, or a desire to travel abroad because you want to have fun and broaden your worldview. 2. Extrinsic motivation is a situation in which a person is motivated by external factors until behaviors result in goals, such as cash, credentials, accolades, popularity, advancement, compliments, being respected and recognized, and other environments. A person feels inspired to take action in the direction of a goal when they can see it. Several studies have shown that academic success can be influenced by both internal and external motivation.

Learners must have self-direction, which includes self-observation, self-judgment, and self-reaction, to become an individual's ability to exercise conscious self-control and willingness to always learn to change the outcome with responding to understanding English learning by being able to think before acting and causing the phenomenon of teaching English in the New Normal during the COVID-19 virus outbreak, resulting in changes in on learning management that must be implemented.

Therefore, to be successful, teaching English online must be prepared in every aspect, whether it is the student, the teacher, the teaching media, the time, the family, the technology, or the family, etc.

New knowledge and the effects on society and communities

Digital education, particularly online learning, represents a significant advancement in education. It has made learning more interactive, accessible, and flexible. This convergence of digital and traditional teaching methods is shaping the future of education. Online learning has the potential to benefit students through personalized learning experiences, reduced costs, increased collaboration, and improved time management skills. However, it also poses challenges such as isolation, procrastination, and the need for self-motivation. The "New Normal" in education underscores the importance of adaptability and innovation in teaching methods. It has highlighted the need for teachers to be prepared for online teaching and for students to be equipped with the necessary technology and digital skills. Furthermore, it has revealed the significance of leadership support and the importance of aligning the education system with students' preferences and characteristics.

Overall, the integration of technology in education has the potential to transform the way we learn and teach, offering new opportunities and challenges that society must address to ensure equitable access to quality education.

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Creative Entrepreneurship: Background and Characteristics of Advertising Business Entrepreneurs in Chiang Mai Province, Thailand

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Abstract

The advertising business, one of Thailand's key creative industries, has a strong economic and social impact. Hence, researches on this topic have mainly focused on the organizational structure and operation process of advertising agencies in Bangkok, the center of the industry, while studies on that of local are limited. However, knowledge on such topic is undoubted essential; local agencies can serve the needs of various local advertisers, they support national agencies in penetrating local markets, they also contribute to the strengthening of Thailand's creative industries as most employment and commercial activities take place within small businesses. Considering the aforementioned reasons, this study intends to answer the following research questions: 1. When and how did local advertising business start? 2. What creative entrepreneurship characteristics does an advertising business entrepreneur have?

The purposes of this article were to explore background of advertising business and to clarify creative entrepreneurship characteristics of advertising business entrepreneurs in Chiang Mai Province, Thailand. The study was based on qualitative research methodology by using in-depth interviewing and self-assessment form to analyze the characteristics of eight entrepreneurs who were selected by specific qualifications. The results found that advertising businesses in Chiang Mai Province were established around 1985, they had primarily produced advertisements according to clients' orders, especially for radio broadcasting and outdoor signage. At the present, they flexibly offer both advertising and non-advertising services. In addition, it revealed that the advertising business entrepreneurs were motivated to start their own businesses by both internal and external factors. Besides, it appeared that they clearly demonstrated excellent creative entrepreneurship characteristics, respectively: inventing himself/herself, endless learning, exploiting fame and celebrity, defining himself/herself by thinking or doing activities, having fun, being very ambitious, being kind, putting the priority on ideas, not on data, openly admiring success, being nomadic, and treating the virtual as real and vice versa. The findings indicated that the entrepreneurs actively evolved their business models according to local environment and technological changes while personal characteristics and experiences were the fundamental factors to run a successful business. Nevertheless, in the digital economy era, they do need to improve their competitiveness. Creative Economy Agency should support and develop the digital potential of entrepreneurs both using in operations and providing digital media services. Expanding domestic markets, by encouraging small and medium local enterprises to realize the importance of advertising and marketing communication, will increase demand for advertising business services as well.

Keywords: Creative entrepreneurship, Advertising business, Characteristic

Introduction

Chiang Mai Province, a hub of Northern Thailand, is attractive to various businesses: service sectors, industrial sectors, real estate sector, and tourism sectors. As a result, the advertising business has been growing steadily because of rising demand of advertisers; they widely use advertising as a marketing communication tool to reach target consumers and to compete with their competitors. Apparently, the number of advertising media and specialized advertising services are increasing.

There are more than 141 advertising agencies in Chiang Mai Province, they have generated income of 500-800 million baht per year in the past 10 years. There are 17 large companies with annual income of 10 million baht and over (Class A), 59 medium-sized with income of 1-10 million baht (Class B), and 65 small-sized with income less than 1 million baht (Class C). Both advertising services and non-advertising services are provided. However, some businesses permanently closed down in consequence of undercut and high competition (Baengthit, 2018).

On one hand, local advertising agencies offer expert assistance to local advertisers (Arens et al., 2009). On the other hand, they support national agencies in penetrating unique local markets. They also contribute to the strengthening of creative industries as most employment and commercial activities take place within small businesses (Rae, 2004). Nonetheless, a small amount of research focused on local advertising business, especially the organizational structure and operation process. Inta (2014) and Piromnum (2011) revealed that most of them were full-service agencies and set up organizational structure under department system, which creative and production department were the heart of the company. Due to the various needs of provincial clients, they were forced to offer a wide range of advertising services, including other marketing communication tools such as special event and exhibition, public relations, sales promotion, video presentation, and so on (Prommee, 2003; Tanratanakul, 2007). From the perspective of clients, despite it was found that they believed in the effectiveness of advertising; better reached customers and increased sales and profits, a small advertising budget was allocated (Kosai, 2009; Promsaen, 2012; Sinpo, 2008). The clients usually chose particular advertising agency based on personnel skills, previous creative performances, and internal management system (Kosai, 2009; Promsaen, 2012; Sweatpatanayotin, 2011). The advertising business in Chiang Mai was very competitive due to the large number of advertising agencies, some researchers then suggested that they should prioritize the quality of their performances with reasonable cost over lower bids (Inta, 2014). In addition, they should standardize organization management as well as working process to make clients trust (Sweatpatanayotin, 2011). Nonetheless, they simultaneously supposed to be prepared in changing world.

Advertising business entrepreneurs in Chiang Mai Province require to sustain their business, be competitive, and seek for different development approaches to increase competitiveness in order to enter a new economy that focuses on increasing the value of products or services with creativity – creative economy. The concept of “creative economy” was firstly proposed by Howkins in 2001. It is about the relationship between creativity and economics; they are perfectly combined to create extraordinary value and wealth. UNCTAD (UNCTAD & UNDP, 2008), thereafter, defines the “creative economy” as an evolving concept based on creative assets potentially generating economic growth and development. The essence of the creative economy is to drive an economy based on knowledge, education, creativity and

intellectual property, which link to cultural foundation, knowledge accumulation of society, and cutting edge technology and innovation (NESDB & TCDC, 2009).

Creative entrepreneurs has been found to play a vital role in creative economy by encouraging innovation, dynamic market competition and the protection of intellectual property, which then benefit economic revival and development (Chen, Chang, & Pan, 2018; Henry, 2007; Howkins 2007). Creative entrepreneurship is the practice of setting up a business or becoming self-employed in the creative industries. First and foremost, the creative entrepreneurs concern with the creation and exploitation of creative or intellectual capital. Originally, creative entrepreneurs are investors in their own talent or other people's (Santos et al., 2021). Additionally, creative entrepreneurs are also emerging to characterize successful and talented entrepreneurial people able to transform ideas into creative products or services for society (UNCTAD & UNDP, 2008). To become a successful creative entrepreneur, person must cope not only with the normal challenges that typical businesses face, such as to manage financial and cash flow, to manipulate human resources, to develop business strategies, but also deeply understand intellectual property, talents and creative processes (Bujor & Avasilcai, 2016, Henry, 2007).

Although the phenomenon of creative economy and industries has generate great interest among scholars, creative entrepreneurship is a subject still under-explored (Chapain, Emin, & Schieb-Bienfait, 2018; Santana & Silveira, 2019). Bujor and Avasilcai (2016) made a comparative analysis between Gordon's eleven essential entrepreneurial skills and Howkins' eleven characteristics for successful creative entrepreneurs; nine characteristics were found associated. They concluded that some different characteristics had appeared between the creative entrepreneurs and other traditional entrepreneurs because the first were most concerned with creating and exploiting intellectual or creative capital, being investors in their own talent or others. While Patten (2016) indicated that the creative entrepreneurs did not align themselves with traditional entrepreneurship discourses; they needed to balance creative and business activities at the same time. Suwala (2015) conformed that a creative entrepreneur prioritized self-fulfillment and independence, rather than generating profits. In addition, successful creative entrepreneurs needed to invent themselves and stand out in the crowd, prioritize ideas over data, balance between isolation and socializing, learn endlessly and, most importantly, have fun in order to realize a creative flow of ideas. Santos et al. (2021) concurred with previous researchers, the creative entrepreneur focused on generating cultural value instead of revenue but both of them need innovation, good planning and organizing for running a successful business. The study of Werthes, Mauer, & Brettel (2018) highlighted the important of an entrepreneurial identity among creative entrepreneurs. They had to develop an entrepreneurial identity and perceive the need to earn money, they concurrently retained their core values and creative principles. Chen, Chang, & Pan (2018) shed new light on the current research stream in creative entrepreneurship, the creative entrepreneurs were categorized into four types: creative constructionists, creative opportunists, creative designers, and creative producers. Their study implied that the ability to recognize opportunity may be even more critical to creative entrepreneurs' career success. They suggested a creative entrepreneur to balance creative achievement and opportunity exploitation.

In Thailand, advertising industry, one of major creative industry, plays a significant role in economic growth. Besides generating more than one hundred thousand million baht a year, its value chain also involves many sectors which contribute to employment and economic value creation. According to Creative Industries Development Report: Advertising 2022 (CEA, 2022), on the contrary, it has been found that the weaknesses of the industry are the shortage of young talents, the personnel quality as well as the collection of the industry knowledge. Therefore, to fill this gap, this research paper aimed to explore background of advertising

business and to identify creative entrepreneurship characteristics of advertising business entrepreneurs in Chiang Mai Province, Thailand. The Howkins' eleven characteristics for successful creative entrepreneurs was mainly used to analyze. It will be beneficial to the entrepreneurs in assessing their own capabilities and as a guideline for the business development. It is also fruitful to young entrepreneurs who want to develop their potential in accordance with the creative economy era. Furthermore, Creative Economy Agency may provide specific support programs to empower entrepreneurs.

Methodology

This study implemented qualitative research methodology by using in-depth interviewing and entrepreneurs' self-assessment form to analyze the creative entrepreneurship characteristics of advertising business entrepreneurs. From a total of 141 populations, the purposive random sampling method was employed according to the criteria that: 1) a company must be registered in Department of Business Development, Ministry of Commerce, 2) a company must be operated continuously, and its financial statements must be reported annually, 3) a company provides advertising services or other marketing communication tools for at least 5 years, and 4) an entrepreneur who is ready to provide information as founder, co-founder or executive. There were eight entrepreneurs who met the specified criteria.

Following Patten (2016), in-depth interviewing was adopted for data collection to draw out individual experiences and aspects of entrepreneurs in advertising business. The unstructured interview form focused on education and working experiences background of the entrepreneurs, agency expertise, motivation, and business initiation. The questions could be modified or added; it depended on the situation at the time of the interview and the answer of the interviewees in order to obtain complete information according to the objectives of the study. The interviewing was conducted at the participants' workplaces; the non-participant observation occurred simultaneously.

The researcher additionally applied the concept of eleven characteristics for successful creative entrepreneurs proposed by Howkins (2007) to analyze their creative entrepreneurship characteristics. This concept could be compared with essential entrepreneurial skills (Bujor & Avasilcai, 2015), it is also a basic personality set that every creative entrepreneurs should have (Suwala, 2015). The conceptual framework was principally defined by this key concept, the entrepreneurs' background data, at the same time, would highlight the creative entrepreneurial attributes (Figure 1). To determine the relative priority of characteristics, a sorting method was also applied to allow the participants to self-assess their distinctive characteristics. For the self-assessment form, they were asked to rank each characteristic in priority order in term of which characteristic stood out the most (from 1 to 11) and clarified more about such characteristics. Each characteristic was later scored by 10-point scale (from 0 to 10: 1=10, 2=9, 3=8, ..., 11=0) and sum up to summarize the overall characteristics of the samples.

The collected data was recorded, transcribed, and coded. The background data was triangulated with information on the companies' background and activities on the internet (Werthes, Mauer & Brettel, 2016). While the characteristic sorting was verified for reliability by a thorough review of the interviews. The individual entrepreneur's explicit statements were analyzed.

The analysis followed the principles of Analytic Induction to synthesize, interpret, and analyzed the data based on the theoretical concepts used in the research: the creative entrepreneurship characteristics. The materials were subsequently transcribed and edited into Descriptive Narration style.

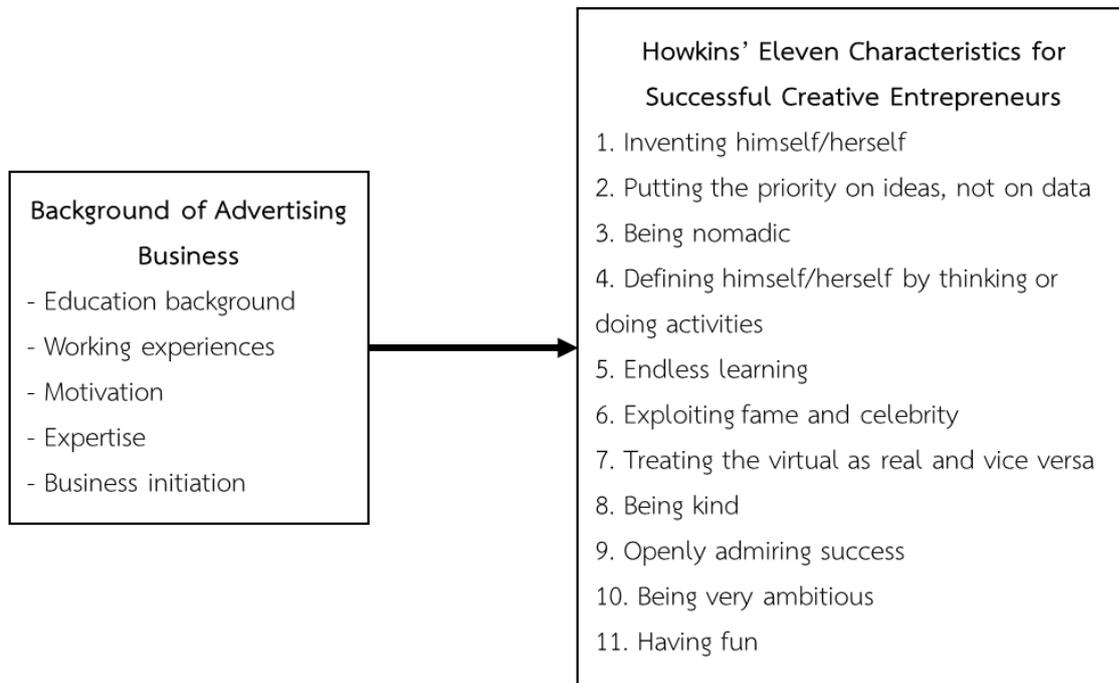


Figure 1 Conceptual framework (Researcher, 2023)

Results

The study explored background of advertising business and identified creative entrepreneurship characteristics of advertising business entrepreneurs in Chiang Mai Province, Thailand. The findings were divided into two parts and presented in order from the oldest to the most recent company. To emphasize meaningful information, illustrative quotes of the entrepreneurs were provided.

Background of the company

Results indicated that advertising businesses in Chiang Mai Province provided both advertising and non-advertising services. They specialized in local popular advertising media such as billboard, radio, and marketing events. Most of entrepreneurs had educational backgrounds and working experience related to mass communications, marketing, and business administration. Their motivation and business initiation, however, were different (Table 1).

Table 1 Background of advertising business entrepreneurs

Entrepreneur	Year of Est.	Expertise	Education background	Working experience	Motivation	Business initiation
Simon	1985	Billboard producing/ space rental for outdoor ads	Vocational Certificate in Automotive Mechanic	Sawmill worker Draftman Signage art maker	Being hired to design and create signage art	Producing and installing hand-drawn artistic billboards
Kathie	1992	Radio station management/ advertising media planning/ sound recording/ marketing event management	Studied in Journalism and Public Relations	Apprentice at a radio station Copywriter Radio program host	Having passion for being a DJ	Hosting radio program all by herself including seeking for new clients
Penny	2000	Radio program production/ radio advertising planning/ PR consulting/ live streaming	Studied in Communication Arts	PR officer apprentice First prize DJ Junior contest (Northern)	Being banned to host radio program by the competition organizer	Hosting radio program in open area at a shopping mall
Anna	2002	Special event organizing/ light and sound management/ technical equipment providing	Studied in Marketing	Working with national event organizer	Perceiving opportunity of MARCOM business	Coordinating with clients and doing creative works all by herself
Natasha	2004	Radio advertising planning and programming/ special events planning	Studied in Economics, minoring in Mass Communication	Working as a part-time radio host while studying 10 years of working as full-time DJ	Running export business along with advertising business as a secondary business	Buying air-time from an autonomous radio station to host radio programs
Charlie	2004	Marketing events organizing/ sale promotion management	Studied in Communication Arts	Working with event organizer company	Being persuaded by friends	Using personal connections to attract clients from the former company
Adrian	2012	Special events planning/ PR planning/ contest organizing	Studied in Business and Management, Communication Arts, and Development Administration	Modeling agency Beauty contest organizer 10 years of working as marketing activities manager	Being eager in organizing creative activities	Seeking jobs through the government's procurement and bidding system

Entrepreneur	Year of Est.	Expertise	Education background	Working experience	Motivation	Business initiation
Sunny	2012	Marketing events and exhibitions organizing/ advertising and public relations planning	Studied in Communication Arts	Journalism internship at entertainment company 6 years working as assistant and A.E. in event organizer company	Desiring to run the own boutique organizer	Using personal connections to attract clients and being supported by seniors in the industry

Simon appeared to be the only one who had neither educational background nor working experience directly related to advertising. Relying massively on the artistic skills, he created fascinated hand-drawn billboards using simple equipment. Whereas Kathie, Penny, and Natasha took advantage of the skills gained from their studies to host radio program. Anna, Charlie, Adrian, and Sunny discovered their passions through creative works:

Simon: Starting with just a can of paint, I did artworks. Once the sign was done at the shop, the staff installed it at the site.

Kathie: For years of working at radio station, I decided to buy air-time and manage the entire program by myself. At the beginning, there were only three persons; one coordinated with clients, another was at the office, and I was a radio host and also seek for new clients.

Penny: Even though I won the first prize of the North in DJ Junior Contest, I was rejected to host its radio program because of my unique personality with high self-confidence. That cruel disappointment inspired me to dare to do something different.

Natasha: After being full-time DJ for nine years, I realized that it's time for me to operate radio program all by myself. I made a big decision to buy air-time from an autonomous radio station.

Anna: With the fact that I was involved in event organizer business for a long time, I perceived the opportunity of marketing communication business in Chiang Mai Province while at that time there was no company that provided this kind of services.

Charlie: After graduating, I got a job in a wonderful event organizer. It made me felt alive and I really enjoyed it. When one of my friend persuaded me to run the business, I didn't hesitate at all.

Adrian: It started when I was in university, I loved creative works. Working on various types of contests made me realized my potential in this field.

Sunny: Studying, doing internships, and working, all these gave me experiences in the event organizer. I was so fascinated. When the opportunity came, I started my own business.

These statements revealed the motivation for starting the advertising business of the eight entrepreneurs. Although most of them graduated in related fields, relevant experience played a vital role in incubating the motivation for business initiatives.

Creative Entrepreneurship Characteristics

Eight entrepreneurs were asked to assess their characteristics as creative entrepreneurs. The characteristics were sorted in order of the most outstanding features to the least (1-11) (Table 2). Each characteristic was scored by 10-point scale, the first-ranked got the highest score in descending order of the lowest score (10-0). Mean score of creative entrepreneurship characteristics were shown in Table 3.

Table 2 Creative entrepreneurship characteristics: Participants' self-assessment

Entrepreneur/ Characteristics	Simon	Kathie	Penny	Anna	Natasha	Charlie	Adrian	Sunny
1. Inventing himself/herself	1	1	1	6	1	5	1	1
2. Putting the priority on ideas, not on data	7	9	5	8	7	9	7	6
3. Being nomadic	10	10	10	10	4	10	3	9
4. Defining himself/herself by thinking or doing activities	4	2	2	5	6	8	4	5
5. Endless learning	2	4	7	1	2	1	5	2
6. Exploiting fame and celebrity	5	3	3	7	3	2	2	10
7. Treating the virtual as real and vice versa	11	11	11	11	8	11	11	11
8. Being kind	6	5	9	2	11	6	10	8
9. Openly admiring success	8	8	8	4	10	7	6	7
10. Being very ambitious	3	7	4	9	9	4	8	3
11. Having fun	9	6	6	3	5	3	9	4

Table 3 Creative entrepreneurship characteristic mean score

Creative Entrepreneurship Characteristics	Mean Score
Inventing himself/herself	7.10
Endless learning	6.40
Exploiting fame and celebrity	5.30
Defining himself/herself by thinking or doing activities	5.20
Having fun	4.30
Being very ambitious	4.10
Being kind	3.10
Putting the priority on ideas, not on data	3.00
Openly admiring success,	3.00
Being nomadic	2.20
Treating the virtual as real and vice versa	0.30

The top three characteristics with the highest averages were: inventing himself/herself, endless learning, and exploiting fame and celebrity. Six out of eight: Simon, Kathie, Penny, Natasha, Adrian, and Sunny listed the first as their most outstanding characteristic. While Anna and Charlie considered the most remarkable attribute to be their ability to learn endlessly. Exploiting fame and celebrity was one of the excellent feature found in the samples; they rated it as their top distinguished characteristic:

Adrian: My company would be the first choice if clients want to organize a contest or various traditional events because of the outstanding and recognizable performances.

Charlie: Regular clients still trust my company on a regular basis and have recommend to others. Most clients, 90 percent, choose my company because of me, myself, I am well-known in event organizer.

Kathie: Most of our clients are agencies from Bangkok which we have been working for more than twenty years, while in the local, some clients rely on my own connection, some know us through our radio programs. The company's reputation have also made the DJs popular which have brought in new clients.

It was worth noting that the characteristics at the end of the table were those that the majority considered to be less prominent. According to Howkins (2007), treating the virtual as real and vice versa is a practice of balancing cyberspace with humanity and truth; the latter two should be more importance. It might not be so obvious among advertising business entrepreneurs who must regularly keep up with changes in communication technology.

Simon: I had to deal with the drastic changes when the popularity of hand-drawn artistic billboards had shifted to modern large-format printed advertisement. I am early-adopter, so I have an advantage over competitors.

Penny: Changes in communications technology have had a profound effect on our business; I have to keep up. My company, which focuses mainly on radio programs, has to embrace modern technology such as live streaming.

As for the other two less notable features: putting the priority on ideas, not on data and openly admiring success, it might be because their work involved creating intangible products; concerning in protecting intellectual property was therefore low. For praising their success openly, they rarely showed it. On the other hand, they often demonstrated their humility and enthusiastic.

However, there were distinctive characteristics by which each of entrepreneur evaluated himself/herself differently from others. In the case of Anna, kindness was her second most exceptional attribute. She placed great emphasis on building relationships within the team. Even though some of them started their own company, pragmatically a competitor, she was still willing to give advice and work with them wholeheartedly. Adrian and Natasha considered their top characteristic to be nomadic. Adrian loved socializing yet, at the same time, liked living in solitude. When he created some new idea, he needed to spend time thinking alone then shared with his colleagues. Similarly, Natasha was responsible for all management and operation of the company, like marketing, pitching, dealing with clients, planning and implementing. Most of her work would be done through the internet and telephone so she could be anywhere. While Simon and Sunny ranked being very ambitious as their third terrific trait. As mentioned above, Simon, who had never studied or had any experience in the advertising industry, was able to build a successful local advertising business, from a small hand-drawn billboard maker to a distinguished outdoor media and space rental service company. For Sunny, a fantastic young blood entrepreneur, although he had credibility issues at the start because of his childish personality, his commitment and hardworking had been reflected through superior quality and success of the performances which satisfied bossy clients.

Discussions

1. The advertising business in Chiang Mai Province were established around 1985, they had mainly produced advertisements according to clients' orders, especially for radio broadcasting, outdoor sign and special events. At the present, they offer both advertising and non-advertising services, such as public relations, event marketing, video production, exhibition, and marketing promotion (Baengthit, 2018; Prommee, 2003; Tanratanakul, 2007). Most of the founders had graduated in communication arts, mass communication, marketing, or business administration with working experiences in this field, while one of them relied solely on the craftsmanship to initiate business. However, they were motivated to start their own businesses by both internal factors such as personalities, preferences, passions as well as external factors such as business opportunities and market gaps (Chapain et al., 2018). The advertising business entrepreneurs were consequently influenced by sociocultural factors and changes in communication technology (Patten, 2016).

2. The discussion with the advertising business entrepreneurs, definitely, each of them exposed distinctive creative entrepreneurship characteristics of Howkins (2007); it depended upon what they had experienced and how they interacted with the surroundings. The self-assessment of eight entrepreneurs also clearly revealed their most excellent characteristics respectively: inventing himself/herself, endless learning, exploiting fame and celebrity, defining himself/herself by thinking or doing activities, having fun, being very ambitious, being kind, putting the priority on ideas, not on data, openly admiring success, being nomadic, and treating the virtual as real and vice versa. According to Howkins' eleven characteristics for successful creative entrepreneurs, it appeared that "creative identity" was emphasized more than "entrepreneurial identity". The first was emphasized by most characteristics while the latter was explained by only one attribute, putting the priority on ideas, not on data.

The results of this study were compatible with the findings of Werthes, Mauer, and Brettel (2018) which indicated that cultural and creative entrepreneurs initiated an entrepreneurial identity and comprised their cultural and creative identity into that entrepreneurial identity while self-reflection played important role in the improvement. In addition, creative businesses have demonstrated their abilities to adapt to social and technological advancement, intense competition, and uncertain relationship with stakeholders. For this reason, the creative entrepreneurs need to have some distinguished characteristics that are different from traditional entrepreneurs. This was consistent with Patten (2016) who indicated that creative industry entrepreneurs were not following the typical entrepreneurial path yet they had balanced the need for creative expression and profitability. Nevertheless, the comparative analysis between eleven essential entrepreneurial skills and eleven rules for successful creative entrepreneurs additionally revealed that many characteristics were found to be similar except being nomadic and having fun. It could be said that the creative entrepreneurs should have such characteristics because their jobs involved the pursuit of fresh ideas and having fun at the same time (Bujor & Avasilcai, 2016).

Nonetheless, there were five attributes that were assessed as being less prominent: treating the virtual as real and vice versa, being nomadic, openly admiring success, putting the priority on ideas, not on data, and being kind. The first one involves linking cyberspace and virtual world to everyday life but humanity and truth should be more important. Amidst the changing trends in the economy, society, and technology, the entrepreneurs tended to pursue modern technology to gain a competitive advantage. The second one relates to sociability and

solitude, and also included the ability to enjoy working in any location. Because Chiang Mai is a creative city (UNDP, 2013) which facilities are well-equipped and demand of the advertising business is quite high, the entrepreneurs therefore have an advantage in terms of their workplace. The third characteristic comprehend learning from both successes and failures. In one way, the entrepreneurs thought that they should not be fixated on success, on the contrary, they should be more curious about failure, of course, it is similar to ability to learn endlessly. In other way, most of them projected themselves as budding entrepreneurs because they needed to improve their skills and abilities to keep up with the changes. The fourth one focuses on intellectual capital; patents, copyright, trademarks, and other intellectual property protection were not mentioned. According to Pholphirul (2012), it was found that Thai small and medium enterprises were not yet aware of the benefits of registering intellectual property; it is not worth the extra cost. The last one describes kindness and gentleness; it leads to networking opportunities. It was found in a few entrepreneur who had worked together before.

Although Howkins (2007) did not specify exactly which characteristics were the most important characteristic, it could be inferred that he placed special emphasis on the creation of the identity of the creative person because it would actively remain in a person while entrepreneurial characteristics could be improved later. Werthes et al. (2018) concluded that cultural and creative industry entrepreneurs were able to develop an entrepreneurial identity, which allowed them to act entrepreneurially and to stand up for their values, through support training programs.

Conclusion and suggestions

This study explored background of advertising business entrepreneurs in Chiang Mai Province, Thailand and clarified their creative entrepreneurship characteristics. It was based on qualitative research methodology. In-depth interviewing and entrepreneurs' self-assessment were adopted for data collection to draw out individual experiences, aspects and creative characteristics of entrepreneurs in advertising business. Howkins' concept of eleven characteristics for successful creative entrepreneurs was used to scrutinize creative entrepreneurship characteristics. The finding showed that the advertising business in Chiang Mai Province was established around 1985. They mainly focused on the production of advertising media on radio broadcasting, outdoor signs and special events. At the present, they adaptively provide both advertising and non-advertising services, corresponding with changes in communication technology and the needs of local advertisers. The findings also revealed that the entrepreneurs were motivated to start their own advertising business by both internal and external factors. It indicated that education background, working experience, and awareness of business opportunities played a vital role in business initiation. In addition, these elements contributed a great influence on cultivating creative entrepreneurship characteristics. The most noticeable characteristic found in this study, inventing himself/herself, lead to the implication that entrepreneurs highly engaged in creating their own identity; it was considered an origin for the development of subsequent attributes. The "creative entrepreneurship" characteristics should be more evidently developed, especially recognizing the value of intellectual property. They should understand patents, copyright, trademarks and intellectual property laws to protect their ideas which add value to the business. Above all, they should balance creative achievement and business opportunity exploitation because they are the foremost competence of a creative entrepreneur (Bujor & Avasilcai; Chen et al., 2018; Henry, 2007).

This study generates understanding of individual within local advertising business, a small fraction of creative industry, which is the basis for adopting a social constructionist aspect of entrepreneurship (Patten, 2016). However, there are some limitations in this study, which point to some directions for further research. Firstly, the sample size for the study is small, increasing the number of samples will draw more definitive conclusions. Secondly, although the self-assessment sorting method of entrepreneurs in this study reveals their most prominent characteristics, explaining each attribute in short sentence will help them understand each one better. Thirdly, the study mainly emphasized on creative entrepreneurship characteristic which filled the gap on individual lives. Further research would ideally include their interactions with stakeholders, it would be possible to understand them more deeply. Fourthly, Howkin's concept of creative entrepreneurship characteristic strongly affirmed “creative identity”, the concept of entrepreneurship characteristics should be assembly utilized to evidently uncover their “entrepreneurial potential”. Lastly, this study was conducted in Chiang Mai Province where the advertising business had a relatively high locality. Due to the differences of background and experiences may lead to impressive findings, therefore, future research is regarded to determine others in Bangkok, the advertising business center of Thailand, for verifying the consensus of the conclusion.

New knowledge and the effects on society and communities

The current study provides practical knowledge of the characteristics of creative entrepreneurs. It will be useful to other entrepreneurs to take advantage of this study as a guide to self-assessment to refine defective characteristics. It may also inspire a new generation of entrepreneurs who wish to initiate their own boutique advertising business. Educationally, it can be discussed as a case study in entrepreneurship of advertising business classes. Furthermore, Creative Economy Agency can design support programs to develop the potential of advertising business entrepreneurs, especially digital technology literacy both using in operations and providing digital media services. Raising awareness of the importance and management of intellectual property should be provided. Cultivating both “creative” and “entrepreneurial” identity among youth should be additionally included in the plan. Expanding domestic markets, by encouraging small and medium local enterprises to realize the importance of advertising and marketing communication, will increase demand for advertising business services as well.

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The Development of Screening Application of the Risk of Elderly with Dementia in Saraphi District, Chiang Mai Province

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Abstract

This research aimed to develop dementia screening tools through a mobile application for use by public health volunteers and medical personnel in an attempt to detect the risk of dementia at early stages in Saraphi district, Chiang Mai province and to explore the satisfaction of the application users towards the implementation of a dementia screening application. The sample group was 90 public health volunteers residing in Nongphueng sub-district, Yang Noeng sub-district, and Saraphi sub-district, and 15 medical personnel working in Ban Nongphueng Tambon health promotion hospital, Yang Noeng Tambon health promotion hospital, and Saraphi hospital, Saraphi District, Chiang Mai Province. The research methodology comprised eight steps as follows: 1) conducting documentary research on dementia symptoms, screening tools, and dementia data from medical personnel at the Chiang Mai Neurological Hospital. 2) carrying out a field study with community participation to investigate the circumstances of dementia in Tambon Nong Phueng, Tambon Yang Noeng, and Tambon Saraphi. 3) selecting 90 public health volunteers, and 15 medical personnel to participate in this research. 4) formulating a storyboard which described the application model 5) designing the system and create the application with the consultancy from a psychiatric doctor for the elderly and an occupational therapist. 6) testing the operation of the application and carry out the improvement. 7) preparing the manual 8) publicizing and making the application available. The data collection instrument consisted of a satisfaction questionnaire towards the implementation of an application for dementia screening. The statistics used in the research were mean and standard deviation.

The dementia application, named "Brain Screening," was developed using the Flutter software development kit and the Dart programming language. It operates on the Android operating system. This application consists of four cognitive assessments: the 14-question item memory assessment, the Mini-Cog assessment, the 8-question item IQCODE-Modified assessment for relatives or caretakers to assess memories, and the AMT assessment for public health and medical personnel. Additionally, the satisfaction assessment of public health volunteers regarding the application's implementation yielded high levels of satisfaction, with an overall mean of 4.19 and a standard deviation of 0.53.

Keywords: Dementia, Elderly, A dementia screening tools based on mobile application

Introduction

Dementia is a neurological condition resulting from gradual and continuous damage to brain cells, leading to cognitive abnormalities and the loss of short- and long-term memories (Kanagawa, 2006). In Thailand, the prevalence of dementia patients has been steadily increasing due to the changing demographic. According to the National Statistical Office of Thailand (2022), the number of dementia patients was 600,000 in 2015, and it is projected to rise to 1,117,000 by 2030 and 2,007,000 by 2050. Since 2005, Thailand has officially become an aging society with a growing number of elderly individuals, making dementia one of the five chronic diseases among the elderly today (Nanthachai, 2008). As the condition progresses, individuals with dementia often require 24-hour supervision and assistance, significantly impacting their ability to perform daily tasks. Additionally, dementia also affects caregivers in various ways, including personal sacrifices, increased stress, and financial burden (The Alzheimer's Disease and Related Disorders Association, 2011). Ultimately, these factors can worsen the quality of life for both caregivers and patients. One of the most effective ways to mitigate the severe consequences associated with dementia is early identification of patients in the early stages, which aids in memory rehabilitation, slows down brain degeneration, and promotes normal or near-normal brain function (Anandirokrit, 2021).

Nowadays, the healthcare sector is adopting technological advancements to offer improved personalized healthcare services to the general public. One groundbreaking and popular innovation in this field is the use of mobile-based solutions and application technology. This revolutionary technology aids in the better management of patient care and enables efficient diagnosis. Its significance in the healthcare industry cannot be overstated, as it enhances communication and integration throughout the healthcare process. This, in turn, boosts the productivity of healthcare providers and the healthcare system as a whole (Ventola, 2014). In Thailand, mobile app technology is crucial in the process of evaluating, identifying, and providing medical care for individuals. Many scholars have developed a range of applications for the field of healthcare services, including the diabetic monitoring mobile application, the application for health check-up system, an application entitled 'Thanrok' to manage health problems of ethnic groups in Chiang Dao district, the 'Smart Caregiving' application to support caregivers of persons with mobility disability, and the Chatbot application to answer questions about medical technologists" (Sirimongkollertkul et al., 2020; Lawang et al., 2018; Arunsirot et al., 2023; Sanmun et al., 2021).

In Chiang Mai province, the number of aging population has rapidly increased, and one of its geographical limitations is the distance from the sea. There are several factors that affect the occurrence of dementia in elderly local residents, including sex, education level, social factors, health condition factors, and health behavior factors (Khruithong, 2010). During an interview with one of the family caregivers of people with dementia, it was revealed that other factors contributing to the prevalence of dementia in the province are long-distance problems between residences and neurological hospitals, as well as an inadequate number of medical specialists, leading to difficulties in accessing healthcare services (Suthep Arunsirot, personal communication, March 12, 2019). Consequently, the majority of individuals with dementia tend to visit the doctor once the symptoms become more apparent, indicating that they have reached the middle stage of the condition, for which there is currently no cure. These obstacles have become a preliminary cause for an instant assessment and analysis of the risks faced by patients in the early stage.

As part of Thailand's health policy, it is important to improve and promote the health of citizens of all ages, especially those who are disabled, underprivileged, and elderly individuals (Ministry of Social Development and Human Security, 2023). Therefore, the objective of this research is to develop a mobile application-based dementia screening tool that can be utilized by both public health volunteers and medical personnel. The benefits of using mobile dementia screening tests include quick evaluation, convenience, unlimited access, and data storage. This application will enable public health volunteers to systematically screen for dementia at an initial level. Additionally, the scores obtained from the dementia screening application, which are stored in the database system, will allow medical personnel to monitor the progression of dementia and provide the best treatment and personalized care for each patient. By conducting rapid and thorough screening for dementia in its early stages, the impact of the condition on the elderly can be reduced, making it more manageable, slowing down its degeneration, and ultimately decreasing complications and fatality rates. Furthermore, early-stage dementia diagnosis can alleviate the caregiving burden on caregivers and family members, effectively manage the behavioral and emotional issues of patients, and alleviate the strain on state-run hospitals that may not have the capacity to accommodate a large number of chronic patients (Chunin, 2004).

Research Objectives:

1. To develop dementia screening tools based on a mobile application used for public health volunteers and medical personnel in attempt to detect the risk of dementia at early stages in Saraphi district, Chiang Mai province.
2. To explore the satisfaction of the application users.

Methodology

Population and Sample Group

The sample group consisted of 90 public health volunteers residing in Nongphueng subdistrict, Yang Noeng subdistrict, and Saraphi subdistrict, Saraphi District, Chiang Mai Province, as well as 15 medical personnel working in Ban Nongphueng Tambon health promotion hospital, Yang Noeng Tambon health promotion hospital, and Saraphi hospital. The purposive sampling method was applied to select the participants. The criteria for inclusion were that they could be either male or female who owned Android smartphones and were willing to cooperate until the end of the research project with the research team.

How to conduct research

The research process could be divided into 2 phases as follows:

Phase 1: Investigating the circumstances of dementia and developing dementia screening tools based on mobile application used for public health volunteers and medical personnel

1.1 The researcher conducted documentary research on dementia symptoms, screening tools, linguistic theories, and dementia data from medical personnel at the Chiang Mai Neurological Hospital

1.2 The researchers submitted the letter of approval from Chiang Mai Rajabhat University to the mayors of the three municipalities.

1.3 The researchers met the mayors and heads of the elderly association in order to inform them about the research objectives, data collection methods, and their collaboration for collecting the data.

1.4 The researchers carried out a field study with community participation to investigate circumstances of dementia in Nongphueng subdistrict, Yang Noeng subdistrict, and Saraphi subdistrict.

1.5 90 public health volunteers with residing in Nongphueng subdistrict, Yang Noeng subdistrict, and Saraphi subdistrict, Saraphi District, Chiang Mai Province and owning the Android smartphones were recruited as the sample group in this research.

1.6 A storyboard was formulated, which described the application model that presented four cognitive assessments. They include the 14-question item screening assessment for public health volunteers to assess cognitive problems and for literate individuals to assess by themselves; the Mini-Cog assessment to evaluate cognitive problems, planning and relational dimensions; the eight-item IQCODE-Modified assessment for relatives or caregivers to answer about patients' memories and management; and the AMT screening tool for medical and public health personnel to assess patients' perceptions on time, place, person, attention, and memory.

1.7 Design the system and create the application with the consultancy from a psychiatric doctor for the elderly and an occupational therapist.

1.8 Its content was verified and assessed for content validity by three experts. It was found that the content validity index was at the highest level (Mean = 4.78, S.D. = 0.05).

1.9 The development of the application was designed based on five steps of the System Development Life Cycle (SDCL). The steps include a needs analysis, application component analysis/development roadmap/flowchart construction, user interface design, application development, and application tryouts and improvement. The process flow diagram was illustrated in Figure 1.

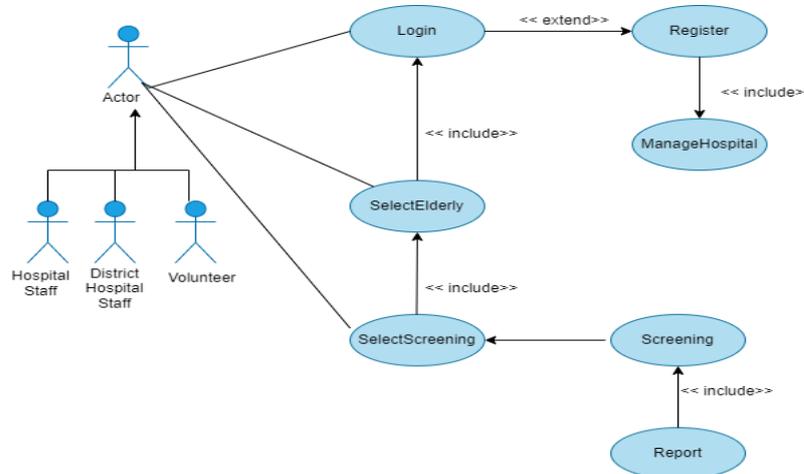


Figure 1 The process flow diagram of the screening application (Source: Researcher, 2023)

1.10 The application was verified and assessed for its quality by three computer experts. The overall technical properties of the application was at the high level (Mean = 4.40, S.D. = 0.17).

Phase 2: Implementing dementia screening tools based on mobile application used for public health volunteers and medical personnel

2.1 The workshop was conducted to educate 90 public health volunteers and medical personnel how to use the application for screening measured by the risk of dementia in primary care including the 14-question item screening assessment for public health volunteers to assess

cognitive problems and for literate individuals to assess by themselves; the Mini-Cog assessment to evaluate cognitive problems, planning and relational dimensions; the eight-item IQCODE-Modified assessment for relatives or caregivers to answer about patients' memories and management. Moreover, the medical personnel received training on the utilization of an additional screening test named "AMT screening tool" for medical and public health personnel to assess patients' perceptions on time, place, person, attention, and memory.



Figure 2 Educate how to use dementia screening tools based on mobile application used for public health volunteers and medical personnel in Saraphi District (Source: Research, 2023)

2.2 The questionnaire was constructed to examine the satisfaction of the users with the implementation of the application. It consisted of 5 sub-topics: contents of the application, beauty on design and arrangement of user interface, language, the system utilization on application functions by users, and system utilization in other aspects.

2.3 The manual and infographic were prepared for the application users in order to instruct and guide them on technical procedures.

2.4 The researchers publicized and made available the application through Google Play.

Data Analysis

The study was administered to the application users as a questionnaire to measure level of users' satisfaction with the use of dementia screening tools based on mobile application used for public health volunteers and medical personnel. Therefore, the questionnaire was analyzed to determine the mean and the standard deviation of the questionnaire items, based on Likert scale questions that measured satisfaction levels ranging from highest to lowest. The satisfaction levels of this application users were interpreted as follows:

4.50 – 5.00	Highest
3.50 – 4.49	High
2.50 – 3.49	Moderate
1.50 – 2.49	Low
1.00 – 1.49	Lowest

Results

Construction of the application for preliminary screening the elderly with a tendency to have dementia

The dementia application, named "Brain Screening," was developed based on the flutter software development kit and the dart programming language. It operates on the Android operating system and is available for download from Google Play, as shown in Figure 3.

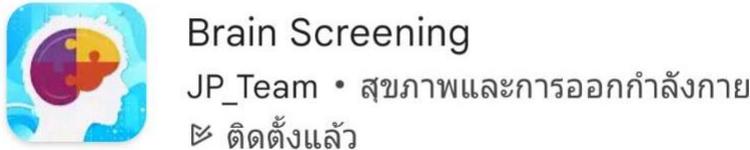


Figure 3 The icon of the dementia screening application in Google Play (Source: Research, 2023)

1. The registration and log in system

When the system is in operation mode, users are able to log in using their personal accounts that have been approved and granted by the administrator. The login process begins by entering the telephone number used for registration. For first-time users, the administrator will require them to create their own passwords to authenticate and confirm their registrations. Once this is done, the system will direct them to the homepage to re-verify their registrations by entering their passwords. If the registration details are correct, they will be able to access the system, as illustrated in Figure 4.

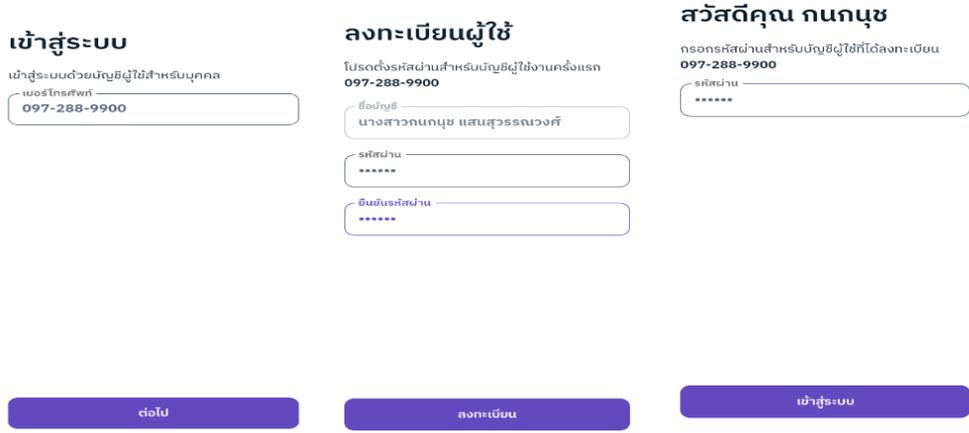


Figure 4 The screen for registration and log in (Source: Research, 2023)

When users are already in the system, they can access and display their personal information, affiliated hospital information, Tambon health promoting hospital information, and information about patients under medical care, as shown in Figure 5

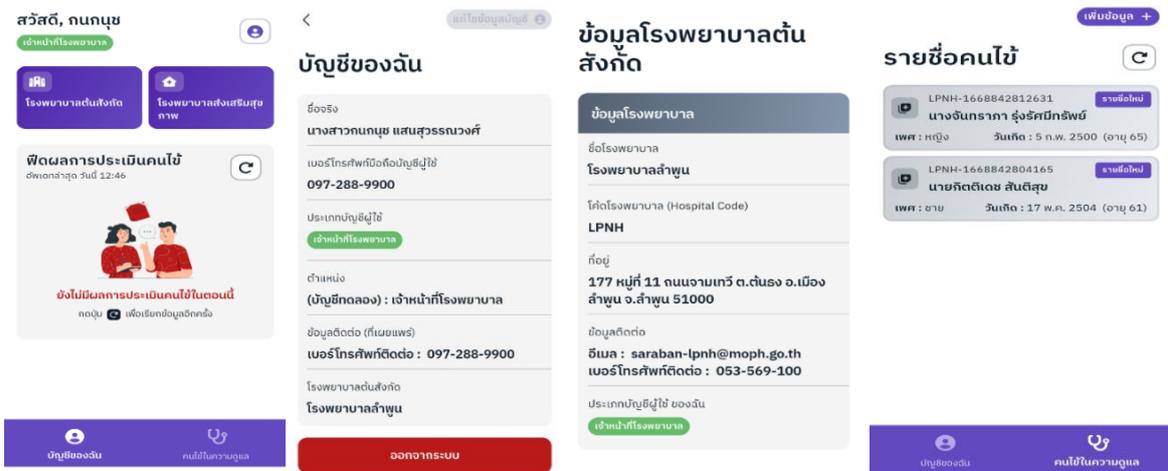


Figure 5 The user profile of the screening application (Source: Research, 2023)

2. Dementia screening tools based on mobile application used for public health volunteers

For public health volunteers, three initial screening tools were selected to create Dementia screening tools through a mobile application. These tools include the 14-question item screening assessment, the Mini-Cog assessment, and the eight-item IQCODE-Modified assessment. The 14-question item screening assessment is designed for public health volunteers to evaluate cognitive problems, while literate individuals can assess themselves using this tool. It consists of 14 items with a four-point rating scale. The Mini-Cog assessment is used to evaluate cognitive problems, planning, and relational dimensions. On the other hand, the eight-item IQCODE-Modified assessment is meant for relatives or caregivers to provide information about the patients' memories and management. The screens for these assessments can be seen in Figures 6a-6c, respectively.



Figure 6a. The 14-question item screening assessment (Source: Research, 2023)

Figure 6b. The eight-item IQCODE-Modified assessment (Source: Research, 2023)

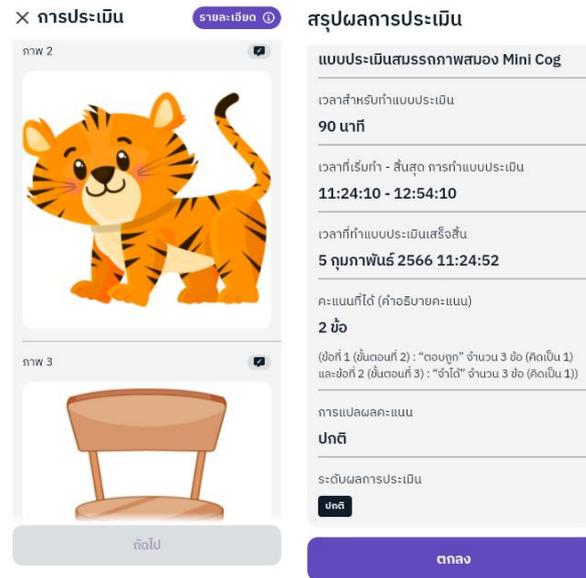


Figure 6c. The Mini-Cog assessment (Source: Research, 2023)

3. Dementia screening tools based on mobile application used for medical personnel

Besides the three screening tools mentioned above, an additional screening test named the AMT screening tool for the assessment of brain conditions is chosen for medical personnel. It consists of 10 points and is used for rapidly assessing elderly patients for the possibility of dementia (Lazarou et al., 2021). The screens for the assessment are shown in Figures 7.

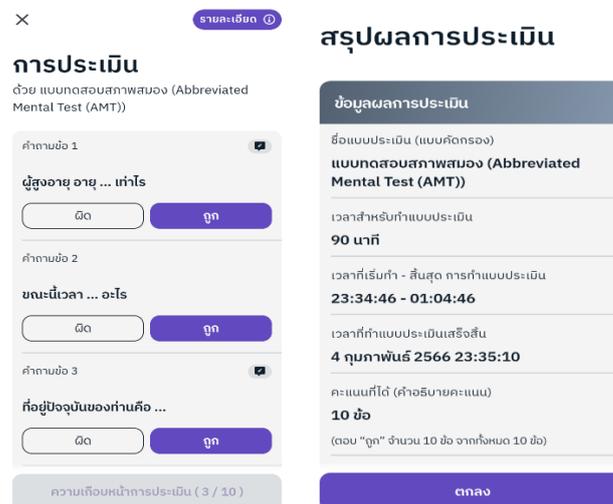


Figure 7 The AMT screening tool (Source: Research, 2023)

Additionally, the evaluation menu enables medical personnel to monitor the progress of individuals with dementia by presenting the scores of each assessment. The screens are displayed in Figure 8.

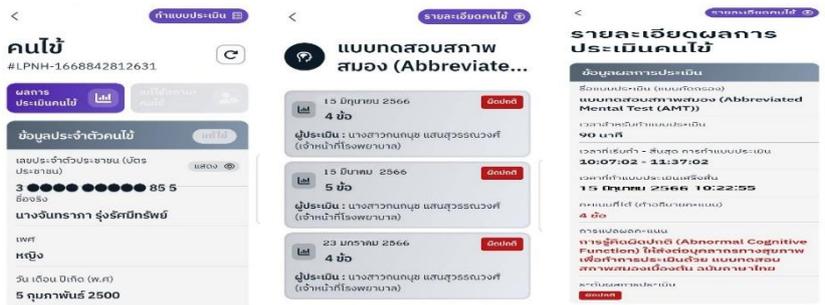


Figure 8 The evaluation menu (Source: Research, 2023)

The satisfaction results of the public health volunteers toward the application for preliminary screening the elderly with a tendency to have dementia.

After the development of the application, it was implemented by 90 public health volunteers and 15 medical personnel. The assessment results on their satisfaction with the application are summarized in Table 1.

Table 1 The assessment results on satisfaction with the application of public health volunteers and medical personnel

Description	Quality Level		
	Mean	S.D.	Level
1. Contents of the application			
1.1 The contents are correct and complete.	4.26	0.56	High
1.2 The contents are consistent with the needs.	4.12	0.53	High
1.3 The contents are easy to understand.	4.00	0.56	High
1.4 The contents are practical.	4.12	0.52	High
1.5 The obtained information is useful.	4.00	0.56	High
Total	4.10	0.55	High
2. Beauty on design and arrangement of user interface			
2.1 The interface design is appealing for use.	4.00	0.52	High
2.2 The interface design is user-friendly.	4.00	0.52	High
2.3 The interface design focuses on convenient information exchange among users.	4.12	0.56	High
2.4 The interface design enables users to easily access information in all menus.	4.12	0.56	High
2.5 The fonts and icons are suitable.	4.66	0.48	Highest
2.6 Background and font colors are suitable for reading.	4.44	0.50	High
Total	4.22	0.52	High
3. Language			
3.1 Language use is correct.	4.12	0.52	High
3.2 The language is easy to understand.	4.00	0.56	High
3.3 The language is suitable for users.	4.00	0.55	High
Total	4.04	0.54	High
4. The system utilization on application functions by users			
4.1 The application operates correctly.	4.36	0.48	High
4.2 The data processing is operated quickly.	4.00	0.52	High
4.3 Application file size is appropriate.	4.02	0.71	High
4.4 The application is easy to use, not complicated.	3.86	0.53	High
Total	4.06	0.56	High
5. System utilization in other aspects			
5.1 The application is beneficial.	4.36	0.48	High
5.2 The application is practical.	4.62	0.49	Highest
5.3 The application is innovative, different from other applications.	4.56	0.50	Highest
Total	4.51	0.49	Highest
Average	4.19	0.53	High

From Table 1, it is summarized that the overall satisfaction of the participating public health volunteers and medical personnel with the implementation of the application for preliminary screening of the elderly with a tendency to have dementia was at a high level, with a mean of 4.19 and a standard deviation of 0.53.

Additional recommendations from the application users include:

- The application should include sound to read the question items of the assessment tools, making it easier for public health volunteers who may have difficulty reading.
- The screening assessment uses a clear and easily readable font size. However, the instructions for the screening need to be appropriately designed to ensure that application users can easily understand the messages.
- The application should be developed for smartphones running the iOS operating system.
- The sequence of scores, which correlates with the progression of dementia in patients, should be presented in the form of charts or diagrams. This will help medical personnel track and monitor their patients' symptoms easily.

Discussions

This research focuses on developing dementia screening tools through a mobile application. The aim is to detect the risk of dementia at early stages among public health volunteers and medical personnel in Saraphi district, Chiang Mai province. The mobile application, called "Brain Screening," was created using the Flutter software development kit and the Dart programming language. It is compatible with the Android operating system. The application includes four cognitive assessments: a 14-question memory assessment, the Mini-Cog assessment, an 8-question IQCODE-Modified assessment for relatives or caretakers to evaluate memories, and an AMT assessment for public health and medical personnel.

Furthermore, it was found that the satisfaction of the participating public health volunteers and medical personnel with the implementation of the application was at a high level, with a mean of 4.19 and a standard deviation of 0.53. This is because the five-step development cycle was applied during the development of the application. The five steps are composed of an analysis of problems and needs, analysis of application components/system development roadmap/flowchart construction, user interface design based on needs, application development, and implementation and improvement of the application. This corresponded with Boonchum et al. (2020) that application development based on SDLC is systematic and sequential, resulting in standard efficiency of the system and effectiveness of use. The advantages of the implementation of the application in smartphones for screening are speed, reliability, convenience, flexibility, and time saving for processing and calculating for score intercept. Moreover, the research results of Kallander et al. (2013) confirmed that apps for dementia screening offer a multitude of advantages in settings with limited logistic, financial, and time resources. These apps have the potential to significantly reduce costs, decrease the need for highly trained personnel, shorten the time to diagnosis, and improve patient outcomes. Additionally, the screening apps can function as a facilitating instrument for healthcare workers in resource-limited countries who lack the necessary expertise to conduct neuropsychological assessments for dementia.

Furthermore, the application is able to store the personal data of each elderly person in each screening, which is beneficial for medical personnel to accurately and concretely diagnose the stages of dementia. This will result in better and more efficient treatment planning. This is

in line with Pornudomthap et al. (2022), revealing that the application for caring elderly dementia patients via the Android operating system in smartphones was able to efficiently improve the daily activities of patients due to its reliability and convenience, leading to the reduction of anxiety and care burdens. Additionally, Arunsirot et al. (2023) noted that the development of the healthcare application on smartphones was a guideline for accessing basic public health services due to distance problems. This is due to the fact that access is quick and limitless and it is to bring modern technology to lessen medical burdens efficiently. It is a part of fulfilling a public health gap and driving system development and mechanisms that facilitate the elderly to access and get healthcare services concretely. In addition, technological advancement was exploited for the ease of daily activities, enabling users to use the application efficiently, flexibly, and in response to their needs without restrictions of time and place. Also, it was consistent with Ahmad & Dirar (2013) who developed the application run on Android smartphones to improve the quality of Alzheimer patients' lives by focusing on slowing the progression rate and increasing their abilities to participate in the surrounding environment and society. It is therefore concluded that mobile phone technology plays a vital role to help the quality of treatment for dementia patients which leads to reduce a burden to not only the patients themselves but also caregivers who support them in their daily activities.

Conclusion and suggestions

Dementia screening tools based on a mobile application used for public health volunteers and medical personnel were constructed to run on a smartphone operated on the Android Operating System. It consisted of four cognitive assessments: the 14-question item memory assessment, the Mini-Cog assessment, the 8-question item IQCODE-Modified assessment for relatives or caretakers to assess memories and for public health volunteers for management, and the AMT assessment for public health and medical personnel. However, it should be developed on the smartphones with the IOS operating system. Also, more operating functions connecting with concerned public health agencies should be added. Additionally, the application should be developed further, disseminated, and publicized to the elderly in the Upper Northern region with similar contexts.

New knowledge and the effects on society and communities

This “Brain Screening” application is used for preliminary screening the elderly with a tendency to have dementia in Saraphi district, Chiang Mai province. It should be developed further, disseminated, and publicized to the elderly in the Upper Northern region with similar contexts in an attempt to prevent or reduce the prevalence of dementia. When the condition is discovered at an early stage, treatment, and rehabilitation can be more effective and efficient, which would bring about a sustainable improvement of the quality of life of the elderly.

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Perception of Customer Experience Towards Customer Loyalty in Online Food Delivery Services in Thailand: Exploring in Generation Z

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Abstract

The relationship between customer experience towards customer loyalty in online food delivery services in Thailand has been the subject of a few studies on customers in Generation Z. This study aims to explore the effect of the perception of customer experience, customer satisfaction, and customer loyalty, focusing on Generation Z in online food delivery service. The samples are randomly selected from 400 respondents from Generation Z in Thailand. This analysis uses quantitative research and statistical assessment, including descriptive statistics, Exploratory Factor Analysis (EFA), and Linear Regression Analysis. The result of EFA indicates that the perception of customer experience is identified by 3 factors: namely 1) food quality, 2) convenience and reliability of service, and 3) price. Moreover, the linear regression analysis shows that food quality, convenience and reliability of service, and price are significant motivating factors of customer satisfaction. As a result, customer satisfaction has a positive effect on customer loyalty.

Keywords: Customer experience, Customer loyalty, Online food delivery service

Introduction

Thailand's food service industry is one of the largest in the Southeast Asian region. Consumption of ready-made food is growing fast due to the increased tourism activity in the country. The number of international tourist arrivals to Thailand increased from 6.7 million in 2020 to 11.15 million in 2022. (Mordor Intelligence, 2023).

Due to the COVID-19 pandemic, the majority of food service establishments have suffered serious economic damage. Various adaptive approaches were implemented during this period for business survival. Online food delivery services through popular applications were among the main methods to face the crisis. This tactic is growing significantly in every country around the world, and it is generating tremendous income for many food service

establishments, especially those in the food delivery supply chain. The amount of food orders via online applications in Bangkok has grown exponentially to over 20 million transactions in the year 2020 alone. During COVID-19, customers preferred to stay at home to work, study, and relax rather than to be out (Yeo et al., 2017). In addition, the COVID-19 outbreak has disrupted customer behavior, with meal consumption changing from visiting restaurants to purchasing and ordering food using online platforms.

Nevertheless, the food service sector and online food delivery businesses should focus on customers' demands and design profitable online content (Sriram et al., 2021). Customer behavior changed rapidly based on the different lifestyles of individuals. Therefore, online food delivery implications need to be timesaving and more convenient (Liu, 2019). These online platforms work alongside thousands of food suppliers, offering expediency and quality food that is delivered straight to consumers. There are a variety of choices that customers can choose in online food delivery with various promotions and cheap prices. Food service establishments can gain more revenue from online food delivery. The top 3 food delivery services in Thailand are Grab Food, Food Panda, and Line Man. In 2020, the market for online food delivery was expected to be wider because of the COVID-19 pandemic. Under these circumstances, online food delivery services have developed in terms of efficiency, productivity, automated company policies, and digitized payment to support the customers' expectations and customers' requirements.

All food service establishments are competing against one another to gain more to attain a competitive advantage. Many food service providers are trying to increase customer satisfaction and loyalty to maintain customer relationships. One of the factors that affect customer satisfaction is the customer's own experience when undergoing online food delivery. Managing customer experience is one of the keys to achieving great customer satisfaction (Jain et al., 2017). Food quality, service, time, and price are among the many elements of the customer experience that affect purchasing choices for online food delivery. When customers experience online food delivery, they experience food quality, convenience, and reliability of service, price, and time (Ganapathi & Abu-Shanab, 2020; Jain et al., 2022; Yeo et al., 2017). These factors affect their decisions about whether they will repeat the purchase or not.

This study examined factors of customer experience and perception, focusing on Generation Z, in terms of customer satisfaction and customer loyalty in online food delivery services in Thailand. In addition, this research emphasized the valuable information for online food delivery companies. Most importantly, this will further develop constructive guidelines to enhance business performance in the online food delivery industry in Thailand.

Research Objectives

1. To explore the perception of customer experience factors affecting customer satisfaction in online food delivery services.
2. To identify the relationship between customer satisfaction and customer loyalty in online food delivery services.

Literature review

1. Customer experience

Creating a strong customer experience is now a leading management objective because customer experience is the whole experience that the customer has when buying a product (Jain et al., 2017). Firms should focus on the customer experience that arises because customers interact with firms through myriad touch points in various channels and media, resulting in more complex customer journeys (Lemon & Verhoef, 2016). Consequently, customer

satisfaction is determined by the whole process when the customer purchases the products (Jun et al., 2022). The perceived usefulness affecting customers' intention and the positive relationship between social influence and customer attitude are among the key success factors in online food delivery services. When purchasing online food delivery, the process from selecting the food to receiving the food is considered the whole experience. Some attributes of customer experience when purchasing online food delivery such as food quality, service, time, and price need to be examined.

1.1 Food quality

Food quality can be referred to as the quality of the food attributes of taste, texture, food presentation, and freshness. This is important because the main product of the food industry is the food itself, and the food must achieve both appeal and safety standards for consumption. Many consumers are concerned about the ingredients that make up the actual food, how food is prepared, and its nutritional value. According to Ganapathi & Abu-Shanab (2020), the attributes that determine the quality of food are the taste of food, which is considered as an expected quality characteristic before purchase and an experienced quality characteristic after purchase; hygiene and freshness elements, such as food temperature and nutritional value, and food presentation.

The description of the food quality concept is evaluated through food quality before and after purchase. Food quality can be described as an essential aspect that affects the consumer experience in buying food. Moreover, similar findings in the context of cultural tourism indicate that there are some influences of the quality of specialty food as well as of edible souvenirs on consumer satisfaction. Although there are different concepts and processes between online food delivery (OFD), restaurants, and food tourism, it is necessary to analyze the role of food quality in the accomplishment of the online food delivery (OFD) business. Consumer preferences in food choices are based on sensory characteristics such as taste and texture and non-sensory characteristics such as health, religion, and ethics. Other considerable indicators of food quality consist of presentation, variety, healthier options, taste, freshness, and temperature (Sjahroeddin, 2018).

1.2 Convenience and reliability

Service is important for customers to decide whether they will choose the product or not. As cited in Ganapathi & Abu-Shanab (2020), online service quality is the way the service providers offer service to the customer. Online food delivery is constructed to make it easier, faster, and more convenient to order food, but also to transmit reliability. A key factor of motivation is convenience, identified by the customers using e-commerce as the ease of ordering, paying, and receiving the products conveniently at their doorsteps. A study (Yeo et al., 2017) found that there was a positive influence between convenience and customer satisfaction. The development of food service applications that provide customers with various food choices and their convenient design generated by advanced technology allows customers to choose food and meals through delivery services without having to leave their own homes and go outside (Saad, 2020).

Online food delivery service providers must be reliable and generate customers' trust. The time of delivery is significant because quick delivery with good products indicates that the service is reliable. Online food delivery is preferred by customers for its fast speed service and precision. Approximately 70% of online food delivery orders are delivered to common households, which means this target group is the main market for online food delivery (Yeo et al., 2017). Many people prefer to be at home and are not eager to spend time going out for food or waiting at restaurants just to consume food. It is vital for service providers to offer and maintain quick service to satisfy customers. In addition, online food delivery payment is

accomplished by online banking applications that must feature safety and reliability for the consumers' peace of mind.

1.3 Price

Price is another significant property from a consumer's viewpoint. Consistent demand for a given price functions as an indicator to determine consumer experience with goods or services. Price determines the purchase decision of the customer (Ganapathi & Abu-Shanab, 2020). Price-saving orientation not only gives customers a chance to save money but it also results in the industry's attempts to lower the cost of purchasing a product. Customers are attracted to lower prices (Yeo et al., 2017). Consumers want to make the best decision in choosing products and services that contribute to maximum beneficial consumer satisfaction with the lowest price.

In the food service industry, there are many market segments, and each of them has its own preferred ranges of food quality and price. In some cases, price is not the most important factor for customers in choosing the food they order. Customers also tend to give more consideration to other factors, such as quality or nutritional values. If the nutritional value of a food product has a higher priority, then price is not an issue. As a result, the customers would be willing to purchase a more expensive food product. In addition, for other segments the lower the price, the more likely customers are to spend and select the food item. Online customers can compare prices easily and select the one that tends to provide the most beneficial customer satisfaction (Yeo et al., 2017). Today, by comparing one food service website to another, consumers can select more affordable food products and services that meet the demands of everyone.

2. Customer satisfaction and customer loyalty

In the market discipline, customer satisfaction is one of the most studied and widely recognized topics. Customer satisfaction plays a prominent role in the competitiveness of e-commerce because of its influence on retaining old customers as well as attracting new customers. Satisfaction is a core determinant in the customers' decisions to continue or end their relationship with the products or services. In online purchasing, customer satisfaction is one of the important key factors, leading to growing customer retention, and maintaining a long-term increase of online stores and intentions to repurchase (Tandon et al., 2017).

Ganapathi & Abu-Shanab (2020) stated that satisfaction is achieved when the customers fulfil their needs and desires. Even though satisfaction is a subjective evaluation of a product based on customers' expectations, we assume that if actual customers' experiences exceed customer expectations, then customers will be satisfied. Satisfaction affects customer loyalty. It can lead to continuing purchase loyalty and increase the probability for customers to recommend certain food service establishments to their friends and family which improves the food service business's growth prospects. On the other hand, dissatisfied customers may deliver negative reviews and might not proceed to make the next purchase. Therefore, customer satisfaction is regarded as an influential goal in online food delivery, as it helps to maintain existing customers, attract new potential customers, and achieve the establishment's objective: customer loyalty.

3. Online food delivery services

Advanced technology has been used in the food production process and is now being used for the distribution of food delivery services. The growth of modern technologies has allowed all food service businesses to reach more customers and generate additional profits. This helps food service businesses to increase productivity, raise accuracy, and create more customer engagements and interactions. This is especially true for online food delivery services that have begun with online food ordering and have evolved into a separate significant food

business model (Jun et al., 2022). In addition, the Internet has become a reliable instrument to promote business more effectively. Recently, the use of the Internet and technological devices like mobile phones and tablets is growing rapidly. Online food delivery service has become popular and is commonly exercised, especially by young people. The increase in popularity also led to an increase in competitiveness in the food service industry (Ganapathi & Abu-Shanab, 2020).

In Thailand, there are three main players in the online food industry. They are Grab Food, Line Man, and Food Panda (Fitch Solutions, 2020). The online food ordering process requires opening a web page or mobile application (Ganapathi & Abu-Shanab, 2020). Customers need to register and sign in to make the order. On the other end, food service establishments, online delivery services, and customers will obtain information on any transactions that may occur. For restaurants, this method of sign-in helps them to know customers' preferences better and track the loyalty of the customer as all data and information are recorded. After the sign-in process, customers can select the types of food they want by completing the transactions. The payment is executed through two different methods: (1) online payment or (2) cash payment through the food delivery riders. The process begins with a food delivery rider picking up the food from the restaurant and delivering it to the customers. At the end of the transactions, customers can rate different delivery service criteria. This will help food service establishments and food delivery service players to achieve organizational goals and gain competitive advantages.

4. Generation Z

Generation Z is the people who were born in the years 1997 to 2010, As of now, Generation Z ranges in age from 13 to 26. Moreover, this generation was the first generation to have never known a world without the Internet and smartphones, making them true digital natives. However, Generation Z is vital to consider the global events that have shaped their worldview. Having already lived through numerous economic crises, the rise of the Internet, climate change, and the COVID-19 pandemic, Generation Z has arrived in the consumer landscape with unique characteristics and expectations of brands. (Mintel Group Ltd., 2023)

Generation Z is similar in many ways to other generations, but businesses stand to lose out if they fail to optimize their marketing and promotion techniques for Generation Z. There are three key points to keep in mind: 1) Generation Z consists of pragmatic, informed consumers, so you need to offer them products and promotions with real value 2) Generation Z is very socially aware, so you should be thinking of ways to become a more responsible brand and 3) Generation Z consumers switch between channels frequently, so you should consider implementing an omnichannel strategy (Bewicke, 2023). Moreover, Generation Z is becoming increasingly powerful in terms of purchasing power and disposable income.

Mintel Group Ltd. (2023) informs that Generation Z isn't the generation that craves healthy eating. Instead, they have adventurous palates and embrace food that stimulates their senses, partly driven by their early exposure to international flavors. The monthly subscription service offered by Universal Yams, which delivers a selection of snacks from different countries, is an example of how to successfully serve Generation Z's love of discovering new flavors.

Methodology

Conceptual framework and research hypothesis development

From numerous studies, a concept research framework was developed, consisting of personal factors, customer satisfaction, and customer loyalty in online food delivery services. The following hypothesis was developed:

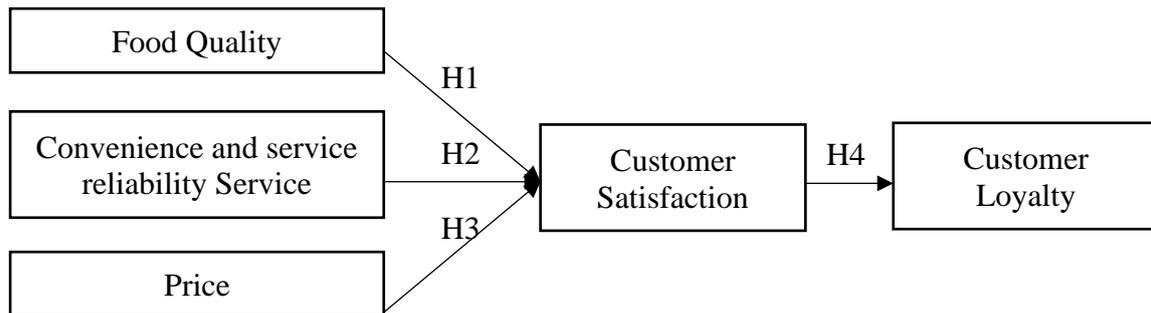


Figure 1 Conceptual framework and hypothesis (Source: Researcher, 2023)

H1: Food quality has a positive effect on customer satisfaction in online food delivery services.

H2: Convenience and service reliability have a positive effect on customer satisfaction in online food delivery services.

H3: Price has a positive effect on customer satisfaction in online food delivery services.

H4: Customer satisfaction has a positive effect on customer loyalty in online food delivery services.

To design the customer experience based on customer satisfaction and loyalty in online food delivery, information and data were obtained by using a questionnaire consisting of five parts. The first part focused on general information such as gender, status, and occupation. Part two identified customer behavior, including money spending, usage frequency of online food delivery, and online food delivery providers. The third part of the questionnaire explored perception factors for customer experience, including 3 attributes namely: (1) food quality, (2) convenience and service reliability, and (3) price. The fourth part of the questionnaire identified customer satisfaction and customer loyalty in online food delivery. The ending section of the questionnaire focused on recommendations and customer perspectives toward online food delivery service.

The research questions were designed based on scales selected from prior research on the three main components food quality, convenience, and reliable service and price. These items included 12 closed questions using a 5- 5-point Likert scale ranging from 1-5, with 5 as very high satisfaction, 4 as satisfaction, 3 as neutral, 2 as low satisfaction, and 1 as very low satisfaction.

Indexes of Item-Objective Congruence (IOC) from three experts and Cronbach's alpha coefficient of the entire questionnaire were evaluated for content validity and reliability. The result illustrates that the Item-Objective Congruence was 0.68, and Cronbach's alpha coefficient was 0.87.

After that, the questionnaires were distributed to groups of Gen Z consumers, both males and females in Thailand from 1 to 30 December 2022. With the size of the population undefinable, the sample size is calculated at a 95% confidence level and 5% margin of error

equal to 385 samples. The applicable sample should be at least 385. This study collected 400 samples.

Data analysis was completed by using a statistical program for social sciences (SPSS). Data were evaluated by using a range of statistical techniques. Frequencies and percentage score for the nominal variable. General information of samples was summarized. The customer experience factor was analyzed by Exploratory Factor Analysis (EFA). Factor analysis is normally applied to explain the number of measured variables with a smaller number of underlying factors, so-called 'latent variables' (Henson & Robert, 2006). It can be divided into two steps known as factor extraction and factor rotation. Subsequently, the perception of customer experience towards customer satisfaction and customer loyalty at the online food delivery level were analysed and evaluated by Linear Regression Analysis.

Results

The socio-demographic variables are presented in Table 1, which shows that 74.8% of the respondents were female, and 25.20% were male. 98.50% of respondents were single and 88% were students.

Table 1 Socio-demographic (N=400)

Socio-demographic		Number of respondents	Percentage of the sample
Gender	Male	101	25.20
	Female	299	74.80
Status	Single	394	98.50
	Married	6	1.50
Occupation	Student	352	88.00
	Business owner	48	12.00

According to Table 2, most of the respondents, 73.50%, spent money on online food delivery per time less than 300 baht. Moreover, most respondents, 58.40%, used online food delivery 1-2 times per week. They preferred to order online food delivery from Grab Food, Food Panda, Line Man, and others at 76.75%, 30%, 26.5%, and 3.25%, respectively.

Table 2 Respondent Behavior (N=400)

Respondent Behavior	Characteristic	Number of respondents	Percentage of the sample
Money spending for online food delivery per time (Baht)	Less than 300	294	73.50
	300- 600	82	20.50
	600-900	10	2.50
	900-1,200	5	1.30
	More than 1,200	9	2.30
Frequency of using online food delivery	1-2 times/week	234	58.40
	3-4 times/week	113	28.30
	5-6 times/week	32	8.00
	More than 7 times/week	21	5.30
Online food delivery providers	Line Man	106	26.50
	Grab Food	307	76.75
	Food Panda	120	30.00
	Other	13	3.25

Table 3, the quantitative survey consisted of 12 items conducted to assess factors that are influenced by the perception of customer experience in online food delivery. Exploratory Factor Analysis (EFA) was applied to this study. They are analyzed and regrouped into 3 factors, which were food quality (Eigenvalues = 2.495 and Variance = 20.794), convenience and reliability service (Eigenvalues = 2.528 and Variance = 21.064), and price (Eigenvalues = 2.628 and Variance = 21.902).

Table 3: The Perception of Customer Experience Factors

Factor	1	2	3
Factor 1: Food quality (Eigenvalues = 2.495 and Variance = 20.794)			
Food is hot and fresh	.818		
The menu has a variety of food items	.795		
Food is tasty	.658		
The appearance of the food I ordered online is attractive	.620		
Factor 2: Convenience and reliability service (Eigenvalues = 2.528 and Variance = 21.064)			
The process of ordering online food is easy and can be done quickly		.804	
The system application of online food delivery is working well		.763	
I feel secure doing transactions online		.730	
Online food delivery helps me to save time and accomplish things more quickly		.625	
Factor 3: Price (Eigenvalues = 2.628 and Variance = 21.902)			
Saving money by using online food delivery			.839
Collecting points in online food delivery to get free food			.791
Online food delivery offers good value			.790
Searching for cheap food deals in online food delivery			.620

Factor 1 was labeled as 'Food Quality' (Eigenvalues = 2.495 and Variance = 20.794), which consisted of four items, 1) Food is hot and fresh, 2) The menu has a variety of food items, 3) Food is tasty and 4) The appearance of the food I ordered online is attractive. It presented the factor loading in 0.818, 0.795, 0.658 and 0.620, respectively.

Factor 2 also represented four items, covering 1) The process of ordering online food is easy and can be done quickly, 2) The system application of online food delivery is working well, 3) I feel secure doing transactions online and 4) Online food delivery helps me to save time and accomplish things more quickly. It presented the factor loading in 0.804, 0.763, 0.730 and 0.625, respectively, which was named as 'Convenience and Reliability Service' (Eigenvalues = 2.528 and Variance = 21.064).

Factor 3, labeled as 'Price' (Eigenvalues = 2.628 and Variance = 21.902), deals with four items, namely 1) Saving money by using online food delivery, 2) Collecting points in online food delivery to get free food, 3) Online food delivery offering good value and 4) Searching for cheap food deals in online food delivery. It presented the factor loading in 0.839, 0.791, 0.790 and 0.620, respectively.

Table 3 Linear regression between customer experience and customer satisfaction

Factors	Unstandardized coefficient	Standard error	Standardized	P-Value
Food quality - Customer satisfaction	0.277	0.042	0.244	0.00**
Convenience and reliability service - customer satisfaction	0.378	0.044	0.324	0.00**
Price - customer satisfaction	0.332	0.29	0.411	0.00**

**significance level < 0.05

According to Table 3, all attributes affect customer satisfaction. Food quality affects customer satisfaction ($\beta=0.244$, P-Value=0.00). Convenience and reliability of service are the second effects of customer satisfaction ($\beta=0.324$, P-Value=0.00). Price has a significant effect on satisfaction ($\beta=0.411$, P-Value=0.00).

Table 4 Linear regression between customer satisfaction and customer loyalty

Factor	Unstandardized coefficient	Standard error	Standardized	P-Value
Customer satisfaction - Customer loyalty	0.809	0.038	0.729	0.000**

**significance level < 0.05

From Table 4, customer satisfaction affects customer loyalty ($\beta=0.809$, P-Value=0.00). It shows that the attributes of customer experience, which are food quality, convenience and reliability service, and price affect customer satisfaction positively since the P-value is less than 0.05. Customer satisfaction also affects customer loyalty positively.

Table 5 Summary of research hypothesis

Hypotheses	Result
H1: Food quality has a positive effect on customer satisfaction in online food delivery services.	Accepted
H2: Convenience and reliable service have a positive effect on customer satisfaction in online food delivery services.	Accepted
H3: Price has a positive effect on customer satisfaction in online food delivery services.	Accepted
H4: Customer satisfaction has a positive effect on customer loyalty in online food delivery services.	Accepted

Discussions

The experience perceived by customers when using online food delivery affects customer satisfaction positively. The findings show that price is the attribute of customer experience that has the highest score in affecting customer satisfaction. Customers like to search for cheap deals online and online food delivery is good value for money. Online food delivery service also provides point collection promotions, so it makes the purchasing experience more interesting. Moreover, customers prefer the good value for money that is offered in online food delivery (Yeo et al., 2017). Special promotions and the ability to collect points make customers satisfied with online food delivery service usage. In addition, Generation Z in Thailand also supports online food business models that have started to increase dramatically in the online food delivery services industry (Jun et al., 2022).

Moreover, convenience and reliable service generate customer satisfaction when using online food delivery services. The safety featured payment, easily usable online food delivery, and the time delivery affect customer satisfaction. Customers can choose from various online food delivery service platforms, the one that they find the most user-friendly. On the other hand, if online food delivery is difficult to implement or the payment is unsecured, customers may not continue to purchase and are not willing to complete the transaction. As stated by Yeo et al. (2017), customers like online food delivery because it is punctual and timesaving. The delivery time must be short and punctual as much as possible to ensure that food quality and its appearance are still at a satisfactory level.

In addition, food quality affects customer satisfaction. The taste of food, freshness, food presentation, and variety of menu items also influence customer satisfaction. Food quality has a lower score because the food must be delivered to the customer's households and during the delivery process, the quality of the food may be decreased. However, Tandon et al. (2017) stress that satisfied customers are more likely to become loyal and tend to make more purchases in the future. That is aligned with other related research which shows that customer satisfaction is an important factor that leads customers to repeat purchasing of food products in the future.

To sum up, so far, the customer is satisfied with the experience that they have obtained when using online food delivery service. Food service establishments need to pay more attention to the price of their products; food products especially need good value for money. The ease of application usage, as well as safety on secured payment, and fast delivery time, are also significant factors to accomplish customer satisfaction. Customer loyalty will be achieved when customer satisfaction is fulfilled.

Conclusion and suggestions

It can be concluded that all three factors: food quality, convenience and reliable service, and price, have influenced customer perception and experience toward customer loyalty in online food delivery service, especially the young 'Generation Z'. The use of modern mobile applications tends to respond to the needs and demands of today's rapidly changing lifestyle of the current generation in Thailand. The differences are the speed of delivery and the requirement to maintain the quality of customers' products. Not all commercial products (non-edible consumption) are required to provide immediate delivery service. Therefore, further study to be investigated may apply to compare tangible commercial products and food products based on online delivery services. However, the next research should explore the influencing customer decisions to use the online food delivery service in local restaurants or local food delivery services. The results will benefit local communities, local businesses, and local societies.

New knowledge and the effects on society and communities

1. To understand the perception of customer experience that affects Generation Z satisfaction and loyalty in online food delivery service in Thailand.
2. To apply the study of the perception of customer experience that affects other generations such as Generation X and Generation Y.
3. To educate the concept of customer experience in various businesses.

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Working Capital Management Aggressiveness and Its Performance: Evidence from Agro-Food Industry in Thailand

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Abstract

The primary objective of this research study was to empirically examine the association between the efficiency of working capital management (WCM), comprising measures such as the Cash Conversion Cycle (CCC), Efficiency Index (EI), Aggressiveness Index (AGGR), and Accounts Receivable Aggressiveness (ARAGGR), and the financial performance (FP) metrics, including Earnings on Assets (EOA) and Return on Assets (ROA). Additionally, this study aimed to compare the efficiency of WCM across various models of publicly listed companies operating in Thailand's Agro & Food Industry. The study utilized a dataset spanning a period of 11 years, from 2007 to 2018, encompassing a sample of 53 enterprises listed within the Agri-business and Food & Beverage sectors. The data was sourced from the SETSMART database, a reputable financial data repository. To investigate the relationship between WCM efficiency and financial performance, the study employed multiple regression analysis. The empirical findings from this research indicate that all the independent variables associated with WCM have a statistically significant impact on financial performance. Notably, the variable AGGR exhibited the most substantial influence on financial performance, as evidenced by its beta coefficient of 0.485. These findings suggest that a model incorporating a combination of performance metrics provides a more comprehensive explanation of the interplay between working capital management and financial performance.

Keywords: Working capital, Management, Aggressiveness, Performance, Agro-food

Introduction

Working capital is one of the essential factors for business management. It serves primarily to promote competitiveness. Vahid et al. (2012) promote a good image of the business, enhance employee morale, strengthen the credit and confidence of partners, and most importantly, prevent businesses from short-term liquidity problems (Sagner, 2014). However, it has been found that maintaining a high level of working capital in the business is only sometimes beneficial. Companies can use this working capital to invest in several investment projects. Instead of being reserved for operations (Ross et al., 2005), financing also has costs. High working capital will cause the business to bear the high financial costs.

The agricultural and food industry is considered the country's primary industry, with the potential to compete globally. It is regarded as a significant precursor industry for many industries in the country. This affects determining the amount of working capital that must be

reserved. In addition, there are limitations of agricultural products that are different from ordinary goods, namely, the period of spoilage or the shelf life of the produce, which is shorter than that of common goods, which makes storage costs increase, so it is a challenge for businesses to manage working capital appropriately enough for the operation of the company. It supports fluctuations in inputs and can enable the business to achieve the goal of creating wealth for shareholders. Therefore, we are interested in measuring the efficiency of working capital management on performance. Using performance indicators along with financial ratios measures the impact on operations.

Research objectives

1. Test the relationship between WCME and FP of listed companies in Thailand's agricultural and food industries.
2. Compare the WCME of each model.

Literature reviews

Working capital is money an entity must provide for normal operating activities. It is like the blood that nourishes the body to function normally (Padachi et al., 2012). Working capital management policy is the relationship between using working assets and providing working capital. It can be divided into three types (Wongweerawut & Riw-in, 2013): 1. Middle Line Management, 2. Risk Management, and 3. Careful Management. Proper working capital management will affect the long-term growth prospects of the business. If the business can maintain an appropriate working capital level according to the nature of its business, it can reduce internal and external costs (Filbeck & Krueger 2005). The nature of management's management is one factor that determines the direction of operations. If management is aggressive, it will have low working capital reserves. This allows the business to invest money in other projects. On the other hand, if the management is risk-averse (Conservative), there will be a high level of working capital reserves for fear of lack of liquidity, which will affect the lousy image of business partners and may cause the business to file for bankruptcy (Brigham & Gapenski, 1997).

Previous studies on the relationship between working capital management and financial performance. It was found that the variables used to measure performance consisted of the following. 1) Return on Asset (ROA) (Shin & Soenen, 1998; Falope & Ajilore, 2009). 2) Return on Capital Employed: ROCE (Smith & Begemann, 1997; Vishnani & Shah, 2007). 3) Return on Equity: ROE (Afza & Nazir, 2008; Azam & Haider, 2011). 4) Gross Operating Profit (GOP) (Shin & Soenen, 1998; Abuzayed, 2012; Vural et al, 2012; Napompech, 2012). 5) Net Operating Profit (NOP) (Raheman & Nasr, 2007; Ramchandran & Janakiraman, 2009). 6) Tobin's Q ratio (Lamberson, 1995). Research also uses liquidity ratios to measure the effectiveness of working capital management consisting of the Current Ratio (CR) (Lamberson, 1995; Nilsson, 2010) and the Quick Ratio (QR) (Emery, 1984; Valipour et al, 2012). There are also capital management performance metrics, combining multiple financial ratios to measure liquidity in the time dimension. Such ratios include the Cash Conversion Cycle (CCC) (Samiloglu & Demirgunes, 2008; Mehmet & Eda, 2009; Mohamad & Saad, 2010; Alipour, 2011; Vural et al., 2012; Tauringana & Afrifa, 2013). The components of a cash cycle consist of three sub-ratios: 1) Days' Inventories (DI) (Smith & Begemann, 1997; Vishnani & shah, 2007; Napompech, 2012) is the average time for goods to be sold, 2) Days' Receivables (DR) Ramchandran and Janakiraman, 2009; Sharma & Kumar, 2011; Dong & Su, 2010) is the collection period, and 3) Days' Payables (DP) (Azam & Haider, 2011; Abuzayed, 2012) is the time it takes to receive credit from creditors with the relation of $CCC = DI + DR - DP$. The

lower the CCC value, the better because it shows how quickly the invested cash turns around. The more negative CCC can be managed, the more the business can receive cash in advance and invest in generating returns.

At the same time (Shin & Soen, 1998; Ganesan, 2007; Raheman & Nasr, 2007), working capital management efficiency metrics have been created that are similar to CCCs but are sales-based. Subsequently, working capital management efficiency measurements were developed. By removing dimensional constraints to be more comprehensive. In Bhattacharya's (1997) work, an index was developed to measure the effectiveness of working capital management comprising the Performance Index (PI), Utilization Index (UI) and Total Efficiency index (EI), PI demonstrates the ability to use different groups of working capital to generate sales, which is a comparative measure of efficiency between input and output. If the calculated PI and UI index values are greater than 1, it indicates the efficiency of working capital management. By the way, the EI index shows the overall synergy of two indices ($EI = PI \cdot UI$). The operating results are as follows.

Table 1 The direction of the relationship between the independent and dependent variables, which is a performance

Independent variables	Relationship with Performance	Related literatures
CR	+	(Azam & Haider,2011; Zubairi,2010)
	-	(Lamberson,1995; Nilsson,2010)
QR	-	(Emery,1984; Valipour et al.,2012)
CCC	-	(Mohammad and Saad,2010; Alipour,2011; Vural et al.,2012;Tauringana & Afrifa,2013)
DI	+	(Smith & Begemann,1997; Gill et al.,2010; Abuzayed,2012)
	-	(Dong & Su,2010; Karaduman et al.,2010; Alipour,2011;Azam & Haider,2011; Ching et al., 2010; Sharma and Kumar, 2011; Napompech,2012)
DR	+	(Ramachandran and Janakiraman,2009; Sharma and Kumar,2011; Abuzayed,2012)
	-	(Dong & Su,2010; Gill et al., 2010;Karaduman et al.,2010; Mathuva, 2010; Alipour,2011; Abuzayed,2012;Napompech,2012; Vural et al.,2012; Akoto et al.,2013)
DP	+	(Ramachandran and Janakiraman,2009; Dong & Su,2010; Mathuva,2010; Alipour,2011; Azam & Haider,2011; Abuzayed,2012)
	-	(Deloof,2003; Raheman & Nasr,2007 ; Charitou et al., 2010; Karaduman et al.,2010; Sharma and Kumar, 2011)
PI	+	(Bhattacharya,1997; Kasiran, Mohamad & Chin,2015)
UI	+	(Bhattacharya,1997; Kasiran, Mohamad & Chin,2015)
EI	+	(Bhattacharya,1997; Kasiran, Mohamad & Chin,2015)

From Table 1, the effectiveness of working capital management on the performance of the business is measured in three ways as follows.

1. Direct ratio measurement found that most research uses operational efficiency measurement ratios (DI, DR, DP, CCC), primarily focusing mainly on accounts receivable management. In addition, liquidity ratios are used as a metric.

2. Measuring the efficiency of working capital management by measuring the cash cycle (CCC)

3. Index measurement (PI, UI, EI), is a comparative performance measure between input factors and output. It is calculated as an index value.

The research conceptual framework

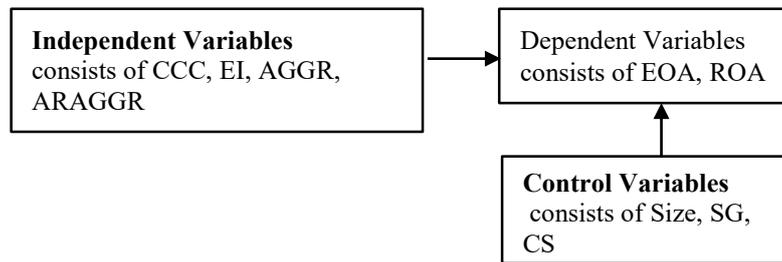


Figure 1 The research conceptual framework (Source: Researcher, 2023)

Methodology

Population and sample: The study's population comprises companies listed on the Stock Exchange of Thailand within the Agro-food industry, which maintains active status and has not undergone delisting. This population encompasses 11 companies in the agro-industry group and 42 in the food industry group, totaling 53 companies. To minimize potential disruptions from the COVID-19 pandemic, which could affect daily operations, this study decided to use data from a period prior to the occurrence of COVID-19. This method focuses on companies listed in the industry with consistent financial standing and operational performance over an extensive 11-year period, spanning from 2007 to 2018. Additionally, these selected companies meet the specified financial liquidity criteria and are not undergoing business rehabilitation.

Data Collection Method: This study relies on the collection of secondary data sourced from the SETSMART database of the Stock Exchange of Thailand.

Data Analysis:

Multicollinearity Test: Multicollinearity denotes a scenario in which multiple explanatory variables within a multiple regression model display high linear interrelationships. To assess multicollinearity, this study employs the correlation coefficient (r). When the correlation coefficient (r) surpasses 0.8, it indicates the presence of severe multicollinearity (Rangkakulnuwat, 2013).

Multiple Regression Analysis: Multiple regression analysis is employed to investigate the relationships between dependent variables (ROA and EOA) and independent variables (CCC, EI, AGGR, and ARAGGR) at a significance level of 0.05.

Variables and assumptions: The variables used in this study are divided into three groups as follows. 1. Independent variables consisting of 1.1 Cash Conversion Cycle (CCC), 1.2 Aggressiveness (AGGR), 1.3 Efficiency Index of Working Capital Management (EI(WCM)), and 1.4 The impacts between Accounts Receivable Aging and Aggressiveness (ARAGGR). 2. Dependent variables consist of 2.1 Efficiency of Assets (EOA), and 2.2 Return on Assets (ROA). 3. Control variables consist of 3.1 Sales Growth (SG), 3.2 Financial Structure (FS), and 3.3 Firm Size (SIZE). Whereas, the variables can be measured by the following formula, as shown in Table 2.

Table 2 The variable data and measurement details

Variables	Formula
CCC	DI+DR-DP DI = Item shelf life in days, calculated from $\frac{365/\text{timesAverage Value of Inventory}}{\text{cost of sales}}$ DR = Accounts Receivable in days, calculated from $\frac{365/\text{imesAverage Account Receivable}}{\text{Circulation/Net Credit Sales}}$ DP = Accounts payable aging in days, calculated from $\frac{365/\text{timesAverage Payable Receivable}}{\text{purchases ledger}}$
EI	$EI_{(WCM)} = PI_{(WCM)} \times UI_{(WCM)}$ While $PI_{(WCM)} = I_s \frac{\sum_{i=1}^n \frac{W_{i(t-1)}}{W_{i(t)}}}{N}$ $UI_{(WCM)} = \frac{A_{t-1}}{A_t}$ $I_s = \text{Sale Index} = S_t/S_{(t-1)}$ $W_i = \text{Individual group of current assets}$ $N = \text{Number of current asset group}$ $I = 1,2,3 \dots N$ $A = \text{Current Asset /Sales}$
ARAGGR	AR x AGGR Is the impacts between Accounts Receivable Aging and Aggressiveness equal to the multiply of AR and AGGR. If its value equal to 1 indicated that there is an impact between Accounts Receivable Aging and Aggressiveness to the operating results. On the other hand, if AGGR is 0, it stated that no impact of capital management on operating results.
ROA	NI/TA While NI = Net Income TA = Total assets It is a measure of the return on the use of assets. Is the profit worth investing in assets?
EOA	EBIT/TA While EBIT = Earning before Interest and Tax TA = Total assets It is a measure of the return on the use of an asset, but by the amount of cash whether the asset is being used worthwhile. By cutting off the influence of acquisition of capital.
FS	TDB /TA Measure financial structure. Overall, how much financing does the company have from the source of debt? Which reflects the total risk of the company.
Size	LN(TA) It is a measure of the size of business based on the size of its assets by finding the natural log of total assets
AGGR	$TCA/TA - TD/TA$ While TCA = Total Current Assets TA = Total Assets TD = Total Debts AGGR Variables, management style is measured by the difference between the ratio of investment in current assets compared to total assets and the ratio of financing from debt. If the value of $TCA/TA - TD/TA > 0$, its value is equal to 0 which means that money from debt sources is used to invest in fixed assets. Instead of sourcing from sources of capital. When $TCA/TA - TD/TA = < 1$, its value is equal to 0 means that it is other than Non-Aggressive.

Hypothesis to test the relationship between working capital management efficiency and operating results.

H_{1.1}: The CCC has a negative correlation with its performance statistically significant because if the CCC has a shorter cash cycle, the better the impact on the business.

H_{1.2}: AGGR is positively correlated with performance statistically significant. Due to the risk-taking management, there is an opportunity to generate returns for the business.

H_{1.3}: ARAGGR negatively correlates with operating results statistically significant because the risk-taking management will result in better business profitability.

H₁: EI is correlated with financial performance statistically significant because if the business can manage working capital effectively will affect the company's financial performance.

Methods of data analysis and statistics used in data analysis

Analysis of data and statistics used in data analysis is divided into two parts as follows:

Part 1 Descriptive Data Analysis, Statistics used in data analysis include Mean, Standard Deviation, Skewness, and Kurtosis. Part 2: Inferential Data Analysis, the statistics used in the data analysis are Multiple Regression Analysis to test the relationship between working capital management efficiency and operating results. The equation used to test the relationship is as follows:

$$\text{Performance}_{i,t} = B_0 + B_1\text{CCC}_{i,t} + B_2\text{SG}_{i,t} + B_3\text{CS}_{i,t} + B_4\text{SIZE}_{i,t} + e_{i,t}$$

$$\text{Performance}_{i,t} = B_0 + B_1\text{CCC}_{i,t} + B_2\text{AGGR}_{i,t} + B_3\text{SG}_{i,t} + B_4\text{CS}_{i,t} + B_5\text{SIZE}_{i,t} + e_{i,t}$$

$$\text{Performance}_{i,t} = B_0 + B_1\text{CCC}_{i,t} + B_2\text{AGGR}_{i,t} + B_3\text{ARAGGR}_{i,t} + B_4\text{SG}_{i,t} + B_5\text{CS}_{i,t} + B_6\text{SIZE}_{i,t} + e_{i,t}$$

$$\text{Performance}_{i,t} = B_0 + B_1\text{CCC}_{i,t} + B_2\text{AGGR}_{i,t} + B_3\text{ARAGGR}_{i,t} + B_4\text{EI}_{i,t} + B_5\text{SG}_{i,t} + B_6\text{CS}_{i,t} + B_7\text{SIZE}_{i,t} + e_{i,t}$$

There are two variables used to measure the financial performance of the business: Efficiency of Assets (EOA) and Return on Assets (ROA).

Results

The Descriptive Data Analysis found that the dependent variables, EOA and ROA have a mean of 0.09 and 0.0698, with standard deviations of 0.10417 and 0.09, respectively. The independent variables, CCC, EI, AGGR, and ARAGGR have a mean of 71.70, 3.61, 0.41, and 18.65, with standard deviations of 107.97, 46.6, 9, 0.49, and 35.89, respectively. The control variables, SG CS and size, have a mean of 0.0510, 0.4134, and 22.3428, with standard deviations of 0.21, 0.21, and 1.25, respectively.

This study used Skewness and Kurtosis as dispersion statistics to test the distributions of various variables whether normality distribution or non-normal distribution. The values for asymmetry and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (George & Mallery, 2019). When considering the data distributions of various variables, the EOA and ROA found that apart from George & Mallery (2019) which were slightly dominant (Kurtosis statistics > 2). The independent variables, CCC and AGGR have normal distributions, while the EI and ARAGGR are highly dominant. The control variable, CS has a normal distribution, and the variables SG and Size are slightly dominant. So, researchers do the log transform to improve data to a normal distribution (Hair, et al, 1998), as shown in Table 3.

Table 3 The Descriptive Data Analysis

Variables	N	Mean	Std. Deviation	Skewness		Kurtosis	
				Statistics	Std. Error	Statistics	Std. Error
Dependent Variables							
EOA	370	.0907	.10417	1.785	.126	5.624	.252
ROA	370	.0698	.08719	1.729	.126	6.260	.252
Independent Variables							
CCC	370	71.7003	107.97370	-.091	.122	1.843	.243
EI	370	3.6132	46.68579	19.236	.126	370.660	.252
AGGR	370	.4144	.49323	.349	.122	-1.888	.243
ARAGGR	370	18.6516	35.88730	3.308	.122	14.814	.243
Control Variables							
SG	370	.0510	.21298	.639	.126	5.096	.252
FS	370	.4134	.21143	.347	.127	-.463	.253
Size	370	22.3428	1.24456	1.089	.122	2.249	.243

Multicollinearity Test

Results from the test of Linear Relationship between the pairs of independent variables found that none of them had correlation values exceeding the norm 0.8 (Rangkakulnuwat, 2013). It stated that there was no Collinearity between independent variables. The highest correlation is the AGGR and FS, which had a value of 0.619 at a significant level of .01, which did not exceed the norm.

According to the findings on WCME and FP, as measured by ROA (equations 1-4), the CCC variable has a negative relationship to performance at a significant level of .05, it consistent with the hypothesis, expressed as beta coefficients of -0.237, -0.269, -0.254, and -0.257 in equations 1-4, respectively. The variable AGGR positively correlates to performance at a significant level of .05, it consistent with the hypothesis, expressed as beta coefficients of 0.354, 0.460, and 0.45 in equations 2-4, respectively. The ARAGGR variable negatively correlates to performance at a significant level of .05, consistent with the hypothesis, expressed as beta coefficients are -0.154, and -0.157 in equations 3 and 4, respectively. Whereas the EI variable negatively correlates with a performance at the significant level of .05, it is inconsistent with the hypothesis, expressed as the beta coefficient is -.103. The SG is the only control variable, statistically significant in all equations, and size is the only control variable that does not affect the relationship between working capital management efficiency and performance. The results of the WCME and FP studies found that the EOA showed indifference from the ROA model, in which the CCC variable had a negative relationship to performance at the significant level of .05, consistent with the hypothesis, expressed as beta coefficients of -0.264, -0.299, -0.283 and -0.286 in equations 1-4, respectively. The variable AGGR positively correlates with a performance at the significant level of .05, consistent with the hypothesis, expressed as beta coefficients of 0.377, 0.485, and 0.471 in equations 2-4, respectively. The ARAGGR variable negatively correlates to performance at a significant level of .05, consistent with the hypothesis. The beta coefficients are -0.157 and -0.160 in equations 3 and 4. While the EI variable has a negative correlation with a performance at the significant level of .05, it is inconsistent with the hypothesis, expressed as the beta coefficient is -.093. The SG is the only control variable statistically significant in all equations, and size is the only control variable that does not affect the relationship between working capital management efficiency and operating results, as shown in Table 4.

Table 4 The efficiency of working capital management and operating results

Dependent variables /Equation	Independent variables				Control variables			Adj R ²	
	CCC	AGGR	ARAGGR	EI	SG	FS	SIZE		
Model 1 ROA	1	-.237*				.154*	-.324*	-.042	20%
	2	-.269*	.354*			.119*	-.083	-.011	26.5%
	3	-.254*	.460*	-.154*		.122*	-.067	-.006	27.7%
	4	-.257*	0.45*	-.157*	-.103*	.138*	-.080	-.010	28.6%
Model 2 EOA	1	-.264*				.163*	-.276*	-.060	19%
	2	-.299*	.377*			.126*	-.021	-.027	26.4%
	3	-.283*	.485*	-.157*		.129*	-.004	-.472	27.7%
	4	-.286*	.471*	-.160*	-.093*	.144*	-.015	-.026	28.3%

* Statistical significance level at .05

Discussions

According to the study result, all dependent variables except size significantly influenced a firm's FP and followed the hypothetical; CCC (-), AGGR (+), and ARAGGR (-) to FP. CCC indicates how long it takes from the time the cash is paid out until the cash is returned. Particularly, the Agro-food industry, which has higher storage costs than other industries, must have sufficient working capital. A shorter CCC makes lower opportunity costs and higher FP. It was consistent with (Samiloglu & Demirgunes, 2008; Mehmet & Eda, 2009; Mohammad and Saad, 2010; Alipour, 2011; Vural et al., 2012; Tauringana & Afrifa, 2013). Management style (AGGR) which, is the most significant influence on FP (the beta value was the highest of all equations) indicates the level of debt financing funding for investment projects is a positive sign (+) that means more aggressively is more debt funding let to be higher FP. It was consistent with (Chancharat & Kumpamool, 2020) and it was contrasted with (Wichitsathian, 2022; Al-Mawsheki, 2022). Besides, account receivable management under risk appetite (ARAGGR) is one factor that indicates FP; shorter accounts receivable aging means to get paid off faster let higher FP. From above implies that a firm with a working capital aggressiveness is better in FP, In addition, measuring the relationship between WCME and FP, models combining performance metrics can explain the relationship between working capital management efficiency and operating results (Model 1, Equation 4, Adj R² = 28.6%) and (Model 2, Equation 4, Adj R² = 28.3%). Compared to using a measurement model with only one element.

Conclusion and suggestions

This research aims to study the effect of Aggressiveness WCME and its OP. Using 10-year financial ratio in the Agro-Food Industry of Thailand. Multiple linear regression was employed to test the relationship between WCME and OP, then comparing its efficiency among models. The result found that there is a negative relationship between WCME and its OP; CCC (-), ARAGGR (-), EI (-), and a positive relationship AGGR (+) which indicate that aggressive

characteristic lead to better performance. The model with a combination of CCC, ARAGGR, and EI is the best in prediction; and the highest Adjust R^2 in both models. However, size is not affected for all models.

Recommendations from the study.

1. In the context of the Agri-Food Industry, debt financing led to the higher FP. Financing debt sources will improve the operating results without depending on the business size.

2. The Efficiency Index (EI) results are contrary to the FP, showing There are other factors besides working capital management that affect financial performance, such as long-term asset management. sub-investment projects, etc. Entrepreneurs or interested parties should use the research results with caution.

Recommendations for further study.

To study the efficiency of measuring working capital management for the agro-food industry to cover more dimensions, interested persons can learn the measurement of efficiency in inventory management along with the performance measured through Tobin's Q ratio.

New knowledge and the effects on society and communities

In this study, the interaction effects of aggressive working capital management policy and account receivables management (ARAGGR) were investigated within the context of the Agro-Food industry, the results found that there is a negative relationship between ARAGGR and FP, meaning that debt financing together with accelerating the collection period (shortening the debtor's age) could make the performance better.

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Model of Buddhism-Based Learning to Enhance the Compassionate Mind of Higher Education Students

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Abstract

The purposes of this research were: to synthesize elements and indicators of the compassionate mind of higher education students, to develop a model of Buddhism-based learning to enhance the compassionate mind of higher education students; and to study the implementation results of a model of Buddhism-based learning to enhance the compassionate mind of higher education students. Key informants were selected by purposive sampling. The instruments used were: a semi-structured interview form which data were analyzed through content analysis and summarized into issues, a model verifying form which the data were analyzed using frequency and percentage; and a satisfaction form and model evaluation form which the data were analyzed by mean and standard deviation. The research results showed that the results of synthesizing elements and indicators of the compassionate mind of higher education students consisted of five preliminary elements and twenty-one indicators, a complete model of Buddhism-based learning to enhance the compassionate mind of higher education students was POO(LLOTUSS)D, the accuracy and suitability of this model were at the highest level; and results of studying the implementation results of a model of Buddhism-based learning to enhance the compassionate mind of higher education students were overall at the highest level.

Keywords: Learning, Buddhism-based learning, Enhance the compassionate mind, Higher education students, Students activities

Introduction

Trends of change in the global society and Thai society cause problems of inequality and a moral crisis, especially a lack of compassion. This could be reflected in the investigated results of Thai people's behavior in various sectors. Watanachai (2016, p.19–20) found that not only standing in a queue when buying or receiving a service, offering a bribe to the procurement committee or corrupt officials but also government officials and business personnel used to embezzle office property, going out on personal business without permission. People from corrupt agencies were also seen in the promotion exams, and students were seen copying friends' homework and reports, as well as secretly looking at the answers in the examination room. In line with Thairath Online author (2018), he repeated borrowing money from the Student Loan Fund (SLF), which was one of the policies to reduce inequality in education, nearly 70,000 million baht of bad debt was found among 5.4 million borrowers, 2.1 million of whom defaulted on debt repayment. It may affect the educational opportunities of new borrowers. The burden on the government's budget has been increased. Borrowers from the NGO return the money to the fund at a much lower rate than in other countries. Due to the non-payment of almost 50 percent of the total debt, SLF had a very low payback rate, and some students borrowed money and did not pay the debt until the guarantor teacher was responsible for it and was prosecuted. While, the World Health Organization (WHO) (2021) revealed the key facts were international, one in seven 10 to 19-year-olds worldwide suffered from a mental illness, which accounted for 13% of the disease burden in this age group: the main causes of sickness and impairment among teenagers were behavioral problems, sadness, and anxiety, suicide was the fourth most common cause of death among those aged 15 to 29, and failure to address adolescent mental health issues had long-term effects that affected adult opportunities for satisfying lives as well as physical and mental health.

It could be seen that when people did not have concrete well-being, it inevitably resulted in the development of morality, ethics, or the creation of a good culture, loving honor and fame were difficult.

Another point of view, Gilbert & Procter (2006, p.361-362) who firstly studied the following compassionate mind focus: 1) Be aware of the emotions connected to memories, which could have sensory and traumatizing features; 2) Recognize how safety strategies were created as both conditioned emotional reactions and deliberate coping mechanisms to counter external threats from others; 3) Have a sympathetic acceptance and tolerance for the historical context and application of safety measures; 4) Understand that there are various subsystems within our body, each of which can influence our actions and priorities in different ways; and 5) Create compassionate mental images and compassionate, mindful responses to anxieties and safety measures that can serve as the emotional foundation for new ways of paying attention, thinking, acting, and feeling. In addition, Gilbert (2010) outlined the compassionate mind theory that had three inbuilt regulation systems that maintained balance to keep our emotions on control; When we perceived a sense of threat or danger, our fight-or-flight responses were determined by our threat and self-protection system. The system of rewards and resources sought encourages and drives us to look for things that would keep us alive and gave us joy. This promotes competition and made us feel thrilled and satisfied. Humans were driven to seek security, love, and happiness by the soothing and satisfaction system, which also helped us feel at ease and comfort ourselves. Besides, Kassor (2018) shared the study in Mahayana Buddhist traditions, compassion (*Karuṇā*) was one of the most important traits a practitioner should

develop. This is a prerequisite for moving forward on the bodhisattva path, which aspired to free all sentient beings, coupled with wisdom. Numerous Buddhist teachers had illustrated the impacts of compassion, praised its virtues, and outlined the ways in which it might result in both one's own and others' long-lasting happiness. Yet, compassion was unquestionably not a joyful emotion in and of itself.

According to the announcement of Thailand's 20-Year National Strategy (2018-2037) (Royal Thai Government Gazette, 2023, p.9) on developing and strengthening human capital stated that aimed at developing Thai citizens of all generations in a multifaceted approach to become good, skillful, and excellent citizens. It would be promoted civic responsibility and public mindedness while also fostering the development of physical, mental, and intellectual qualities, proper multidimensional growth, and sustainable well-being at all phases of life. Increasing general awareness meant teaching people about their obligations, discipline, being on time, accepting of others, and being decent citizens, especially empowering them by the academic activities.

In the empowering youth through Buddhist education, Thero (2018, p.393-399) believed that Buddhist teachings were used to help our people develop as citizens who could contribute positively to society and to modify their attitudes and negative actions. Buddhism could be viewed as a way of life as opposed to a belief system based on doctrine and written texts. As a result, the wisdom was got from practicing Buddhism could easily be applied to our daily activities. In addition, Singh (2018, p.302-303) explained the following were some methods the Buddha advised for overcoming disengagement (desires): 1. Practice of right discipline (*Sīla*): referred refraining from all antisocial behavior, 2. Concentration (*Samādhi*): It was a sophisticated endeavor that killed the roots of every desire (*kleśas*), 3. Wisdom (*Prajñā*): *Sīla* and *Samādhi* deliver genuine wisdom immediately. Buddhists outlined five qualities that can be extremely helpful in guiding young people toward the right path. These qualities are as follows.: 1. Faith, 2. Vigor, 3. Mindfulness, 4. Concentration, and 5. Wisdom. From five faculties, people attained a state of four-fold meditation of *Maitri* (universal friendship), *Karuṇā* (universal compassion), *Muditā* (happiness at the prosperity of all) and *Upekkhā* (non-preferment of oneself from one's friend or enemy) which was collectively known as Brahma *Vihāra* (Four Sublime States). Buddhist teaching presented above could be applied to empower young people today. These were the most effective Buddhist techniques for empowering the young people of today.

As has already been mentioned, intelligence and compassion both come from one another. If you are not feeling particularly wise or sympathetic, you could think the entire endeavor is futile. The eight components of the Eightfold Way should all be pursued at the same time because they all assist one another. Each stage merges the preceding steps. Normally, people start to develop this awareness through mindfulness exercises like meditation. We become more compassionate for the pain of others as our self-delusions go away. Our self-delusions are further dispelled as we become more sensitive to the pain of others. Therefore, higher education institutions should emphasize the principles of morality, ethics, and discipline in Buddhism or a part of Buddhist approaches to all students to practice and know what was more important to use in education effectively and lived happily. More importantly, the higher education institutes should have clear policies and a strong determination to integrate Buddha's teachings with the compassionate mind activities to enhance the compassionate mind of higher education students.

Research objective

1.To synthesize elements and indicators of the compassionate mind of higher education students.

2.To develop a model of Buddhism-based learning to enhance the compassionate mind of higher education students.

3.To study the implementation results of a model of Buddhism-based learning to enhance the compassionate mind of higher education students.

Methodology

The methodology of this research was determined into three phases. The details are shown in table 1.

Table 1 Steps of research methodology

Steps of research methodology	Population and Samples/ Data Resources	Research Instruments/ Data Analysis	Expected outcomes
Objective 1: To synthesize elements and indicators of the compassionate mind of higher education students. This phase was divided into two steps as follows:			
Step 1.1: To synthesize the elements and indicators of the compassionate mind of higher education students.	The researcher synthesized thirty relevant documents, concepts, theoretical papers, and related research that were published via electronic media concerning concepts of psychotherapy, clinical psychology, social psychology, educational psychology, guidance, social studies, desirable graduate qualifications, and sustainable development goals to find the elements and indicators of Buddhism-based learning to enhance the compassionate mind of higher education students.	<ul style="list-style-type: none"> - A synthesis table of thirty relevant documents, concepts, theoretical papers, and related research. - Frequency 	<ul style="list-style-type: none"> - Five elements and indicators of Buddhism-based learning to enhance the compassionate mind of higher education students.
Step 1.2: To examine and confirm the elements and indicators of the compassionate mind of higher education students.	Key Informants consisted of nine specialists selected from the purposive sampling to examine the quality of elements and indicators, according to the following qualifications: <ol style="list-style-type: none"> 2.1 Three experts in psychology. 2.2 Three specialists in teaching and learning social studies at the higher education level. 2.3 Three experts in measurement and evaluation. 	<ul style="list-style-type: none"> - An in-depth interview by a semi-structured interview form to examine and confirm the correction, suitability, and explanation of the elements and indicators of Buddhism-based learning to enhance the compassionate mind of higher education students. - Confirmative summary. 	<ul style="list-style-type: none"> - The explanation of the elements and indicators of Buddhism-based learning to enhance the compassionate mind of higher education students.

Steps of research methodology	Population and Samples/ Data Resources	Research Instruments/ Data Analysis	Expected outcomes
Objective 2: To develop a model of Buddhism-based learning to enhance the compassionate mind of higher education students. This phase was divided into two steps as follows:			
Step 2.1: Draft a model of Buddhism-based learning to enhance the compassionate mind of higher education students.	<ul style="list-style-type: none"> - The researcher drafted a model of Buddhism-based learning to enhance the compassionate mind of higher education students consisting of four elements as follows: principles (P), objectives (O), operational procedures (O), and determinants of achievement (D). - A draft model was proposed to three dissertation advisors to check and give recommendations covering the key issues of a model of Buddhism-based learning to enhance the compassionate mind of higher education students. 	<ul style="list-style-type: none"> - Summarize the selection issues from Step 1.1: The elements and indicators Step 1.2: The explanation of the elements of Buddhism-based learning to enhance the compassionate mind of higher education students involved with the draft of a management model. - Draft a model. 	<ul style="list-style-type: none"> - A draft model of Buddhism-based learning to enhance the compassionate mind of higher education students consisted of four elements: principles (P), objectives (O), operational procedures (O), and determinants of achievement (D).
Step 2.2: Verify the accuracy and suitability of a draft model of Buddhism-based learning to enhance the compassionate mind of higher education students.	<ul style="list-style-type: none"> - The key informants are qualified persons with expertise and academic knowledge to verify the model of Buddhism-based learning to enhance the compassionate mind of higher education students. Thirty informants were selected by setting the criteria for selecting relevant informants with qualifications that were accepted by those involved as being compassionate the following qualifications, consisting of student parents and neighbors living in the same community, were selected by purposive sampling. The selection criteria were based on qualifications of willingness to provide unbiased information, optimism, and having a public mind, for a total of nine informants. 	<ul style="list-style-type: none"> - A verification form of accuracy and suitability of a model of Buddhism-based learning to enhance the compassionate mind of higher education students consisted of principles (P), objectives (O), operational procedures (O), and determinants of achievement (D). - Percentage. 	<ul style="list-style-type: none"> - Verification results of accuracy and suitability of a model of Buddhism-based learning to enhance the compassionate mind of higher education students.

Steps of research methodology	Population and Samples/ Data Resources	Research Instruments/ Data Analysis	Expected outcomes
Objective 3: To study the implementation results of a model of Buddhism-based learning to enhance the compassionate mind of higher education students. This phase was divided into two steps as follows:			
Step 3.1: Provide counseling activities for emphasizing students who are in the project of Financial Aid Service and scholarship to enhance student quality in terms of desired graduates' characteristics in accordance with the Thai qualifications' framework for higher education.	Twenty-four higher students of the Faculty of Education, Chiang Mai University were divided into six groups according to six lesson plans of counseling activities.	<ul style="list-style-type: none"> - Two counseling activities are as follows: 1) Enhance faith and commitment activities as well as love for the teaching profession, and 2) Volunteer or public mind activities to serve the community and society. - Student satisfaction of counseling activities for the developed model of Buddhism-based learning to enhance the compassionate mind of higher education students. - Mean and standard deviation. 	-Satisfaction results of counseling activities for the developed model of Buddhism-based learning to enhance the compassionate mind of higher education students.
Step 3.2: Evaluate the feasibility and benefit of the model of Buddhism-based learning to enhance the compassionate mind of higher education students.	- Key informants consisted of students with Higher Education Royal Award, student leaders, and students with the public mind. They were assessed from the overall view of life as being satisfied with life, selecting purposive sampling as a selection for research suitability at the initial stage, then using the continuous referral method by snowball sampling technique, relying on advice from experts to select students who had a compassionate mind, create benefits to educational institutes, communities, and society at the national level, for a total of eleven informants.	<ul style="list-style-type: none"> - An evaluation form of feasibility and benefit of a model for evaluating consisted of four elements: principles (P), objectives (O), operational procedures (O), and determinants of achievement (D). - Mean and standard deviation. 	-Evaluation results of the feasibility and benefit of the model of Buddhism-based learning to enhance the compassionate mind of higher education students.

Results

1. Results of synthesizing elements and indicators of the compassionate mind of higher education students consisted of five preliminary elements and thirty-eight indicators, but the author selected the important elements by using the frequency criteria, not less than fifty percent of the synthesis table comprising, and results of examining and confirming the correction, suitability, and explanation of the elements and indicators by nine specialists of five preliminary elements as follows: 1) Human problems consisted of 5 indicators: 1.1) Shame and self-Criticism, 1.2) Compassionate attention, 1.3) Compassionate thinking reasoning, 1.4) Common humanity, and 1.5) Compassionate behavior. 2) Human disposition consisted of 3 indicators: 2.1) Displays ethical behavior, 2.2) Motivations to care, and 2.3) Be responsive to being cared for and about (feeling safe and soothed). 3) Human potentials consisted of 5 indicators: 3.1) Loving-kindness, 3.2) Altruism, 3.3) Sympathy, 3.4) Empathy, and 3.5) Compassion. 4) Human minds consisted of 5 indicators: 4.1) Soothing, 4.2) Forgiveness, 4.3) Sensitivity, 4.4) Powerful passions, and 4.5) Emotions. 5) Human compassion consisted of 3 indicators: 5.1) Facilitate problem-solving, 5.2) Understanding the efforts of another person, and 5.3) Wanting to help others free from suffering. (Muangkaew., 2023).

2. Results of model of Buddhism-based learning to enhance the compassionate mind of higher education students concerning through an in-depth interview of nine specialists were summarized as follows;

The first element: Principles (P); Be a developed model of Buddhism-based learning and based on the principles of Buddhism-based learning to enhance the compassionate mind of higher education students. Adhere to the theoretical concepts of psychotherapy, clinical psychology, social psychology, educational psychology, guidance, social studies, desirable graduate qualifications, and sustainable development goals. Build a model to promote Buddhism-based learning to enhance the compassionate mind of higher education students and build good relationships among the universities and communities.

The second element: Objectives (O); To study a developed model of Buddhism-based learning to enhance the compassionate mind of higher education students emphasizing students who are in the project of Financial Aid Service and scholarship to enhance student quality. To provide a guidance service project for counseling activities; 1) Enhance faith and commitment activities as well as love for the teaching profession, and 2) Volunteer or public mind activities to serve the community and society.

The third element: Operational procedures (O); Listen to know the requirement and the context of the freshmen students, (L). Learn by collaborating with student leaders and representatives from all relevant sectors, (L). Operate a strategic plan and an action plan with relevant sectors moving on a process of consulting, sharing ideas, working together, and co-developing in designing a guidance service project for counseling activities with an emphasis on participation in setting objectives and expected outcomes with the network partners, (O). Take part in a meeting with relevant sectors to encourage participation in learning activities, (T). Useful way to enhance teamwork consisting of peers, student leaders, advisors, parents, faculty administrators, etc., (U). Support the development process and activity management by applying technology and innovation to increase student potential, (S). Sustainability Curiosity, (S).

The fourth element: Determinants for achievement (D); The assistance of network partners from all sectors, as well as student parents and relevant communities. The

compulsory activities that are consistent with TQF-based higher education students by providing a process of making an understanding with the network partners by proposing a guidance service project for counseling activities to the higher students and all relevant sectors to participate equally according to the appropriate roles and potential of each different sector within the determined time in order for that activity to achieve its goals. Provide a guidance service project for counseling activities based on the student quality that is beneficial to the higher students without creating more problems and having an impact on future learning. It could lead to success, understanding, worthiness, sharing responsibility, trust in each other with faith, and satisfaction in all relevant sectors until the quality of the higher students emerges as sustainability. There are a continuous monitoring and evaluation system by discussing the operational procedures of the guidance service project for counseling activities by reflecting among the participants and all stakeholders with creativity covering atmosphere, conditions, and findings to further improve the guidance service project for counseling activities by applying the findings, etc., in order to summarize the results of the activities.

The results of drafting a developed model of Buddhism-based learning to enhance the compassionate mind of higher education students consisted of **POO(LLOTUSS)D**. Then, the researcher organized a workshop of nine experts to verify the accuracy and suitability of the model, results of verifying the accuracy and suitability of a draft model of Buddhism-based learning to enhance the compassionate mind of higher education students as shown in table 2.

Table 2 Verifying results of the accuracy and suitability of the developed model of Buddhism-based learning to enhance the compassionate mind of higher education students

Model elements	Verifying results			
	Accuracy		Suitability	
	Percentage	Meaning	Percentage	Meaning
1. Principles (P).	91.67	Highest	91.67	Highest
2. Objectives (O).	83.33	Highest	83.33	Highest
3. Operational procedures (O).	87.30	Highest	85.71	Highest
4. Determinants for achievement (D).	86.11	Highest	83.33	Highest
Total average	83.37	Highest	82.22	Highest

From Table 2, the verifying results of the accuracy and suitability were overall at the highest. In terms of accuracy, results were overall at the highest (83.37). When considering by each aspect arranged from the highest to the lowest, it was found that the principles (P) were at the highest (91.67), followed by the operational procedures (O) at the highest (87.30), the determinants for achievement (D) were at the highest (86.11), and the objectives (O) were at the highest level (83.33). And in terms of suitability, results were overall at the highest (82.22). When considering by each aspect arranged from the highest to the lowest, it was found that the principles (P) were at the highest (91.67), followed by the operational procedures (O) at the highest (85.71), and the objectives (O) and the determinants for achievement (D) were equally at the highest (83.33).

3. Results of studying the implementation results of a model of Buddhism-based learning to enhance the compassionate mind of higher education students as shown in table 3.1, 3.2, and 3.3.

Table 3.1 Evaluation results of implementing Buddhism-based learning to enhance the compassionate mind of higher education students as a target group

Elements of compassionate mind	Lesson plan activities.						Mean	S.D.	Interpret
	1	2	3	4	5	6			
1. Human problems.	4.83	4.48	4.67	4.63	4.83	4.73	4.75	0.22	Very good
2. Human disposition.	4.61	4.60	4.67	4.67	4.44	4.56	4.60	0.20	Very good
3. Human potential.	4.70	4.64	4.77	4.63	4.83	4.73	4.71	0.26	Very good
4. Human minds.	4.72	4.6	4.53	4.63	4.47	4.60	4.64	0.21	Very good
5. Human compassion.	4.58	4.53	4.56	4.61	4.56	4.56	4.59	0.26	Very good
Mean	4.69	4.57	4.64	4.64	4.63	4.6	4.68	0.14	Very good
S.D.	0.09	0.07	0.10	0.23	0.06	0.17	0.18	0.08	
Interpret	Very good	Very good	Very good	Very good	Very good	Very good	Very good	Very good	

From Table 3.1, it was found that the evaluation results of implementing Buddhism-based learning to enhance the compassionate mind of higher education students as a target group were overall at the highest level in each aspect (Mean = 4.68, S.D. = 0.14). When considering by each aspect arranged from the highest to the lowest, human problems were at the highest level (Mean = 4.75, S.D. = 0.22), followed by human potential (Mean = 4.71, S.D. = 0.20), human minds were at the highest level (Mean = 4.64, S.D. = 0.21), human disposition was at the highest level (Mean = 4.64, S.D. = 0.21), and human compassion was at the highest level (Mean = 4.59, S.D. = 0.26), respectively.

Table 3.2 Satisfaction results of a guidance service project for counseling activities for the developed model of Buddhism-based learning to enhance the compassionate mind of higher education students

Satisfaction results of a guidance service project for counseling activities	Student's Groups						Mean	S.D.	Meaning
	1	2	3	4	5	6			
1. Counseling activities are appropriate.	4.73	4.48	4.57	4.67	4.65	4.67	4.63	0.09	Very good
2. Activity manager personalities are appropriate.	4.67	4.42	4.75	4.78	4.77	4.33	4.62	0.20	Very good
3. Learning activity methods are appropriate.	4.68	4.54	4.78	4.78	4.78	5.00	4.76	0.15	Very good
4. Learning activity contents are appropriate.	4.68	4.53	4.65	4.79	4.78	5.00	4.74	0.16	Very good
5. Learning media is appropriate.	4.62	4.59	4.56	4.72	4.85	4.67	4.67	0.11	Very good
Mean	4.68	4.51	4.66	4.75	4.77	4.73	4.68	0.14	Very good
Standard Deviation	0.03	0.06	0.09	0.05	0.06	0.25	0.06	0.08	
Meaning	Very good								

From Table 3.2, the satisfaction results of a guidance service project for counseling activities for the developed model of Buddhism-based learning to enhance the compassionate mind of higher education students were overall at the highest level (Mean = 4.68, S.D. = 0.14), when considering by each aspect arranged from the highest to the lowest, it was found that learning activity methods are appropriate at the highest level (Mean = 4.76, S.D. = 0.15),

followed by learning activity contents are appropriate at the highest level (Mean = 4.74, S.D. = 0.16), learning media is appropriate at the highest level (Mean = 4.67, S.D. = 0.11), and counseling activities are appropriate at the highest level (Mean = 4.63, S.D. = 0.09), and the lowest satisfaction of activity manager personalities is appropriate at the highest level (Mean = 4.62, S.D. = 0.12), respectively.

Table 3.3 Evaluation results of the possibility and utility of the model of Buddhism-based learning to enhance the compassionate mind of higher education students

Model elements for Buddhism-based learning to enhance the compassionate mind of higher education students	Evaluation results (n=11)					
	Possibility			Utility		
	Mean	S.D.	Meaning	Mean	S.D.	Meaning
1. Model of principles (P).	4.66	0.48	Highest	4.64	0.48	Highest
2. Model of objectives (O).	4.64	0.48	Highest	4.73	0.43	Highest
3. Model of operational procedures (O).	4.51	0.41	Highest	4.51	0.46	Highest
4. Model of determinants for achievement (D)	4.68	0.21	Highest	4.68	0.46	Highest
Total Average	4.62	0.45	Highest	4.68	0.52	Highest

From Table 3.3, the evaluation results of the possibility and utility of the model of Buddhism-based learning to enhance the compassionate mind of higher education students.

In terms of the possibility was overall at the highest level (Mean = 4.62, S.D. = 0.45). When considering by each aspect arranged from the highest to the lowest, it was found that model determinants for achievement (D) were at the highest level (Mean = 4.68, S.D. = 0.21), followed by model principles (P) were at the highest level (Mean = 4.66, S.D. = 0.48), model objectives (O) were at the highest level (Mean = 4.64, S.D. = 0.48), and model operational procedures (O) were at the highest level (Mean = 4.51, S.D. = 0.41), respectively.

In terms of the utility was overall at the highest level (Mean = 4.68, S.D. = 0.52). When considering by each aspect arranged from the highest to the lowest, it was found that Model objectives (O) were at the highest level (Mean = 4.73, S.D. = 0.43), followed by Model of determinants for achievement (D) were at the highest level (Mean = 4.68, S.D. = 0.46), Model of principles (P) were at the highest level (Mean = 4.64, S.D. = 0.48), and Model of operational procedures (O) were at the highest level (Mean = 4.51, S.D. = 0.46), respectively.

Discussions

In the research entitled “Model of Buddhism-based Learning to Enhance the Compassionate Mind of Higher Education Students”, the important issue for discussion was as follows:

1. Concerning the results of synthesizing elements and indicators of the compassionate mind of higher education

1.1 Concerning human problems consisted of shame and self-criticism, compassionate thinking reasoning, compassionate attention, compassionate behavior, and common humanity. It can be concluded that the human problems of society's fast-paced goals and focus on personal growth can negatively impact college students' academic and social progress. Self-criticism negatively impacts progress, while self-compassion is associated with success, resilience, and less procrastination. Early relationships with parents, peer relationships, and support from parents significantly impact self-criticism and self-compassion. Compassionate attention involves directing attention to helpful aspects of ourselves and others,

including painful experiences. The crisis of morality is a significant issue, and temporary solutions can lead to long-term problems. To reduce violent behaviors, Buddhist principles and active learning methods can be used. Self-compassion is linked to various mental disorders, such as depression, eating disorders, stress, alcohol and marijuana problems, body shame, psychological distress, and job burnout. Showing compassion through kindness, apologies, listening, encouragement, and patience can improve overall well-being. According to Cherry (2021) suggested that there were a number of different steps you could take to show compassion to others: 1) Speak with kindness, 2) Apologize when you've made a mistake, 3) Listen carefully and without judgment, 4) Encourage other people, 5) Offer to help someone with a task, 6) Be happy for someone else's success, 7) Accept people for who they are, 8) Forgive people for making mistakes, 9) Show respect, 10) Express gratitude and appreciation, and 11) Be patient.

1.2 Concerning human disposition consisted of motivations to care, be responsive to being cared for and about (feeling safe and soothed), and displays ethical behavior. It can be concluded that the human disposition encompasses motivations to care, be responsive, and display ethical behavior. Situations can represent incentives for affiliation and power motives, influencing individuals' reactions to pressure manipulations. Compassion, a disposition to experience concern for others' suffering and a desire to alleviate perceived suffering, has been shown to predict higher well-being, lower perceived stress, and higher social support. Compassion can also be beneficial for individuals themselves, reducing depressive and anxiety symptoms. Public Service Motivation (PSM) is strongly influenced by core personality traits, with more effective facets of PSM, compassion, and self-sacrifice positively associated with personality traits of honesty, humility, emotionality, agreeableness, and conscientiousness. Non-affective facets of PSM, attraction to policymaking, and commitment to the public interest positively correlate with openness to experience. As Tolonen et al. (2021, p.1-2) explained that dispositional compassion had been shown to predict higher well-being and to be associated with lower perceived stress and higher social support. Thus, compassion might be a potential individual factor protecting against job strain. Whether dispositional compassion predicted relationships running from job strain to dispositional compassion and the effect of dispositional compassion on the developmental trajectory of job strain over an 11-year follow-up. Compassion was an effect on the job with multilevel models. Moreover, dispositional compassion could be defined as a disposition to experience concern for others' suffering and a subsequent desire to alleviate the perceived suffering. For the past 20 years, an increasing knowledge had emerged of the benefits of compassion. Recently, compassion had been found to be beneficial for the compassionate individuals themselves, for example, in reducing depressive and anxiety symptoms.

1.3 Concerning human potential consisted of loving-kindness, altruism, compassion, sympathy, and empathy. It can be concluded that human potential is a concept that emphasizes personal development and maximizing growth. It is unclear whether this is inherent in our nature or learned, and whether it is rooted in our makeup. Buddhist teachings emphasize mindfulness and compassion, which are seen as two aspects of the same thing. Compassion is a firm commitment based on reason, and genuine compassion is based on the needs of others, regardless of their relationship. Buddhist practitioners aim to develop genuine compassion for others' well-being, and the Buddha's spirit was of great loving-kindness and compassion. Humans have capacities to develop states of mind, which include compassion, tenderness, gladness, and equanimity. Buddhism believes that human life is miserable due to ignorance, and promoting Buddha's nature leads to a peaceful and happy life. Buddhism advocates for trust and encourages people to improve their minds and virtues to reach a cessation of suffering.

Likewise, Lama as cited in BBC (2022) believed that at every level of society, the key to a happier world was the growth of compassion. Compassion was a feeling of concern for others who were suffering and therefore made a person want to do something to help. In Buddhism, compassion is called *karuna*. The Buddha taught that showing compassion to others is something all people could do, even if they found other parts of his teaching difficult to follow.

1.4 Concerning human minds consisted of powerful passions, emotions, forgiveness, soothing, and sensitivity. It can be concluded that the human mind as Buddhist mindfulness, a widely-known teaching by the Buddha, is a mental development tool that helps practitioners gain peace of mind and enlightenment. It is the basis of human ability and allows the mind to fully attend to present events. Mindfulness is considered insight meditation, as it brings full attention to the body and mind without altering our manipulation of the experience. By practicing mindfulness, practitioners can discover the cause of their own suffering and find the pathway to greater freedom, deepening their understanding of stress and suffering, leading to greater balance and peace. As Khanh & Thi Thuy (2020, p.17-18) explained mindfulness as a Buddhist technique for preventing stress: Buddhist mindfulness, widely-known teaching by the Buddha, was a mental development tool that helped practitioners gain peace of mind and enlightenment. It was the basis of human ability and allows the mind to fully attend to present events. Mindfulness was considered insight meditation, as it brings full attention to the body and mind without altering our manipulation of the experience. By practicing mindfulness, practitioners could discover the cause of their own suffering and found the pathway to greater freedom, deepening their understanding of stress and suffering, leading to greater balance and peace.

1.5 Concerning human compassion consisted of facilitating problem-solving, understanding the efforts of another person, and wanting to help others free from suffering and the causes of suffering. It can be concluded that human compassion is essential for understanding our shared humanity, which is relational and imperfect. It acknowledges our inadequacies and helps us feel less judgmental about them. Compassion can reduce depression and anxiety symptoms. There are three types of compassion: common compassion focused on sentient beings, compassion focused on phenomena and compassion without focus. Living a life of wisdom and mindfulness can relieve suffering and gain happiness. This research shows that self-compassion can buffer academic stress, as self-compassionate students pursue mastery approach goals and show greater engagement. Likewise, Gilbert et al. (2017) discussed that human compassion developed from the urge to care, and it was linked to a variety of social intelligence skills. An important area of inquiry was how these competencies might be fostered and impeded. These brand-new scales were created to rate these skills. It could be concluded that our new compassion measures also pointed to significant and intricate connections between various potential of compassion, well-being, and susceptibility to psychopathologies. However, Tolonen et al. (2021, p.1-2) believed that compassion was an effect on the job with multilevel models.

Strauss et al. (2016, p.15) highlighted that several facets of society acknowledge the value of compassion. There was no universally accepted definition, and there were not many self- or observer-rated measures. After gathering the definitions already in existence, five components of compassion were suggested. Measures' usefulness might be constrained by the potential for improving their psychometric characteristics. It was necessary to develop a new, reliable psychometric measure of compassion. The value of compassion was widely acknowledged, and more study were being done on it. Yet, there was no widely accepted description of this construct, and there were few psychometrically reliable measurements of it without a consensus definition and sufficient safeguards. However, Gilbert (2017, p.4-5)

defined compassion as one origin of the word compassion is from the Latin *compati*, meaning 'to suffer with'. However, words change their meanings over time, across cultures and this was certainly the case for the word compassion. Compassion, a concept influenced by Buddhist thought, was a strong feeling of sympathy and sadness for the suffering or misfortunes of others. It was a feeling that arose in witnessing another's suffering and motivates a subsequent desire to help. This definition conceptualizes compassion as an affective state defined by a specific subjective feeling, and it differed from treatments of compassion as an attitude. The confusion of concepts between compassion and pity could lead to heated debates and confusion. The concept of sympathy or natural sympathy was prevalent in early philosophical texts and was a central aspect of compassion.

2. The ideology concerning Buddhism-based learning to enhance the compassionate mind of higher education students.

It can be concluded that a model of Buddhism-based learning to enhance the compassionate mind of higher education students consists of four elements: Principles (P), Objectives (O), Operational Procedures (LLOTUSS), and Determinants for Achievement (D). The first element focuses on Buddhism-based learning principles to improve the compassionate mind of higher education students. The second element, Objectives, focuses on financial aid, scholarship, counseling, and volunteering. The third element, Operational Procedures, investigates first-year student requirements and contexts at Chiang Mai University, emphasizing collaboration, strategic planning, and evaluation. The fourth element, Determinants for Achievement, involves network partners, student parents, and communities, proposing guidance service projects, and providing guidance services based on student quality. The model emphasizes psychotherapy, clinical psychology, social psychology, educational psychology, guidance, social studies, graduate qualifications, and sustainable development goals. It also emphasizes financial aid, scholarship, counseling, and volunteering. The model aims to enhance student quality, foster a sustainable future, and involve network partners, student parents, and communities in promoting guidance service projects and student quality.

A good teacher should possess seven qualities: endearing, kindness, compassion, rapport, and a sense of reassurance, refuge, and safety. They should be truly learned, wise, and exemplary, able to explain complex subjects clearly and teach profound subjects without leading in wrongful ways. The Buddhist teachings were a "positive ethic" focusing on well-being, with society as a medium for all people to maximize self-development and well-being. These teachings were based on timeless principles such as compassion, goodwill, harmony, cooperation, and wisdom. The social benefactor was a constructive member of society who possessed the four mental qualities of a being: *Mettā*, *Karuṇā*, *Muditā*, and *Upekkhā*. Compassionate attention involves consciously directing our attention to notice and focus on helpful aspects of ourselves and others, including painful aspects. Compassion, influenced by Buddhist thought, is a strong feeling of sympathy and sadness for the suffering or misfortunes of others, which arises in witnessing another's suffering and motivates a subsequent desire to help. This concept differs from compassion as an attitude, as it is an affective state defined by a specific subjective feeling. Lai & Pham (2019, p.17-18) explained that Buddhist Loving-kindness and Compassion expressed human tolerance and generosity. In the Buddha's teachings, all things and phenomena appear, endure, develop, and vanish for a cause, just like people do. Buddhism explained that physical and mental components make up all living things, including people. Mental element was called *Nama* (Name) while the material element was called *Rupa* (Form). On the one hand, the man was made up of five factors (so-called five Aggregates). They were Form (material), Sensations (feelings), Perceptions (impression, imagination), Mental activities (will), and Consciousness. In other words, Buddhist teachings hold that there was

neither an eternal self nor a self at all. Thus, whether they succeeded or fail, people should not be driven by avarice or consumed with chasing fame. According to Buddhism, those who were consumed with the pursuit of fame and wealth may momentarily achieve, but they were suffering from ignorance, delusion, unhappiness, and the need to show mercy. If one truly comprehends this fact, one would live a life of selflessness, kindness, and great empathy for the sufferings of others, feeling those pains as if they were their own, and then seek out ways to alleviate those pains.

In terms of Areekul (2020, p.43-44), indicated that the model of being a professional teacher in the 21st Century based on the ethics of the profession with Buddhism integration consisted of 1) the instruction: the 21st-century educational philosophy, the curriculum design skill, the educational innovation skill in the classroom, the learning activity management skill, the learning evaluation skill, and the classroom action research skill; 2) the ethics of profession: professional ethics of a person, professional ethics of a profession, professional ethics of clients, professional ethics of co-professionals, and professional ethics of social; 3) the thinking skills: analytical thinking skill, synthesis thinking skill, critical thinking skill, comparative thinking skill, problem-solving thinking skill, and creative thinking skill; and 4) the Buddhist principles.

On the other hand, in Thailand, Yeamyuan & Uansa-ard (2022, p.79) analyzed the causal factor of psychological characteristics and situation of volunteer behavior of Thai youth, explained the volunteer behavior that related to livelihood behavior according to the Philosophy of Sufficiency Economy on social issues. The basis of Thai society was a society that helped each other and makes sacrifices, was generous to each other moral and knowledgeable to sacrifice. Therefore, for Thai youth to be good, smart, and happy people. In terms of a model of Buddhism-based learning to enhance the compassionate mind of higher education students, it was similar to the findings of Adams & Kecskes (2020, p.140), who studied the Buddhist educational strategies to strengthen students' resilience for lifelong personal transformation and positive community change found that to our knowledge, no research had looked at the idea of creating integrated curricula to consciously foster students' personal-spiritual growth within the context of Buddhist higher education community engagement. In fact, neither that goal nor the study's initial objectives were in mind. Instead, our goal was to conduct an exploratory study utilizing a case study technique to examine the reasons behind and strategies for the implementation of academic service-learning programs for students at a Buddhist higher education institution in North America.

Moreover, Sangsri (2019, p.2) who studied unity in Buddhism, found that The Buddha's teachings outline a step-by-step procedure for altering one's state of mind in order to experience lasting bliss. It cultivated a more optimistic, constructive mindset that will make life more satisfying and beneficial for others. Because of this, Buddhism gave a moral code for everyone, regardless of gender, caste, religion, area, etc., and was founded on compassion, nonviolence, and self-understanding. Buddhism demonstrates a method for using meditation to gain a greater understanding of human nature and life's realities. Finally, social cohesion and mental peace could be achieved for all of humanity. It is crucial to look for the path of social growth by comprehending the unity principle and approaches to attain oneness.

However, higher education students always be aware of volunteer behavior, that was, the readiness to sacrifice their time, energy, and intelligence for the public good. Being happy when doing good deeds that were born from the basics of thinking by cooperating for community development in collaboration events, helping develop the community to make the community strong was a sacrifice for the community, and sacrificing one's physical, mental, or material strength, primarily for the sake of the public mind. Helping friends by caring about

friends more than themselves in different ways. The elements of the Buddhism-based learning activity model will be promoted a compassionate mind for higher education students appropriately in order to have an improvement in knowledge, skills, and attitude more than before participating in activities.

Conclusion and suggestions

In summary, by using compassionate mind training techniques, mental health professionals aim to help individuals learn how to offer compassion-focused therapy, develop compassion motivation and practice compassionate behaviors. The goal is to help individuals increase their level of self-compassion and empathy, while also having greater compassion for others. This type of emotional healing helps individuals learn how to treat other people with respect and kindness. To effectively apply compassionate mind training techniques in practice, mental health. Developing compassionate attributes is an essential aspect of understanding compassion and addressing mental suffering. This requires addressing psychotherapy, social mentality, and cultivating motives to understand the emotions of both self and others. Affection is also an important part of emotional response which can have a huge impact on well-being. The model elements of Buddhism-based learning to enhance the compassionate mind focused on various attributes and competencies that are fundamental for positively influencing regulation and improving motives competencies.

Recommendations from the research results.

1. The model of Buddhism-based learning to enhance the compassionate mind of higher education students must be adapted to the context of each university.
2. There should be an understanding of the elements and indicators of Buddhism-based learning to enhance the compassionate mind of higher education students, including human problems, human disposition, human potential, human minds, and human compassion, as basic principles of the compassionate mind and Buddhist practices.
3. There should be a necessity to develop the compassionate mind of higher education students by pursuing students' participation in a guidance service project for counseling activities that are valuable to seek ways to develop student quality in terms of desired graduates' characteristics in accordance with the Thai qualifications' framework for higher education.

Recommendations for further research.

1. The developed model of Buddhism-based learning to enhance the compassionate mind of higher education students should be used for implementation in other educational institutions in order to study the results of the development of higher education students in terms of desired graduates' characteristics in accordance with the Thai qualifications' framework for higher education.
2. This development model should be applied to develop higher education students in different samples from both Thai and foreign universities under different conditions in order to study the effectiveness of the model as well as generalize the results.

New knowledge and the effects on society and communities

The practice of cultivating a compassionate mind by higher local students within the university has gained traction in recent years. One approach involves training individuals to recognize and respond to the suffering of others, which can be extended to the wider community through a ripple effect. The use of a Buddhism-based learning approach can help individuals develop qualities such as empathy, kindness, and generosity toward others. This approach can be used to cultivate a compassionate mind of higher education students, as demonstrated in the case studies involving higher education students and local villagers. Moreover, the Buddhist practice of mindfulness can also be beneficial in developing greater awareness and sensitivity to the needs and experiences of others. The spiritual of active higher education students can be enabled through King Bhumiphol Adulyadej's principle of "sufficient economy, in which Thai society inherits the consciousness of using Buddhism-based learning to cultivate a compassionate mind within local communities, and also include sharing with communities around Thailand beneficial social engagement experiences, as well as the many viewpoints of engaged citizens from a Buddhist perspective are highlighting the importance of community engagement in fostering a compassionate mind. So, thanks to its emphasis on loving-kindness and compassion, Buddhism is widely adopted and played a significant role in fostering a sense of community and a prosperous society.

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Design of Vetiver Handicraft Products, According to the King's Philosophy, towards Sustainable Development. Case Study: Vetiver Handicraft Products, Ban Pong Samit, Mae Wang District, Chiang Mai Province

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Abstract

This research aimed to 1) study vetiver products in the recent market 2) design and develop vetiver products 3) evaluate opinions on the new designed vetiver products. The representative sample was 100 people from Ban Pong Samit community group. The research persuaded members in the community group to 1. express their opinions for new designed vetiver products 2. join the wickerwork's knowledge development training. 3. be in the process of promoting vetiver cultivation and own vetiver products creation project.

In the beginning, the research found that the community has never used vetivers for weaving or creating products, but had used bamboo stripes for basketry work. Therefore, they were introduced to the training process on how to use vetiver as wicker material. Among the process, the lecturer saw the demands for many kinds of product such as key chains, baskets, doormats, and tissue boxes which were easy to get start. Moreover, according to the community's context, Ban Pong Samit is an agricultural community where cultivates flowers, rice, and strawberries so they chose strawberry as identity of their community's vetiver products. After designing and development, the result shown satisfaction opinions levels as follow: in terms of design, the satisfaction score was 4.51 (a very good level), in terms of the suitability for the area, the satisfaction score was 4.61 (a very good level), and in term of using local material and able to support weight by still conveying the local wisdom, the satisfaction score was 4.56, also in a very good level.

Keywords: Vetiver handicraft products, The king's philosophy

Introduction

The management of natural resource is very important, especially in soil because it relates to human living chains in agriculture, environment, industry, and world natural change context. Phrabat Somdet Phra Paraminthra Maha Bhumibol Adulyadej (Rama IX) had realized these important and had a great vision, so that, from the year of 1991, vetiver was spotlighted with its special feature, having long root, its root expanded deep down and widely under the ground like a net, and it is a natural wall protecting ground from soil erosion. The king Rama IX focused his vetiver research on soil and water conservation, leading to vetiver cultivation for soil protection from erosion. Today, Thailand faced many natural disasters, such as, heavy storm, immerse flood, and soil erosion, so vetiver cultivation will be one of the methods which can alleviate harmful from those natural disasters. (ORDPB, 2011) Land Development Department had collected vetiver species in Thailand and found 28 species; 11 species from *Chrysopogon zizanioides* (L.) Roberty strain and 17 species from *Chrysopogon nemoralis* (Balansa) Holttum strain. Then, the department had selected 10 suitable species; 4 species from *Chrysopogon zizanioides* (L.) Roberty strain and 6 species from *Chrysopogon nemoralis* (Balansa) Holttum strain to use in soil and water conservation purpose. (Land Development Department, 1998)

The activities to promote, extend results and integration plan for vetiver cultivation were cooperated by many networks, such as, Soil Doctor, Vetiver conserve club, and PTT Public Company Limited. They promoted vetiver cultivation in many new emerging areas with the purpose to restore natural resource and environment. Some cultivation activities were used for demonstration, training, and propagation. In addition, vetiver can be used as a toxic filter and used in economics purpose: decreasing fertilizer cost, build a roof, cover ground surface, use in handicraft works, food and animal feeding.

A handicraft that can use vetiver grass as material is wickerwork which is very popular and useful. It can be made as a basket, container, home decoration, accessories, office supplies, bags, hats, belts, pins, folders, and diary cover. For the kind of fragrance vetiver, it can be made as fans, cloth hangers and potpourri. Now, the government run a promotion and support strategies for handicraft production, start with its form, benefit, technique, to product branding for differentiation and values added on world trend and market demand. The main materials would be found in the country or an agricultural waste material. The researcher tried to use material in the local community, and it would be weed or non- economic plants, which the area has a lot in quantity. The products will be produced as souvenirs, utensils, accessories, home decoration to decrease cost and increase value to the vetiver processing. (Jantrasa & Supasetsiri, 2010)

Most people in Ban Pong Samit, Mae Wang district, Chiang Mai province do agriculture (rice, vegetable, and strawberry) for living, while women and elder stay at home as housewife which cause of health problem and no income earning. Some do a weaving and wickerwork but only for in house using purpose. From the observation, there are vetiver cultivation along the forest belt in the research area, but the locals do not have knowledge to produce it as products. So, this research focused on providing knowledge in design and develop vetiver products for community and aims to become a local product with value added by using local material and do a campaign for more vetiver cultivation. The researcher saw an important of vetiver products development for using as home utensil and decoration, because of its beauty with a local unique design, based on local wisdom, which can also make money for the community and raise their economic growth in the future.

Objectives

- 1) To study and design vetiver products in Mae Wang district, Chiang Mai province.
- 2) To evaluate opinions on the new designed of vetiver products in Mae Wang district, Chiang Mai province.

Methodology

Research Method

The research method in designing new vetiver products was shown by the followed chart;

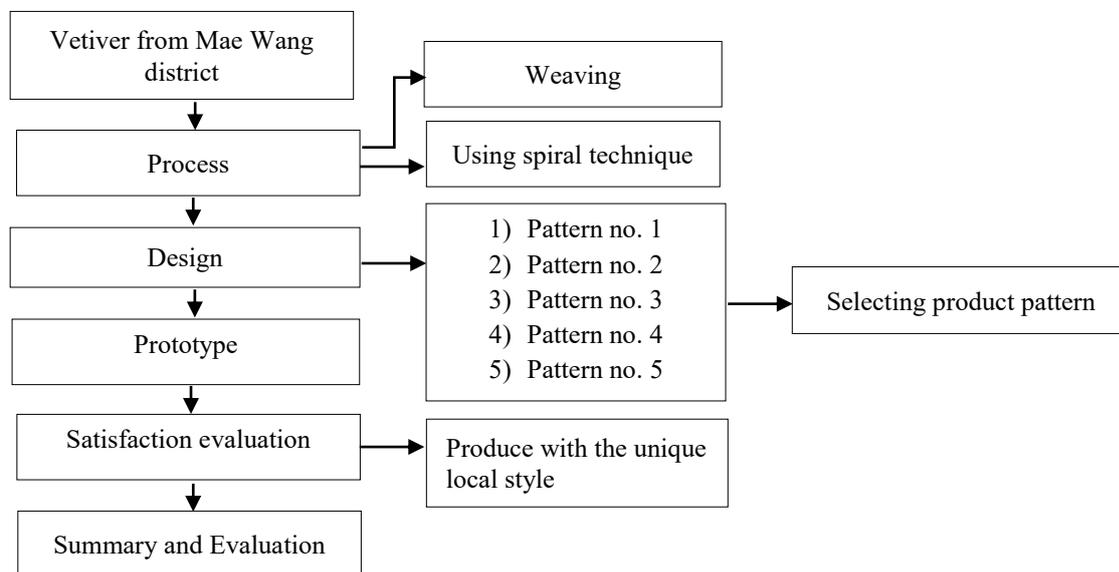


Figure 1 The research method in designing new vetiver products
(Source: Researcher, 2022)

The research steps were;

1. The vetiver study and design in Mae Wang district, Chiang Mai province started with data collecting from the sample group which came from multi-stage random sampling. 100 copies of questionnaire were used for analyzing statistic data, average and Standard deviation.

2. The design and development of new products came from the studied of researcher on the local weaving and using spiral technique patterns with the inspiration to get 5 product sketch designs. The they were presented to the experts before evaluating the satisfaction from customers and selecting one product as a prototype.

3. The opinion evaluation on new vetiver products were done by using questionnaires which were designed in check list and rating scale 5 point forms. The data were collected from 100 people in variety occupations by using multi-stage random sampling. All data were analyzed and presented in form of percentage, average and standard deviation.

Research Area

1. Population and sample group

1. Experts; 3 purposive samples came from group of Designing expert lecturers, designers, and vetiver craftsmen.

2. Sample group; 100 sample came from using multi-stage random sampling with the group of vetiver cultivators agricultural, water and soil preservation in Ban Pong Samit community, Tambobn Mae win of Mae Wang district, Chiang Mai.

2. Variables

Independent variable were age, occupation, and income

Dependent variable were opinions towards vetiver products

3. Research tools

The specifying of purposive sampling came from researcher's determination based on research objectives and doing interview before designing with demand surveying and opinion evaluation on the new design before processing a final product.

Results

1. To study about vetiver products in the recent market, this research found that in Ban Pong Samit community, Mae Wang district, Chiang Mai has vetiver grass, but the locals do not have knowledge in processing vetiver products. Elders grind them for animal feeding purpose, but vetiver is very sticky so that sometime animal cannot eat, and the farmers have finally thrown them away as waste and found it useless. This was a reason why vetiver is not popular for cultivation in the area (interviewed the village headman). In addition, the researcher found that vetiver product which produced in the community in Saluang sub-district of Mae Rim district, Chiang Mai province has a variety of products such as bags, hats, vases, and boxes but they come with 2 patterns: melon seed and rice grain. While in Ban Pong Samit community has never weave or produce products from vetiver, they only have some of vetiver as material, couple with the Researcher realized how important of vetiver is, then this research was begun.

Table 1 Results of product forms analyzation in the recent market

Product forms in the recent market	Analyzation result
	<p>Vetiver were weaved, using folding technique, to become a container for fruits (strawberry, tomato) and flowers, which are usually used in the occasional fairs.</p>
	<p>Vetiver were weaved in form of fruit bowl with normally small size likes a bowl (but can be weaved to ordered size) with melon seed pattern.</p>
	<p>Vetiver were weaved in form of shoulder bags with many sizes, using spiral technique</p>

2. To design and develop vetiver products, from on field study in Ban Pong Samit community, Mae Wang district, Chiang Mai area to gather information about design and development for community's wicker products from 50 group members who are interested in vetiver products (information from village headman in 2020). Because of being an agricultural village: rice, flowers, and strawberry farms, they weave in their free time after agricultural work but most of women do tread weaving while the elders do bamboo stripe weaving to use in house or contain their farm's product to sell in the market

Conceptual frameworks and Creative processes

In 1978, the king Rama IX had commanded to develop occupation for hill tribes in Ban Hae and nearby villages. He had ordered Prince Bhisadej Rajani, president of the Royal Project, to supervised northern office of Agricultural Extension and Development to run the Mae Hae High Land agriculture development Royal Project which had been changed its name to Mae Hae Royal Project Development Center later. Mae Hae Royal Project Development Center located on high land, 1,300 meters from sea level, with 33 square kilometers responsibility area. The design and product development in this research used the form of strawberry from Mae Hae Royal Project as a conceptual framework. The strawberry form had been redesigned to be a symbol and to be unique for the community souvenir.

Table 2 Demand survey from 100 people in vetiver product development

Product	Amount/people	Percentage
No. 1 Basket	20	20.00
No. 2 Fan	14	14.00
No. 3 Doormat	18	18.00
No. 4 Tissue paper box	18	18.00
No. 5 Key chain	33	33.00
No. 6 Lamp	3	3.00
No. 7 Shoulder bag	2	2.00
Total	100	100.00

After getting the idea of strawberry form, researcher and 100 community group members draft the product design with help from vetiver wicker experts in many meetings. In this research, researcher used product development concept of Teerachai Suksod (2001, p.88-94) who said that a good product comes from a design, product design should represent idea by based on design principle. The principle consists of 1. Function and Ergonomics) 2. Safety and Contraction 3. Aesthetics. As well as Nirach Sudsang's theory (2005, p.53) shown that the product development should represent detail in many aspects, and researcher summarized the conceptual framework for is research as follows: 1. Substitution 2. Combination 3. Adaptation 4. Rearranging 5. Reversing 6. Elimination and 7. Putting to another use

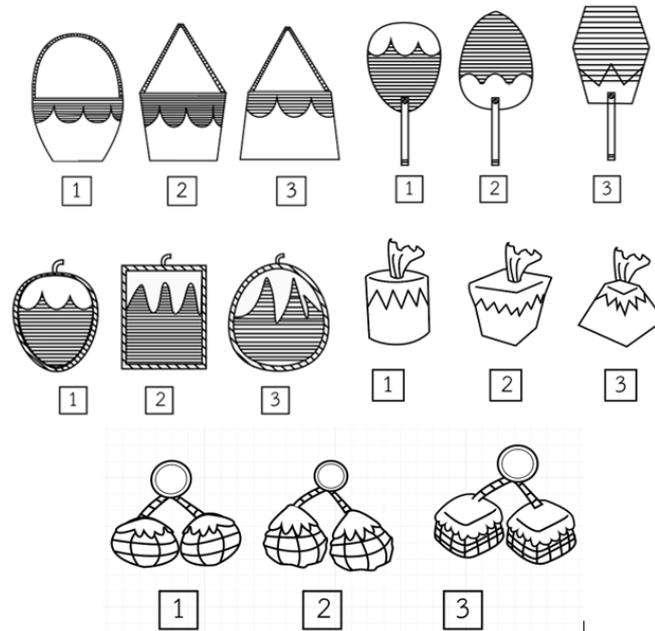


Figure 2 Five sketch ideas (Source: Researcher, 2022)

Result from survey form

Table 3 Opinion towards new design of vetiver products in Mae Wang district, Chiang Mai

Terms of Evaluation	Pattern No.1		Pattern No.2		Pattern No.3		Pattern No.4		Pattern No.5	
	\bar{x}	S.D.								
1. Using suitability	4.47	0.26	4.00	0.00	4.33	0.58	5.00	0.00	4.67	0.58
2. Using convenience	4.67	0.58	5.00	0.00	4.33	0.58	4.33	0.58	4.00	0.00
3. Durable and safety	4.00	0.00	3.67	0.58	4.33	0.58	4.00	1.00	4.33	0.58
4. Material appropriation	4.67	0.58	4.67	0.58	4.67	0.58	4.67	0.58	4.33	0.58
5. Beauty	4.33	0.58	4.00	0.00	3.33	0.58	4.33	0.58	4.00	0.00
รวม	4.47	0.26	4.27	0.32	4.20	0.00	4.47	0.36	4.27	0.32

Opinion on the 1st form, basket, got an average score equal 4.47 with 0.26 of standard deviation that means a very good level in satisfaction.

Opinion on the 2nd form, fan, got an average score equal 4.27 with 0.32 of standard deviation that means a very good level in satisfaction.

Opinion on the 3rd form, doormat, got an average score equal 4.20 with 0.00 of standard deviation that means a very good level in satisfaction.

Opinion on the 4th form, tissue paper box, got an average score equal 4.47 with 0.36 of standard deviation that means a very good level in satisfaction.

Opinion on the 5th form, key chain, got an average score equal 4.27 with 0.32 of standard deviation that means a very good level in satisfaction.

After getting the idea, the member from Ban Pong Samit community, Mae Wang district Chiang Mai community group had been trained on vetiver weaving skill from the experts.



Figure 3 Knowledge and Skill training for Ban Pong Samit community, Tambon Mae Win in Mae Wang district, Chiang Mai community group (Source: Researcher, 2022)



Figure 4 Five Products from this research (Source: Researcher, 2022)

3. To evaluate opinions on the designed and developed vetiver products, after designing and development products, it shown the satisfaction opinions levels as follow: in terms of design, the satisfaction score was 4.51 (a very good level) with standard deviation of 0.05, in terms of the suitability for the area, the satisfaction score was 4.61 (a very good level) with standard deviation of 0.5, and in term of using: weight supporting, using local material and conveying local wisdom, the satisfaction score was 4.56 also in a very good level with standard deviation of 0.54.

Discussions

1. The study about vetiver products in the recent market and community, this research found that in Ban Pong Samit community, Tambon Mae Win in Mae Wang district, Chiang Mai has a lot of vetiver grass, but the locals do not have knowledge in value added processing vetiver products. Most of them grind vetiver grass for animal feeding and fertilizing purpose, but vetiver is very sticky and sometime animal cannot eat it, and finally they had to throw them away as waste and found it useless (interviewed the village headman). In addition, the vetiver products which produced in Saluang sub-district of Mae Rim district, Chiang Mai province, the only area that produce vetiver products in Chiang Mai; from surveying, has a variety of products such as bags, hats, vases, and boxes but they are come with 2 patterns: melon seed and rice grain. While in Ban Pong Samit community has never weave or produce any products from vetiver. The researcher had studied how to creative community's unique by using strawberry form because it is an outstanding community's farm product, this accorded with work of Boonsoong (2017, p.177) which said that a good product should be designed on suitability, new look, and perfectly blended between beauty and usefulness. It was also conformed to work of Leesuwan (1989, p.96) which said that the necessary way to support Thai art and handicraft is to study cultural of the origin and related factors in the area, so, the developers can produce a real suitable and on demand works for the communities (Bonollo & Lewis, 1996).

2. The designed and developed vetiver products from this research, from a field study, found that the elders' group will do bamboo stripe weaving to use in house or contain their farm's product to sell in the market. As an outstanding product, strawberry was used to be a conceptual framework for producing vetiver products in research area. The researcher and 100 community group members draft the product design with help from vetiver wicker experts, and researcher used product development concept of Suksod (2001, p.88-94) who said that a good product comes from a design, product design should represent idea by based on design principle. So that, the researcher used spiral technique for making a strong string and weaved in chicken feather pattern, it harmonized with Jantrasa et al., (2015, p.127) that the size of vetiver string comparing with a thread standard size of 0.73-0.15Ne can be made in a variety size because it will be defined with 3 – 5 vetiver stripes and measure from physical looks. With many weavers, the hand weight to spiral would be different, that why with one thread standard can give a variety size of vetiver string and these caused a different strength of each string. It was also conformed to work of Pantung (2015, p.116) who said that the popular weaving pattern came from weavers mixing style, while the identity patterns are bullet flower, water flow, serge, and crossing. A flower pattern usually uses for weaving fan and using Songka specie which was planted for self-use of the weavers.

3. The opinion evaluation on the designed and developed vetiver products, from the evaluation form, shown that in terms of design, the satisfaction score was 4.51 which is in a very good level, in terms of the suitability for the area, the satisfaction score was 4.61 which is in a very good level and in term of using: weight supporting, using local material, and conveying local wisdom, the satisfaction score was 4.56 which also in a very good level. Because it is a research project that arises from the community's need for joint development. Thus making the community satisfied. Which is consistent with the research of Kittipattanawit (2021) and Kittipattanawit et al. (2021) that has joined with the community to develop packaging and product.

Conclusion and suggestions

The product outcome from this research is suitable to use as a master model in the community because it passed the process of the product design from the experts and consumers' satisfaction. Besides, it can be used as a role model for a further product development project by trying to draw out the local identity and turn it into a unique local vetiver product. The next designing and developing reserch should be on the product pattern which suitable for elders group in order to solve one of the community's problem.

New knowledge and the effects on society and communities

Study the knowledge management style of handicraft wisdom from the Ban Sang community group in weaving patterns. By studying reference documents and fieldwork in the community. It was found that the community group had no knowledge of weaving at all, but had grown vetiver grass to be used as animal feed. The researcher therefore brings the knowledge from the speakers together with the design of souvenir products. To train with the community until you get products that are easy for the community and also provide materials in the community. To create a new wisdom for the Ban Pong Smith community. And can continue to create jobs in the community in the future

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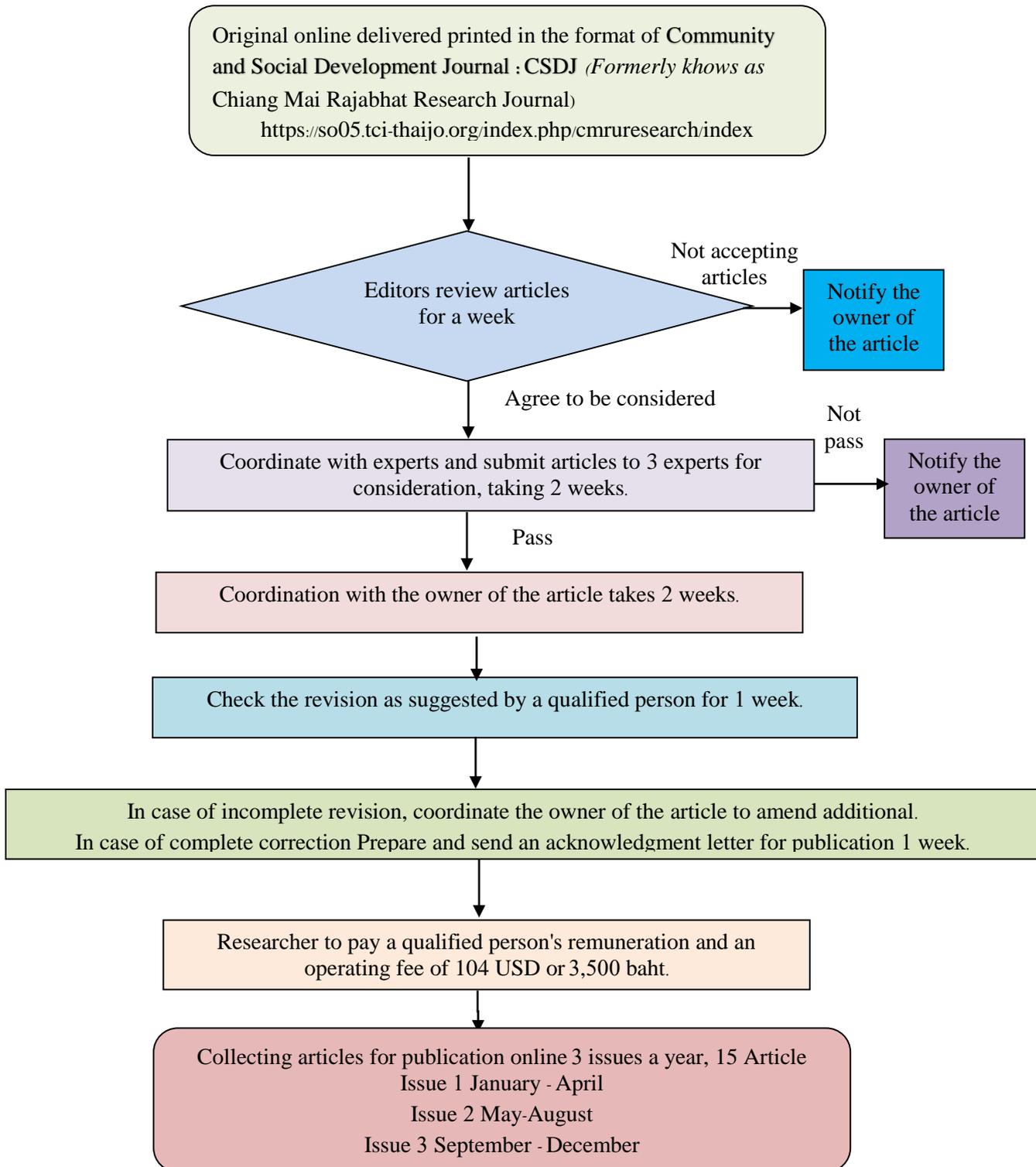
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