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3. To stimulate and support education at the university level

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Editorial Note

The Interdisciplinary Research Review (IRR) was established with academic cooperation by the Nakhon Pathom Rajabhat University, The Royal Society of Thailand Committee of Interdisciplinary Research and Development, Rajabhat University (Western Group), and Rajamangala University of Technology Rattanakosin. This Issue, Volume 16 Number 3 (May – June 2021). This issue contains of four interesting articles in multidisciplinary fields: (1) Strategic development for promoting schools as innovative educational institutions under local government organization, Chiang Rai province, (2) The development of the English vocabulary application on Android operating system for upper – primary students in five southern border provinces, (3) Effects and relationships of working environment, teamwork, and diversity to organizational satisfaction, and (4) Guidelines for enhancing potential and strength to the ONESQA network centers.

The Editorial Board of the IRR encourages anyone to submit articles for evaluation and review. The processes of submission, review and publication of articles are described on the journal's website, <https://www.tci-thaijo.org/index.php/jtir>. The Editorial Board and Committees of the IRR sincerely thank all peer reviewers who have sacrificed their time to help us produce a better journal, and also wish to thank all teachers, researchers and other academicians for submitting their valuable research to this journal. Finally, we thank readers of our journal who help to spread the knowledge and benefits gained to others. With your feedback and suggestions, we will strive to improve the quality and relevance of the IRR.

Yongyudh Vajaradul
Editor
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Strategic development for promoting schools as innovative educational institutions under local government organization, Chiang Rai province

Malaiporn Wongchaiya^{1,*}, Yongyouth Yaboonthong¹, Tharn Thong-ngok¹,
and Choocheep Puthaprasert¹

¹Education Program, Educational Administration, Faculty of Education, Chiang Mai University, Chiang Mai, Thailand

Abstract

The objectives of this research were to: 1) study and synthesize the core components and sub-components of innovative educational institutions under local government organizations, Chiang Rai province; 2) investigate states, problems, and conditions supporting schools as innovative educational institutions under local government organizations, Chiang Rai province; and 3) develop strategies for promoting schools as innovative educational institutions under local government organizations, Chiang Rai province. The instruments used in this research were a component synthesis, an in-depth interview agenda, a recording form, and meeting agendas. Data were analyzed by content analysis, synthesis, and summarizing. The research results were as follows: 1) The study and synthesis of the core components and sub-components of innovative educational institutions under local government organizations, Chiang Rai province consisted of 5 core components with 31 sub-components. They were confirmed by nine experts participating in connoisseurship by using consensus. 2) The investigation results of the most important states, problems, and conditions supporting schools as innovative educational institutions under local government organizations, Chiang Rai province consisted of administrators, learners, curriculum, teachers, and facilities. 3) the development strategies for promoting schools as innovative educational institutions under local government organizations, Chiang Rai province consisted of 5 strategies with 16 measures.

Keywords: strategic development, innovative educational institutions, local government organization, Chiang Rai province

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1. Introduction

Due to UNESCO Education Strategy 2014 – 2021 [1] which further recognized that cross-cutting themes such as education for sustainable development, global citizenship education and health education, it calls for teachers to adapt to new learner-centered ways of teaching. UNESCO thus supported ministries of education in the search for innovation and curricular entry points to employ transformative pedagogy, training and systemic reforms so as to empower teachers to use interactive and skill-building methods in their classroom.

Later, the Office of the National Economic and Social Development Board [2] stipulated 20-year National Strategy (2017-2036) as a national strategy on developing and strengthening human capital that modernized roles of teachers by adjusting their existing roles as a “teacher” to a “coach” or a “learning facilitator” who could stimulate, incentivize, provide guidance regarding learning process and knowledge management, and design effective learning activities and innovation.

Hence, the Office of the National Economic and Social Development Board [3] determined that the period of The Twelfth National Economic and Social Development Plan (2017 – 2021) would be an extremely challenging time for Thailand to undertake substantial reforms by accelerating the development of science, technology, research and development, and innovation as key factors in empowering the development of all aspects needed to increase the country’s competitiveness with an exceedingly competitive global economy. In order to elevate Thailand to be a developed country with security, prosperity and sustainability, Thailand must accelerate the improvement of its fundamental strategic development factors in all respects, such as: increasing investment in research and development, and developing science, technology, and innovation.

Correspondingly, the Office of the Education Council (ONEC) [4] in The National Scheme of Education B.E. 2560 – 2579 (2017 – 2036) defined that Strategy 3 concerned the proficiency development for people of all ages and the promotion of a lifelong learning society. One of the main aims included high quality and standards learning centers, textbooks, educational innovations, and learning media which resource people

*Corresponding author; email: m_wongchaiya@hotmail.com

could access without limitation

Similarly, the Organization for Economic Co-operation and Development (OECD) [5] had launched “The Future of Education and Skills 2030 Project”. Children entering school in 2018 would need to abandon the notion that resources were limitless and available for exploitation. They would need to value common prosperity, sustainability and well-being. Moreover, new sources of growth were urgently needed to achieve stronger, more inclusive, and more sustainable development. Innovation could offer vital solutions, at an affordable cost, to offset economic, social and cultural dilemmas. Innovative economies were more productive, more resilient, more adaptable, and better able to support higher living standards.

In addition, the Organization for Economic Co-operation and Development (OECD) [6] identified the innovation strategy for education and training as three main sets of skills for innovation which consisted of 1) technical skills (know-what and know-how); 2) behavioral and social skills (self-confidence, energy, perseverance, passion, leadership, collaboration, communication); and 3) creative and critical thinking skills (creativity, critical thinking, observation, imagination, curiosity, connections, metacognition).

In Department for Education, UK. [7] Debra Gray, Principal of Grimsby Institute of Further and Higher Education, wrote that the English education sector was alive with innovation and cutting-edge developments in EdTech. Outstanding use of technology could help level the playing field for learners with barriers to learning and provide the 21st. century solutions to closing skill gaps and raising achievement.

Nevertheless, Sucharitrak and Pilachai [8] identified that the school development for a model school to promote students’ thinking skills composed of 7 innovations and 41 sub-innovations as follows: 1) school management strategy with six innovations; 2) organizational structure of school management with five innovations, 3) school management system with six innovations, 4) school leadership with five innovations, 5) teacher and staff, 6) teaching and learning, and 7) shared values.

As a researcher, a Director of Education Division under local government organizations, Chiang Rai province involving with the educational management of schools, I intend to promote schools as innovative educational institutions in the 21st century. The purpose is to create learners with the future creative innovation, by not only focusing on knowledge, but also on innovative skills necessary for the 21st. century. Therefore, it is necessary to conduct research studies to develop strategies for promoting schools as innovative educational institutions for local government organizations to improve educational management

2. Research Questions

2.1 What are the results of studying, synthesizing, and confirming components of development of the innovative educational institutions under local government organizations, Chiang Rai province?

2.2 What are the states, problems, and conditions supporting schools as innovative educational institutions under local government organizations, Chiang Rai province?

2.3 What should be the results of the development of strategies for promoting schools as innovative educational institutions under local government organizations, Chiang Rai province?

3. Research Objectives

3.1 To study, synthesize, and confirm the core components and sub-components of innovative educational institutions under local government organizations, Chiang Rai province.

3.2 To investigate states, problems, and conditions supporting schools as innovative educational institutions under local government organizations, Chiang Rai province.

3.3 To develop strategies for promoting schools as innovative educational institutions under local government organizations, Chiang Rai province.

4. Materials and Methods

The research process was divided into three phases as follows:

Phase 1: The study, synthesis, and confirmation of core components and sub-components of innovative educational institutions under local government organizations, Chiang Rai province was divided into 2 steps:

Step 1.1: The researchers studied the documents, concepts, theoretical papers, and articles, both Thai and foreign researches, for synthesizing core components and sub-components of innovative educational institutions under local government organizations, Chiang Rai province. The obtained data were studied from documents of innovative organizations, thesis (2005 – 2016), research articles from ThaiJo/Google Scholar and authoritative electronically published documents. The instrument used was a component synthesis table. Data were analyzed by content synthesis.

Step 1.2: The core components and sub-components were confirmed by experts from innovative educational institutions under local government organizations, Chiang Rai province. Nine key informants selected by purposive sampling, consisting of three faculty members, three administrators, and three teachers who were involved with the best practice of

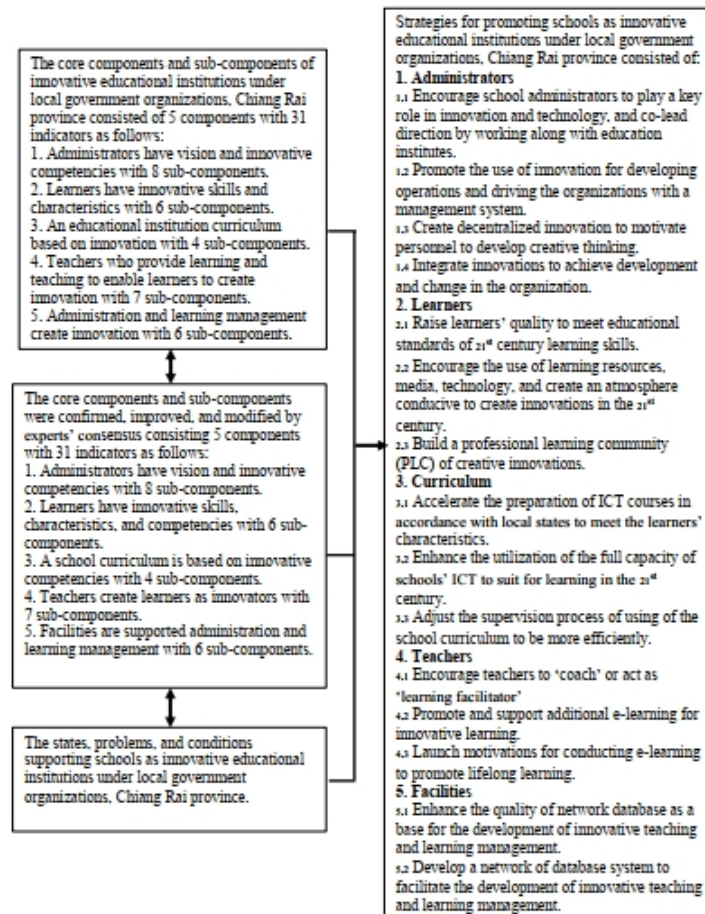


Figure 1: Research framework.

innovation, participated in connoisseurship. The instruments used were a recording form and meeting agendas. Data were analyzed by consensus.

Phase 2: The investigation of states, problems, and conditions supporting schools as innovative educational institutions under local government organizations, Chiang Rai province. The key informants selected by purposive sampling consisting of five school administrators under local government organization, Chiang Rai province were interviewed. The instrument used was an in-depth interviewing agenda derived from core components and sub-components. Data were analyzed by content summarizing.

Phase 3: The development of strategies for promoting schools as innovative educational institutions under local government organizations, Chiang Rai province. The obtained data from Phase 1 and Phase 2 were used to draft strategies and measures. The key informants in a workshop selected by purposive sampling were thirty-nine school administrators under local government organizations, Chiang Rai province. The instruments used were agendas and a meeting record. Data were analyzed by content synthesis. The research framework was as shown in Figure 1.

5. Results and Discussion

The results of this research were as follows:

Phase 1: Results of the study, synthesis, and confirmation of the core components and sub-components of innovative educational institutions under local government organizations, Chiang Rai province were divided into 2 steps:

Step 1.1: Results of studying and synthesizing the core components and sub-components of innovative educational institutions under local government organizations, Chiang Rai province from documents of innovative organizations, thesis (2010 – 2019), research articles from ThaiJo/Google Scholar and authoritative electronic published documents consisted of 5 core components with 31 sub-components as follows: 1) administrators have vision and innovative competencies with 8 sub-components; 2) learners have innovative skills and characteristics with 6 core components; 3) an educational institution curriculum is based on innovation with 4 core components; 4) teachers provide learning and teaching to enable learners to create innovation with 6 core components; and 5) administration and learning management create innovation with 7 core components.

Step 1.2: The confirmative results of core com-

ponents and sub-components of innovative educational institutions under local government organizations, Chiang Rai province by nine experts in connoisseurship were improved and modified into 5 components with 31 indicators as follows: component 2 was improved to 'Learners have innovative skills, characteristics, and competencies'; component 3 was improved to 'A school curriculum is based on innovative competencies'; component 4 was modified to 'Teachers create learners as innovators'; and component 5 was changed to 'Facilities are supported administration and learning management'. Step 1.1 and 1.2 as shown in table 1.

Pagaura [9] who studied the innovative leadership attributed of school administrators in the Philippines with regard to the implications for educational management, it was alleged that the visionary attributes of administrators as rated by the teachers. The teachers strongly agree that their administrators had visionary attributes which meant that administrators were very much highly innovative. This implied that the school administrator must be a visionary leader, he must set a clear vision for the institution and support the teachers in making it happen.

In accordance with the Office of the National Economic and Social Development Board [3], the period of the Twelfth National Economic and Social Development Plan (2017 – 2021) would be an extremely challenging time for Thailand to undertake substantial reforms by accelerating the development of science, technology, research and development, and innovation as key factors in empowering the development of all aspects needed to increase the country's competitiveness in an exceedingly competitive global economy.

Similarly, to achieve the vision and objectives, the National Scheme of Education B.E. 2560-2579 (2017 – 2036) by Office of the Education Council (ONEC) [4] identified learner aspirations that were meant to develop learners who had high qualifications and 21st century skills in the following areas: 3Rs: Reading, Writing, and Arithmetic; and 8Cs: Critical Thinking and Problem Solving, Creativity and Innovation, Cross-cultural Understanding, Collaboration, Teamwork and Leadership, Communications, Information, and Media Literacy, Computing and ICT Literacy, Career and Learning Skills, and Compassion.

Phase 2: Results of the investigation of the important states, problems, and conditions supporting schools as innovative educational institutions under local government organizations, Chiang Rai province as shown in Table 2.

Similarly, in Department for Education, UK [7] Debra Gray, Principal of Grimsby Institute of Further and Higher Education, wrote that the English education sector was alive with innovation and cutting-edge developments in EdTech. Outstanding use of technology could help level up the playing field for learners with barriers to learning and provide the 21st century solu-

tions to closing skill gaps and raising achievement.

Additionally, the Organization for Economic Co-operation and Development (OECD) [5] stated that new sources of growth were urgently needed to achieve stronger, more inclusive and more sustainable development. Innovation could offer vital solutions, at affordable cost, to economic, social, and cultural dilemmas. Innovative economies were more productive, more resilient, more adaptable, and better able to support higher living standards.

As mentioned by Phonmanee and Ariratana [10], the development of an administration model for creating learning management innovations in secondary schools under the office of the Basic Education Commission revealed that the highest need for the index was the innovation process, followed by the innovation measurement in schools, and the creative culture and innovative leadership, respectively. The aspect with the lowest need was the strategic planning for innovations.

In addition, Pangthai [11] found roles of administrators implementing educational innovation to practice in the Kukampitayasan school. The context of Kukampitayasan School was used as a pilot school for using innovative classroom education by the University of Khon Kaen under the dream school project of the Basic Education Commission Office, and factors were determined including a budget allocation for the innovative use of schools by providing facilities, such as media, equipment and buildings. In addition, administrators participated in every innovative process, and from the results of the use of such innovation, schools were selected as innovative models.

Phase 3: Results of the development of strategies for promoting schools as innovative educational institutions under local government organizations, Chiang Rai province consisted of 5 strategies and 16 measures as shown in table 3.

Likewise, according to 20-year National Strategy (2017 – 2036) [2], Thai citizens would, thus, be physically, mentally, and intellectually prepared, with all-rounded development and well-being adequate for each age group; would be publicly conscious and responsible to others and society, financially prudent, generous and caring, righteous, good citizens with right and ethical mindsets, equipped with skills required by the 21st century, as well as communication skills in English, the third language, and local dialect; learners with life-long learning skills who would become highly skilled Thai citizens, innovators, thinkers, entrepreneurs, smart farmers, and more with career paths suitable for their proficiency.

The Organization for Economic Co-operation and Development (OECD) [5] stated in its innovation strategy for education and training, three main sets of skills for innovation which consisted of: 1) technical skills (know-what and know-how); 2) behavioral and social skills (self-confidence, energy, perse-

Table 1. Results of the study, synthesis, and confirmation of the core components and sub-components of innovative educational institutions under local government organizations, Chiang Rai province

Synthesized core components	Confirmative core components	Sub-components
1. Administrators have vision and innovative	1. Administrators have vision and innovative	1.1 Define vision 1.2 Construct vision 1.3 Implement vision 1.4 Disseminate vision 1.5 Build motivation skills 1.6 Communication skills 1.7 Creative thinking skills 1.8 Innovative leadership skills
2. Learners have innovative skills and characteristics.	2. Learners have innovative skills, characteristics, and competencies.	2.1 Learners intend to create new tasks. 2.2 Learners have creative thinking skills. 2.3 Learners have communication and technology skills. 2.4 Learners have innovative skills. 2.5 Learners have teamwork skills. 2.6 Learners have innovative presentation skills.
3. An educational institution curriculum is based on innovation.	3. A school curriculum is based on innovative competencies.	3.1 A school curriculum creates critical thinking solving skills. 3.2 A school curriculum builds creative thinking skills and creates innovation. 3.3 A school curriculum encourages integrated learning. 3.4 A school curriculum promotes competencies of information and communication technology.
4. Teachers provide learning and teaching to enable learners to create innovation.	4. Teachers create learners as innovators.	4.1 Teachers have competencies of teaching and learning management to create innovation. 4.2 Teachers are able to encourage learners to create self-knowledge. 4.3 Teachers are able to provide and apply innovative technology in learning management. 4.4 Teachers encourage learners to have creative and innovative thinking. 4.5 Teachers provide learning to promote critical thinking and problem solving. 4.6 Teachers are promoted to be a 'coach' or a 'learning facilitator'.
5. Administration and learning management create innovation.	5. Facilities are supported administration and learning management.	5.1 Have learning environment to create new knowledge. 5.2 Analyze and synthesize the learning management. 5.3 Provide productivity classrooms for creative thinking. 5.4 Use media and technology. 5.5 Have learning resources both inside and outside the classroom. 5.6 Promote scholarships, study, research, or new innovation. 5.7 Have an innovative management strategy.

verance, passion, leadership, collaboration, communication); and 3) creative and critical thinking skills (creativity, critical thinking, observation, imagination, curiosity, connections, metacognition).

Similarly, Wanhakij *et al.* [12] studied the operation of information and communication technology for education in schools under Loei Primary Educational Service Area Office 1. They determined that the analyzing data on the operation of ICT for education found that the utilization of ICT to support the administration and provisions of education services were at a high level, followed by cultivation of personnel who were capable of using ICT creatively, promotion and

support of the education with ICT to increase education's efficiency, and development of the infrastructure for ICT that supported education were at a moderate level

Besides, Pangnitikanakorn *et al.* [3] studied the innovative model for integrated education management of municipal schools under the Department of Local Administration, and found that there were six elements of integrated education management of municipal schools under the Department of Local Administration as follows: 1) leadership, 2) strategic plan, 3) management information system, 4) measurement and evaluation, 5) academic management, and 6) stake-

Table 2. Results of the investigation of the important states, problems, and conditions supporting schools as innovative educational institutions under local government organizations, Chiang Rai province.

Components	States	Problems	Conditions supporting for the promotion schools
1. Administrators have vision and innovative competencies.	Administrators define objectives, goals, and create an organizational culture for schools based on the general local context.	School visions do not clearly define an innovative school.	Local government organizations, communities, and stakeholders should be supportive to define school visions and strategies.
2. Learners have innovative skills, characteristics, and competencies.	Most learners are unable to apply the knowledge and understanding to benefit themselves and society.	Learners do not have innovative skills to benefit themselves and society.	Encourage learners to acquire innovative skills according to the world of the 21 st century.
3. A school curriculum is based on innovative competencies.	A school curriculum stipulated from local government organizations.	A school curriculum is not amended to create innovative skills.	Local government organizations should have a manual plan to amend school curriculum to create innovative skills.
4. Teachers create learners as innovators.	Teachers design teaching and learning management according to school curriculum.	Lesson plans do not focus on the use of innovative technology and create innovators.	Local government organizations should allocate budget for teachers' development in terms of creating innovations.
5. Facilities are supported administrations and learning management.	There are learning resources both inside and outside the school that can encourage learners to learn from real situations.	Teachers and learners use innovative resources unwisely.	Local government organizations should facilitate innovative resources conducive for creating innovation.

Table 3. Results of drafting strategies for promoting schools as innovative educational institutions under local government organizations, Chiang Rai province.

Strategies	Measures
Strategy 1: Administrators: Administrators have vision and innovative competencies.	1.1 Encourage school administrators to play a key role in innovation and technology, and co-lead direction by working along with education institutes. 1.2 Promote the use of innovation for developing operations and driving the organizations with a management system. 1.3 Create decentralized innovation to motivate personnel to develop creative thinking. 1.4 Integrate innovations to achieve development and change in the organization.
Strategy 2: Learners: Learners have innovative, characteristics, and competencies.	2.1 Raise learners' quality to meet educational standards of 21st century learning skills. 2.2 Encourage the use of learning resources, media, technology, and create an atmosphere conducive to create innovations in the 21st century. 2.3 Build a professional learning community (PLC) of creative innovations.
Strategy 3: Curriculum: An educational institution curriculum is based on innovative competencies.	3.1 Accelerate the preparation of ICT courses in accordance with local states to meet the learners' characteristics. 3.2 Enhance the utilization of the full capacity of schools' ICT to suit for learning in the 21st century. 3.3 Adjust the supervision process of using of the school curriculum to be more efficiently.
Strategy 4: Teachers: Teachers create learners as innovators.	4.1 Encourage teachers to 'coach' or a 'learning facilitator'. 4.2 Promote and support additional e-learning for innovative learning. 4.3 Launch motivations for conducting e-learning to promote lifelong learning.
Strategy 5: Facilities: Facilities are supported by administrations and learning management.	5.1 Enhance the quality of network database as a base for the development of innovative teaching and learning management. 5.2 Develop a network of database system to facilitate the development of innovative teaching and learning management. 5.3 Encourage to create innovation in the organization and set the direction for administrative development.

holder management.

6. Conclusion

It can be summarized that the developed strategies for promoting schools as innovative educational institutions under local government organizations, Chiang Rai province would be an advantage for educational management. Local government organizations can provide the quality education and concern for the local community's ways of life. As these results, it will be accepted by parents and communities. The key success conditions are school administrators under local government organizations are visionary and realize the importance of educational innovations as well as teachers who use innovations to assist teaching and learning in the classroom.

7. Recommendations

From this research, the recommendations are as follows:

7.1 These developed strategies for promoting schools as innovative educational institutions under local government organizations, Chiang Rai province can be applied to other provinces. The office of local government organizations should emphasize on creating innovative schools all over Thailand equally.

7.2 There should be a utilization of the full capacity of schools' ICT to learners under local government organizations in accordance with learning in the 21st century and monitor the operations closely.

8. Recommendation for Further Research

8.1 There should be a study of strategies which promote schools as innovative educational institutions under local government organizations, Chiang Rai province in the other provinces as guidelines to inspire all educational institutions under local government organizations for self-development.

8.2 There should be a study of strategies which promote schools as innovative educational institutions under local government organizations, Chiang Rai province in terms of administrative innovations to propose that local government organizations cope with the changing world of education.

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The development of the English vocabulary application on Android operating system for upper – primary students in five southern border provinces

Pratya Binmudnee^{1,*}, Sorat Abdulsata¹, Ibtizam Hama²,
Rokiyoh Maduereh³, and Suinee Takaeh⁴

¹Department of English, Faculty of Liberal Arts and Social Sciences, Fatoni University, Pattani, Thailand

²Department of Information Technology, Faculty of Sciences Fatoni University, Pattani, Thailand

³Center of English, International Language Academy, Fatoni University, Pattani, Thailand

⁴International Language Academy, Fatoni University, Pattani, Thailand

Abstract

The objectives of this research were to: 1) develop and find the efficiency of the English vocabulary application for the upper primary students in five southern border provinces on the Android operating system based on the 80/80 efficiency criterion; 2) compare students efficiency before and after using English vocabulary application, and 3) evaluate and follow up the usage of English vocabulary application by the stakeholders. 200 students of upper primary level were chosen by cluster random sampling as the sample group. The research instruments were an English vocabulary application, an achievement test, and an evaluation form of the stakeholders. The statistics for the data analysis were average and t-test. The results of the research were: 1) the efficiency of the English vocabulary application by finding E_1 and E_2 values was 80.42/83.50; 2) the t-test result indicated that students' achievement scores after using the English vocabulary application was statistically higher than that of before using the English vocabulary application at .05 level of significance; and 3) the student efficiency index was 0.24. This represented that 24 percent of students' English vocabulary knowledge was increased through the English vocabulary application on the android operating system. Moreover, the students' satisfaction towards the English vocabulary application was 4.51 or 90.37 which was in the level of "very good".

Keywords: application, english vocabulary, southern border province

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1. Introduction

Vocabulary learning is an essential part in foreign language learning because the meanings of new words are very often emphasized, whether in books or in classrooms. It is also central to language teaching and of paramount importance to language learners. Recent researches indicate that teaching vocabulary may be problematic because many teachers are not confident about best practice in vocabulary teaching and at times do not know where to begin to form an instructional emphasis on word learning [1].

Thai students' difficulty in understanding English is primarily caused by their lack of sufficient vocabulary. Therefore, we are faced with the problem of how to improve students' ability to memorize English words quickly and retain these words in their long-term memory (Nualsri, 2012). These are some urgent issues that need to be resolved in order to achieve the

maximum teaching result. In other words, mastering the right methods and techniques in vocabulary learning are crucial for successful learning of the English language [2]. With the wide-spread usage of technologies in many different fields, emerging technologies have brought about major changes in the teaching and learning processes [3].

Mobile phones, one of these technologies, have led to a proliferation of studies that explore their use in education. Language teaching studies and practices have also been affected by this tide of change [4]. By providing flexible, practical, and personalized opportunities of use in and outside the classroom, mobile learning challenges the conventional ways of teaching remarkably [5]. Especially with smartphones that come with both powerful hardware and software, which makes them as capable as a computer, learning on the go becomes more and more convenient. However, the issue of the local culture integration and language teaching could not be separated because local culture and communication go along, and communi-

*Corresponding author; email: benseventy@gmail.com

cation is not possible without a language. Culture is an inseparable part of language learning, and learning language is essentially a social phenomenon. It has been defended that students cannot be proficient in the target language unless they know about cultural perspectives [6].

This article attempts to explain the application of ILAA model which is referred to the Interactive Learning Application Activity. It is the combination between the application in the smartphone or the tablet with the local culture in learning English vocabulary through the use of the application in the Android operating system. With the combination of technology and students' local cultures, ILAA model is playing an increasing important role in English vocabulary teaching in the southern border provinces. This study attempts to figure out the EFL teachers' cognition about the technology support and challenges the teachers to face with technology in their teaching practice. Therefore, the researchers formulate the following objectives:

- 1) To develop and find the efficiency of the English vocabulary application for the upper primary students in five southern border provinces on the Android operating system based on the 80/80 efficiency criterion.
- 2) To compare students' efficiency before and after using English vocabulary application.
- 3) To evaluate and follow up the usage of English vocabulary application by the stakeholders.

2. Literature review

Vocabulary knowledge is often viewed as a critical tool for second language learners because a limited vocabulary in a second language impedes successful communication. Nation (2011) concluded that knowledge of vocabulary enables language use and, conversely, language use leads to an increase in vocabulary knowledge. (Nation, 2011). Due to the challenging situation in teaching a new language, EFL teachers need to involve their students by using different methods and techniques in teaching and learning process. During this process, the teachers need to develop a positive motivation, encouragement, and attitudes in each student toward the learning process. One of the factors that helps teachers develop those aspects in students refers to technology. Technology is believed to affect students' attitude positively in learning process. It provides students the chance to be in touch with the real world and it can their motivation. In addition, using technology as an aid helps students to be active, eager, and involved in classes due to the interest in the use of technology. Undoubtedly, using computers and the different kinds of technological tools affect students' behavior in a positive way.

2.1 Integrating technology in vocabulary teaching

Vocabulary is an area where teachers are asking for guidance on instructional approaches, strategies, and

materials. It is believed that digital tools and media are available in most schools that teachers could harness now to improve vocabulary learning. These tools can capture the interest of students, and provide scaffolds and contexts in which to learn with and about more profitably. Furthermore, they also promotes positive attitude toward learning, saving time for both teachers and students. Some of the main approaches in the technological integration in vocabulary teaching are described below.

2.1.1 Mobile learning (M-Learning)

In this technological era, everyone has their own handheld mobile devices. Using these devices, with easy access to the Internet, they interact with people from anywhere in the world. Irrespective of time and place, people chat or exchange information with each other. The very term "mobile" stands for the "mobility" or the ability to move freely and easily from one place to another. Mobile learning refers to the implementation of mobile devices in any branch of study. The features of mobile technology such as the portability and information accessibility play a major role in the enhancement of English language teaching and learning [7].

The main characteristic of M-Learning can be the discretion of the learner. It lies in the hands of the learner to decide upon the place and time for language learning [4]. The outbreak in the domain of mobile learning makes it harder for anyone to arrive at a stable concept because of the availability of new mobile devices in the market. Generally, mobile learning can be defined as mobility of personal, portable and wireless devices such as smartphones, or tablets used in language study.

The mobility of technology refers to mobile devices with WiFi capacities that deliver information and learning materials through the Internet. According to Guo (2013), with portable and personal mobile devices, learners could be engaged in more flexible, accessible, and personalized learning practices without constraint on places. Mobile learning increases the mobility of learners which is considered as a student-centered approach. Some researchers say M-learning refers to learning while moving around or using mobile or tablet devices to learn [8]. That is, no matter where students are, if they have mobile devices, they can study ubiquitously. Hence, we can understand that the classroom is no longer the only learning environment. Instead, the mobility makes students be part of the context and interact with their peers. So, for teachers they need to apply smartphones or tablet devices and design teaching strategies to help students. Finally, students' individual knowledge can be built, and they can not only develop the critical thinking ability, but enhance learning motivation and increase learning outcomes [8].

2.1.2 Mobile-assisted language learning (MALL)

Mobile-assisted language learning is the subdivision of both M-Learning and computer-assisted language learning (CALL). Beatty (2010) defines CALL as a term used for the collection of technologies aimed at enhancing creativity and collaboration, particularly through social networking. In recent years, the widespread use of mobile devices led to the abbreviation MALL which differs from CALL in its use of personal, portable devices that enable new ways of learning, emphasizing continuity or spontaneity of access across different contexts of use [4]. Few research studies have suggested that CALL has some limitations like lack of in-depth communication, false observation, disturbed learning process, the burden of work, educators' lack of computer knowledge [9]. [4] proposed that these shortcomings of CALL can be overcome by MALL.

The usage of mobile phones has undergone a drastic change beginning with downloading a ringtone to many software applications in a single phone. Though mobile learning is not new, latest mobile devices with upgraded features have triggered interest among many instructors for applying this new technology in learning. The iPhones, iPod, iPad, new handheld gadgets are fuelling to the mobile app fever [10]. Apps are the short form of the phrase "application software" generally downloaded from "app stores such as App Store, Google Play, Windows Phone Store, and BlackBerry App World". Mobile apps are a software application which is intended to run on iPhones, tablets and other mobile devices. Some of the apps are free to download and some others are paid. Mobile apps categories include gaming, entertainment, and education [9].

2.2 The characteristics of ILAA model

Interactive learning activity through the vocabulary learning application, or ILAA model was designed from the analysis of the vocabulary teaching framework. This vocabulary learning application or VLA consists of 3 steps in the learning activities which are introduction, integrated contextualization, and identification. Through the application of the VLA in their daily life, students can memorize the vocabulary and can skillfully apply it to gain the 21st century learning skill as shown in figure 1.

In order to develop the application through the Android operating system using ILAA model, the process of materials design from Graves (2000) was considered. Then, ten interested topics were explored by using the need survey instrument to elicit which topic should be included in the development of vocabulary learning application (VLA) for the southern border of Thailand. These ten units were as following.

After that, the aspect of Graves (2000) was used to design these ten units of the VLA for three southern border provinces of Thailand. There were four aspects of Graves (2000) needed to be considered for

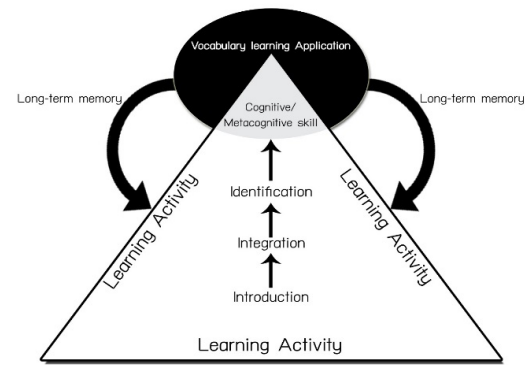


Figure 1: The concept of ILAA Model.



Figure 2: The sample of the application menu.

designing the VLA which consisted of learners, learning, language, and social context.

• Learners

Developing the application should meet students' experience and background, target needs, and their affective needs [11]. As a result of the need analysis, the topics included the local food, local games, and tourist attractions, etc. in the three southern border provinces because they were students' most preferable theme from the needs analysis and also relevant to students' experience and background.

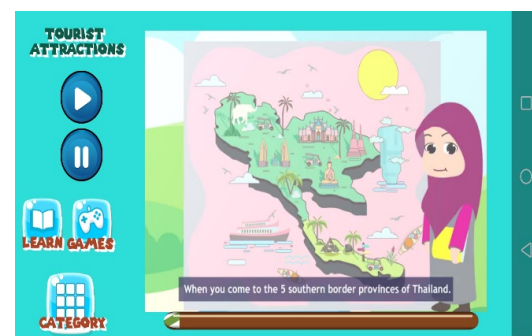


Figure 3: The sample of the learners' aspect.

• Learning

Learning can be perceived as a process of problem-solving and discovery by the learners – an inductive process. In this study, students were able to think and solve problems by learning through the VLA using a variety of interactional tasks and activities.



Figure 4: The sample of the learning's aspect.

• Language

For the language aspect, it consists of creating activities which are relevant to grammar, functions, vocabulary, and integrated four skills using authentic text. In this study, the VLA integrated four skills of English and they were relevant aspects of grammar, function, and vocabulary in every unit. Moreover, the authentic texts having contents related to the three southern border provinces were used in every unit.

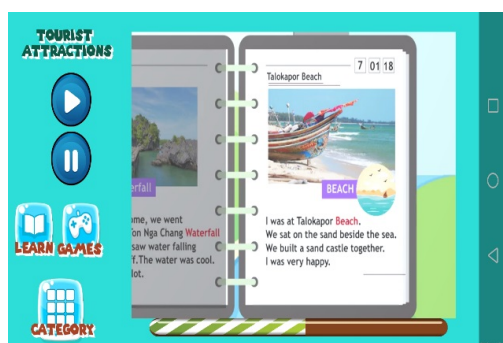


Figure 5: The sample of the language's aspect.

• Social Context

In this study their social context focused on the local community in the three southern border provinces of Thailand, including Narathiwat *et al.* Cultural awareness and social issues were included in the VLA.



Figure 6: The sample of the social context's aspect.

3. Methodology

This study focuses on an exploratory investigation of the use of the Fun Fast English Application on Android operating system and the implementation of vocabulary instruction in five southern border provinces of Thailand classroom context. Therefore, mixed-methods research was employed in this study.

3.1 Data Collection Procedures

200 upper-primary students in five southern border provinces were selected as the subjects of this study using multi-stage sampling method. First, the researcher randomly selected two districts from each province. Second, two schools were selected from each district. Third, 20 upper-primary students per each school were selected as the sampling group since it is expected that students have held considerable cognitions about vocabulary instruction during the research process.

In addition, 20 teachers from the selected schools and 10 school administrators were interviewed by using the focus group technique. The interviewees were encouraged to express what they knew, thought, and believed concerning vocabulary instruction by using Fun Fast English application in their classrooms. This study employed semi-structured interviews, which were guided by a list of interview questions and designed to put interviewees at ease and allow them to express themselves about the application of Fun Fast English application in their classrooms.

4. Findings

The finding section attempts to answer the research objectives based on the obtained data from the achievement test, interview, and observation.

1) A. To develop and find the efficiency of the English vocabulary application for the upper-primary students in five southern border provinces on the Android operating system based on the 80/80 efficiency criterion

The above mentioned objectives revealed the result as shown below in Figure 7.

To answer objective one, the 200 students were asked to practice and do the exercises through the VLA. As shown in Figure 7, the results of experiment, the VLA had efficiency at 80.42/83.50 which met the specified criteria 80/80. It was because the VLA was tested in three steps: individual, small group, and field group to examine the efficiency of the VLA. From the efficiency of VLA in try-out results, the individual testing was not approach to the standard of 80/80, the researcher included some contents and exercises according to the samples feedback. Although the efficiency of VLA in the small group testing was improved, some exercises were edited again since the range between E_1 and E_2 were not close to and nearly

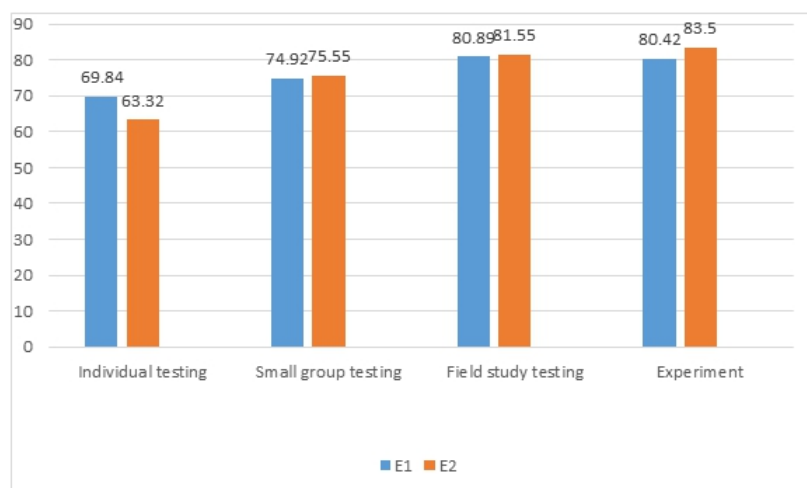


Figure 7: The efficiency of the English vocabulary application for the upper-primary students in five southern border provinces on the Android operating system based on the 80/80 efficiency criterion.

Table 1. The students' efficiency before and after using English vocabulary application

Test	Score	\bar{x}	(S.D)	(D)	t	Sig
Pretest	100	57.87	10.96	4.40	5.81	.00
Posttest	100	83.50	7.59			

reached the appointed standard. After the VLA was developed twice, the score of E1/E2 on the field study was better. It can be seen that the efficiency of the product ($E_2 = 81.55$) was higher than efficiency of the process ($E_1 = 80.89$). This was because the VLA had texts, pictures, sound effect, and games which motivated students' interest in learning English vocabulary.

2) To compare the students efficiency before and after using English vocabulary application.

To answer the question two, the data was collected from the students' pretest and posttest as shown in Table 1.

As seen in table 1, the students' score in the pre- and post-test was compared. It was found that the mean score of the post-test (83.50) was significantly higher than that of the pre-test (57.87) with statistical significance of .05 which means that the VLA helps the students to improve their English vocabulary skills.

3) To evaluate and follow-up the usage of English vocabulary application by the stakeholders.

To answer the third objective, the researcher divided the answer to this objective into two parts explained below.

3.1 The follow-up result through the efficiency index of students who studied with the VLA through Android operating system as shown in Table 2

As shown in Table 2, the efficiency index of students who studied with the VLA through Android operating system was 0.24 which revealed that the VLA can increase the students' vocabulary knowledge at the percentage of 24.

3.2 The evaluation of the VLA by the stakeholders and students To answer this part of the third research objective, the mean score of stakeholders and students' opinion toward the VLA was used to test with one sample t-test statistic, and was compared to the high level of the criterion setting at high level. The result of analysis was presented in Table 3.

The stakeholders and students' opinion toward the VLA after using it was significantly higher at .05 level of significance. Moreover, the total of thirty stakeholders, which were English teachers, school administrators, and supervisors in the areas, were interviewed in this study by using the focus group method. They were asked about how they feel about using VLA. All of the stakeholders and students had positive feelings to VLA at the percentage of 76.6. Eighty-five percent of them said that they liked VLA because it allowed them to practice and improve English vocabulary skill. It was easy to use and also interesting and enjoyable.

5. Discussion and conclusion

According to the findings, it can be concluded that VLA had positive effects on the improvement of students' vocabulary skills. Students were motivated, engaged, and interested in VLA. The result of this study was in line with Hermagustiana and Rusmawaty (2017) that teaching vocabulary is not only a matter of providing word meanings through several teaching strategies, paper-based dictionaries, or other vocabulary textbooks, but it also involves a number of technological devices which are expected to increase students' vocabulary knowledge [12]. In addition, Robins (2008) found that using technology in vocabulary teaching can capture the imagination of both students and teachers. At all levels of study and in most subjects, teachers can use technology in many ways to support students' learning by encouraging them to or-

Table 2. The result of the follow up result through the efficiency index

Scores	Test Results		Effectiveness Index
	Pretest	Posttest	Sum of Posttest Scores – Sum of Pretest Scores
	(No.of students X full scores) – Sum of Pretest Scores		
Total	100	100	0.24
\bar{x}	57.87	83.50	

Table 3. The mean score of stakeholders and students' opinion toward the VLA with one sample t-test

The question items analysis	Criterion	Mean	S.D.	t	Sig
After using VLA	3.51	3.84	0.25	67.94	0.00

ganize and express their own ideas and knowledge in an individual and significant ways [13].

In conclusion, VLA was a suitable tool for the upper-primary students in five southern border provinces for increasing their vocabulary knowledge of English. Moreover, it was a means for increasing students' motivation to improve and practice their English vocabulary skill. In this research, encouraging students to learn was promoted by VLA through ILAA model. The VLA is considered as a vital tool in persuading students to participate in the various activities through the VLA on Android operating system. Since the integration of local context and technology through ILAA model makes activities interesting for students, it makes them believe that they will be able to improve their vocabulary skill through VLA.

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time to offer the effective recommendations and responses until the completion of this paper.

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Effects and relationships of working environment, teamwork, and diversity to organizational satisfaction

John Mark R.Asio^{1,*}

¹Research Development and Community Extension Services, Gordon College, Olongapo City, Philippines

Abstract

For operating an organization, several mechanisms play at hand. These mechanisms contribute to reaching the organization's end goal for itself and its constituents. This study aims to analyze the working environment, teamwork, and diversity of employees and its relationship to organizational satisfaction from a local higher education institution in Central Luzon, Philippines. The study used descriptive-correlational research with the survey as the primary instrument for data gathering. Eighty-five (85) respondents took part in the survey using a purposive sampling technique. Also, the researcher used an adapted and modified questionnaire to gather pertinent data for the study. This study used SPSS 20 to compute and analyze the gathered data with the following statistical tools: frequency, percentage, mean, t-test, ANOVA and Pearson-r. For the result, the study found that the respondents have a pleasant working environment, ideal teamwork, and diversity in the workplace. This is based on the agreement of the respondents on most of the statements in the survey. Also, the respondents are satisfied with the organization. There were significant differences found in the work environment, teamwork, and diversity when classified according to their demographic profile. Furthermore, there were also significant relationships between work environment, teamwork, diversity, and organizational satisfaction. Based on the preceding results, the researcher provided pertinent recommendations at the end of the study.

Keywords: employee, working environment, teamwork, diversity, organizational satisfaction, relationship

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1. Introduction

In an organization, there are a lot of mechanisms and factors that contribute to its success. That is why it is essential to have a suitable set of employees working together despite the differences and degrees of difficulties that every personnel possesses. The organization should reciprocate in response to the employees' needs and benefits to compensate for their hard work and job well-done attitudes.

An ideal working environment is a hard thing to achieve due to the ever-changing world of organizational management and administration. A working environment is a setting in which an individual usually do or perform his/her job. Providing a suitable working environment for every employee is a challenge. A study showed that almost 82% of employee performance is influenced by working environment [1]. Some studies show some peculiar results and vital information. For instance, teachers perceived their work environment well [2]. In the same context, personal and environmental variables affect the satisfaction of employees [3]. To add, the psychological work environment harms employees' job

stress [4]. Also, another study showed positive aspect of working environment [5]. The same authors also attempted to explain how organizations with diverse perspectives of work, social connections, and culture can lead to a substantial work environment. Another study explained the complexities of disclosure or non-disclosure of mental health issues in working environment [6]. The same study also identified themes leading to a positive influence in improving work participation. Adding to the discussion, leadership develops the working environment through the lens of the telecommuter [7]. From a unique perspective, the effect of working environment on university-affiliated authors turned out to have higher research productivity [8].

Teamwork in the organization is also an essential aspect of having a satisfying work relationship. For a better understanding, teamwork is a collaboration among individuals in an organization to meet the common goal set for them. This means that employees have harmonious work etiquette among themselves. They also apply the same idea to the relationship between employees and managers. Teamwork includes more than one person in a course to accomplish organizational goals [9]. In an experiment, the author found that there was an improved staff attitude to-

*Corresponding author; email: asio.johnmark@gmail.com

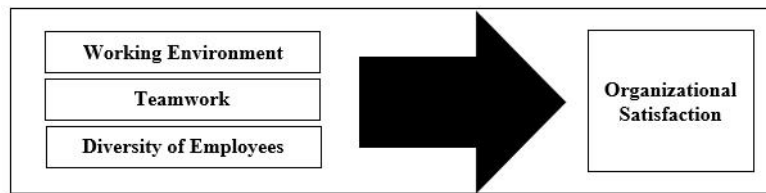


Figure 1: Conceptual framework.

ward team structure, leadership, situational monitoring, and communication [10]. Besides, the group of researchers enthused that teamwork is a linchpin for safety performance in an organization [11]. Considering the significant attributes of teamwork, a leader or manager needs such configurations in the organization to attain certain goals.

In diversity, we can apply this in different ways in the organization. Diversity in the workplace means a composition of workers from different aspects like gender, ethnic background, religious beliefs, etc. This does not pertain to one aspect of organizational management. To support this, the team of investigators stated that there is a diverse representation of the workforce that is right, social, ethical, and virtuous in the public sector [12]. Also, workforce diversity relates to the job satisfaction of employees [13]. A study discussed the concept of inserting intersectionality into a single category on diverse networks in an organization [14]. Because of the increased workforce diversity, attaining organizational goals has become a challenge [15]. Another author revealed the reasons why organizations adopted and implemented diversity management practices and how can it influence employees' outcomes of turnover intention and career satisfaction [16]. Thus, diversity policies help promote equal opportunities [17]. However, a group of researchers explained that leaders lean towards the construction of values of their networks in terms of individual career development and community building to prevent isolation from their members [18]. Finally, the employees' perception of surface and knowledge diversity has an impact on employee well-being [19]. Diversity is a critical concept that managers and leaders must bear in mind to compensate for the needs of everyone in the organization.

A good working environment combined with teamwork and diverse employees can have a significant impact on organizational satisfaction. As a researcher exposed that working environment harms turnover intention [4]. Besides, another study also indicated that a manager's technical competencies and cognitive abilities merely suffice the need of supervising a workplace [15]. Another research paper revealed that human capital, organizational culture, teamwork, organizational development, and commitment have a substantial relationship [20]. On a different concept, a meditation based-program has the potential in decreasing stress

in a stressful work environment [21]. Another study provided that there is a moderating role of diversity-oriented leadership as well as group diversity [22]. There is a lot going on investigation inside the organization on these three important variables (working environments, teamwork, and diversity of employees). Having a harmonious relationship among these three variables can create an ideal organization. This is in the context of supplementing each other's deficiencies and prospects to reach the organization's goals.

The purpose of this study is to analyze the working environment, teamwork, and diversity of employees from a higher education institution in Central Luzon, Philippines. Also, the author would like to look into the possible relationships and differences between the working environment, teamwork, diversity, and organizational satisfaction of employees. And finally, to identify which among the three variables can significantly impact organizational satisfaction.

The result of this study can be used by institutions for benchmarking ideas in terms of the working environment, teamwork, and diversity of employees in the organization. At the same time, this study also contribute to the aspect of higher education management and administration. Furthermore, the result of the study will help human resource managers in providing better managerial contexts. Lastly, the study will also help the employees to upgrade their work values and attitudes towards organizational satisfaction.

1.1 Conceptual framework

On the grounds of the different reviewed works of literature, the researcher provided a conceptual framework for this study. As seen from the Figure 1, Figure 1 the working environment, teamwork, and diversity of employees point to organizational satisfaction (as indicated by the arrow) which means it deals with the possibility of a relationship between them. This study intends to verify such a relationship so that the institution or the organization involved will benefit from the results.

1.2 Null hypotheses

Based on the purpose of the study, the researcher hereby proposed the following null hypotheses:

H1: There is no significant differences in the working environment, teamwork, diversity of employees, and organizational satisfaction.

Table 1. Working environment of the employees.

Statement	Mean	Interpretation
1) I believe that discipline is administered fairly and consistently to all employees in my office/department.	4.15	Agree
2) Discipline in my office/department is administered according to the Civil Service Rules.	4.15	Agree
3) As an employee, I feel secure in speaking up about office/department practices and/or policies that are ethically questionable	3.99	Agree
4) My co-workers know the difference between ethical and unethical behaviors and seem to care about the difference.	4.12	Agree
5) My office/department is serious about maintaining a work environment that is free of violence and harassment	4.40	Agree
6) My office/department is serious about maintaining a work environment that is free of drugs and alcohol.	4.45	Agree
7) My office/department creates and maintains a safe and healthy work environment by taking action which prevents injury or harm to self, others, equipment, and/or property.	4.49	Agree
Average Mean	4.25	Agree

Legend: 1.00 – 1.49 = Not Interested; 1.50 – 2.49 = Strongly Disagree; 2.50 – 3.49 = Disagree; 3.50 – 4.49 = Agree; 4.50 – 5.00 = Strongly Agree

Table 2. The teamwork of the employees.

Statement	Mean	Interpretation
1) The overall quality of the work performed in my workgroup is high.	4.28	Agree
2) My team is dedicated to satisfying the expectations of external and internal customers and citizens.	4.34	Agree
3) My team has the resources we need to do our job well.	4.01	Agree
4) I am part of a team that works well together.	4.36	Agree
5) In my team, steps are taken to deal with poor performers who cannot or will not improve.	4.11	Agree
Average Mean	4.22	Agree

Legend: 1.00 – 1.49 = Not Interested; 1.50 – 2.49 = Strongly Disagree; 2.50 – 3.49 = Disagree; 3.50 – 4.49 = Agree; 4.50 – 5.00 = Strongly Agree

H2: There is no significant relationships between working environment, teamwork, diversity of employees, and organizational satisfaction.

2. Methodology

2.1 Research design

This study used a descriptive-correlational design of research with the survey as its primary instrument for data gathering. With a descriptive study, an investigator aims to describe a characteristic or a certain phenomenon in a population. In a correlation design, the study intends to discover if there is any relationship between one or more variables within the study. Since the researcher intends to analyze and discover the relationship of the working environment, teamwork, and diversity of employees to organizational satisfaction, therefore, the mentioned research design suits the current study.

2.2 Respondents

The population for this study is employees from a local higher education institution in Central Luzon,

Philippines. The reason behind such a study is because the researcher want to conduct an initial assessment of the working conditions of the employees. This will in turn provide some benefits for both the administration and the employees in the future. There are around 200 working employees during the time of the study. And 85 employees took part in the survey which covered both the academic and administrative staff. The researcher used a purposive sampling technique. The criteria for inclusion include a full-time employee, regardless of working status (regular or contractual), with at least one year of work experience and willing to take part in the survey.

2.3 Instrument of the study

This study adapted and modified the International Public Management Association for Human Resources (IPMA-HR) Employee Attitude Surveys (2008). The modified instrument contained three parts. The first part includes the basic demographic profile of the employees. The second part contains the following variables: work environment, teamwork, and diversity of employees in the organization. The last part contains the organizational satisfaction of the

Table 3. Diversity of employees.

Statement	Mean	Interpretation
1) The institution promotes a safe environment to discuss sensitive issues.	3.99	Agree
2) The office/department has policies and programs which promote diversity and inclusion in the workplace.	4.08	Agree
3) The office/department fosters and role models an environment of respect.	4.13	Agree
4) The office/department strives to enhance awareness of cultures, values, and biases	4.14	Agree
5) The office/department promotes knowledge and learning opportunities for diversity.	4.13	Agree
6) Every individual in the office/department has equal access to the same resources needed to be successful.	4.07	Agree
Average Mean	4.09	Agree

Legend: 1.00 – 1.49 = Not Interested; 1.50 – 2.49 = Strongly Disagree; 2.50 – 3.49 = Disagree; 3.50 – 4.49 = Agree; 4.50 – 5.00 = Strongly Agree

employees. The modified instrument also went into a reliability test with the following Alpha Cronbach results of .945 for the work environment, .946 for teamwork, .946 for the diversity of employees, and .946 for the organizational satisfaction with an overall Alpha Cronbach of .949 which is a higher than the benchmark score of .70.

2.4 Statistical analysis

The study subjected gathered data into different statistical analysis using the following statistical tools: frequency and percentage for the demographic profile of the respondents, weighted mean for the responses of the respondents, t-test, and ANOVA for significant differences in the response of the respondents, and Pearson-r for a relationship between variables. To measure the responses of the employees, the study used a five (5) point Likert scale. The researcher also used the Statistical Package for Social Sciences version (SPSS) 22 to treat the data.

3. Result

This study analyzes the working environment, teamwork, and diversity of employees in a tertiary education institution in Central Luzon, Philippines. The researcher also intends to find relationships and differences among the employees in the mentioned variables. The research results are summarized below.

As shown in Table 1, which comprises the working environment of the employees, we can deduce that statement seven got the highest mean with 4.49. It has a corresponding Likert Interpretation of “agree”. But statement three on the other hand got the lowest mean score with 3.99 which corresponds to a Likert interpretation of “agree” also. All in all, the average mean for the working environment of the employees is 4.25 which falls under the Likert scale interpretation of “agree”. This only means that the employees involving in the study have almost the same range of perspectives on how they perceive their working environment.

Table 2 presents the teamwork capacity of the employees. As observed, the highest mean score belongs to statement 4 with 4.36 with a corresponding interpretation of “agree”. On the other hand, statement three possessed the lowest mean score with 4.01 with an interpretation of “agree”. In summary, the average mean of the teamwork effort of the employees is 4.22 which constitutes a Likert interpretation of “agree”. This means that the employees somehow work harmoniously in the organization with the perspective of being a team player.

Table 3 presents the diversity of employees in the organization. We can deduct that the highest mean score belongs to statement four with 4.14. This corresponds to the Likert scale interpretation of “agree”. Although, statement one shows the lowest mean score of 3.99 which also resembles the same interpretation of “agree” in the Likert scale. To sum up, the average mean for diversity of employees is 4.09 which constitutes a Likert interpretation of “agree”. This means that the organization is well aware of the ideas of diversity and inclusion of employees and promotes opportunities to all who can benefit from it.

Table 4 presents the organizational satisfaction of the employees. As observed, we can deduct that the highest mean goes to statement five with 4.49 with a corresponding Likert interpretation of “agree”. On the other hand, statement one got the lowest mean score with 4.31 which is interpreted as “agree” on the Likert scale. The average mean score is 4.38 which falls under the Likert interpretation of “agree”. It is therefore inferred that the employees are satisfied with their status of work with the necessary variables involved and mentioned from the previous tables.

For table 5, it represents the result of the t-test and analysis of variance of the four variables involved in the study. As seen, in the department, there is no significant difference in the four variables in the study. For the age, there is a significant result shown in teamwork since the F-value is 2.718 with a corresponding p-value of .05 which is equivalent to the alpha significant value of .05. For the civil status, there is a

Table 4. Organizational satisfaction of employees.

Statement	Mean	Interpretation
1) I am satisfied with my job.	4.31	Agree
2) I feel positive about working for the office/department.	4.33	Agree
3) I feel that I am as productive as I can be.	4.35	Agree
4) I am motivated to do good work.	4.41	Agree
5) I am committed to achieving the goals of the office/department for diversity.	4.49	Agree
Average Mean	4.38	Agree

Legend: 1.00 – 1.49 = Not Interested; 1.50 – 2.49 = Strongly Disagree; 2.50 – 3.49 = Disagree; 3.50 – 4.49 = Agree; 4.50 – 5.00 = Strongly Agree

Table 5. Significant differences in the responses of the employees.

Profile	Environment	Team Work	Diversity	Satisfaction
Department	0.011	0.621	0.768	0.176
Age	1.781	2.718*	2.652	0.756
Sex	1.170	-0.756	0.227	0.762
Civil Status	5.207*	0.898	2.807	0.945
Educational Attainment	2.608*	1.400	1.689	0.854
Employment Status	2.688	0.988	3.462*	2.226
Years in Service	2.245	4.395*	5.201*	0.804
Salary	3.432*	2.669*	3.145*	2.012

*p < .05

significant difference involved in the working environment since the F-value is 5.207 with a corresponding p-value of .007 which is lower than the alpha significance level of .05. For the educational attainment, there is also a significant difference for the working environment since the F-value is 2.608 with a p-value of .023 which is significant at the alpha level of .05. For the employment status, there is a significant difference in diversity since the F-value is 3.462 with a p-value of .020, significant at alpha .05 levels. For years in service, there are significant differences in teamwork and diversity. This is because their F-values of 4.395 and 5.201 with corresponding p-values of .003 and .001 respectively. Their p-values are lower than the alpha level of significance of .05. For the salary, there are significant differences in the work environment, teamwork, and diversity. Since the F values are 3.432, 2.669, and 3.145 with the corresponding p-values of .012, .038 and .018 respectively. The p-values are lower than the alpha level of significance of .05.

Table 6. Correlation matrix between variables and organizational satisfaction.

	1	2	3	4
1) Working Environment	1			
2) Team Work	.610**	1		
3) Diversity	.557**	.496**	1	
4) Organizational Satisfaction	.526**	.521**	.474**	1

**p < .05

environment, teamwork, diversity, and organizational satisfaction. We see that the working environment, teamwork, and diversity showed a positive and direct relationship to organizational satisfaction. This is so since the r-values are .526 for the work environment, .521 for teamwork, and .474 for diversity. All r-values are lower than the alpha level of significance at .05. This means that employees' working environment, teamwork, and diversity significantly correlates with organizational satisfaction.

4. Discussion

The current study provided a general perspective of the employees working in academic settings. Thus, the working environment, teamwork, and diversity can have varying and interesting results.

Some studies considered that working environment has a direct effect on improving a teacher's performance and self-efficacy [2] [23]. Regarding to the result, the study found that employees agreed on the different statements that covered the perception of an employee towards the working environment. With this, a study by a group of researchers exposed that the effects of used workspaces were extensive in their study [3]. Another parallel study stated that working environment and training have a significant effect on employee performance [1]. Also, another group of investigators explained that the availability of working environments relates to job attitudes and the vitality of employees in the organization [24]. Facility management simplifies managing and operating facilities of higher education institutions [25].

Table 6 shows the relationship between the work

In the teamwork of employees, the current study showed that employees agreed that teamwork prevails among them in the organization. We can justify this with the uniform responses of the employees in the survey. In connection to this, an organization should have an active working team that works together to achieve organizational goals [9]. Also, another study provided a program fit for improving teamwork [10]. Intrinsic characteristics of teams act on a dynamic capability [26].

In terms of diversity of employees in the organization, and overall response of “agree” from the employees manifested such extent. This means that there is a diverse community of employees within the organization. Parallel to the result of the study, there are the result of a study showing that the perception of diverse employees towards workforce diversity is positive and related to organization performance [12]. The research observed the same on the responses of the employees in the survey. In another study, a review documented the impact of gender on merger outcomes [27]. Also, job satisfaction relates to diversity [13] and promoting diversity can help break down cultural barriers [17]. Besides, there is a relationship between diversity-oriented human resource practices and the work engagement of employees [22]. However, leaders are less articulate to remove barriers to inclusion in the organization [14]. Retention, through benefits and health insurance policies, affects diversity management in the private sector [28].

For organizational satisfaction, the employees stated that they agree on the precept of being satisfied with the organization proposals. Concerning this, a study showed evidence of the mediating effect of diversity on the relationship between job satisfaction and commitment of employees [13]. Besides, the transition to greater diversity has affected performance because of adjustments in team dynamics [17]. A positive relationship between career satisfaction and diversity management practice exists [16]. Another result from a tandem of researchers stated that 18% of their respondents’ performance is influenced by other factors not included in their study [1]. Moreover, a group of researchers depicted the workplace flourishing negatively predicted the intention of employees to leave [29].

5. Conclusion

Based on the result of the study, the researcher presents the following conclusions: (1) The employees “agree” in all the statements regarding their working environment, teamwork, and diversity. For the organizational satisfaction of the employees, they also have the same response. (2) There are significant differences found in the three mentioned variables. The study found significant differences in teamwork when classified according to age, years in service, and

salary; work environment in terms of civil status, educational attainment, and salary; and diversity in terms of employment status, years in service, and salary. (3) There are positive and direct relationships between work environment, teamwork, diversity, and organizational satisfaction.

Finally, the researcher recognized that the three mentioned variables namely, working environment, teamwork, and diversity of employees also have a certain relationship between them. Although the study only mentioned the possibility of relating these three variables with the organizational satisfaction of the respondents, it came out that all of the four have elements of relationships. Therefore, all of them play particular effects on one another in the organization.

6. Recommendation

Before going to the recommendations, the researcher also presents the limitations of this study. First, the coverage of the study, the researcher only considered one institution for this paper. Thus, this is a potential area of improvement. Second, the sample, the more respondents, the better. Also, consider the diversity of the respondents for more interesting results. Third, statistical inferences, the study can go beyond the relationship perspective and proceed to a more complex statistical computation as necessary. Lastly, the variables, future researchers can add more variables to study with organizational satisfaction.

Based on the aforementioned results of the study, the study provides the following recommendations:

- 1) Sustain or maintain a good and viable work environment for employees by providing an ambient and conducive workplace.

- 2) Strengthen the personality development of every employee. This is to combat or counteract the negative impact of co-workers surrounding them and create prevalence of workplace bullying and other work-related issues and concerns.

- 3) Sustain the teamwork morale in the workplace. This is important to have a harmonious working relationship among the employees which can be done through annual or biannual team building or employees’ retreat activities.

- 4) Provide essential professional development programs for all employees to strengthen their capabilities and work attitudes in the service of both the institution and the community itself.

- 5) Enhance the reward system and promotion schemes of the employees to enhance a fresh perspective and objectives for each employees’ life goals.

- 6) Create an environment of stress-free and healthy mental awareness among employees to prevent or avoid being stressed-out or burnout leading to poor performance or employee resignation.

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Guidelines for enhancing potential and strength to the ONESQA network centers

Yongyouth Yaboonthong^{1,*}

¹Educational Administration, Faculty of Education, Chiang Mai University, Chiang Mai, Thailand

Abstract

Four objectives of this research were to: 1) synthesize the components and indicators; 2) investigate the factors supporting the potential and strength; 3) formulate guidelines; and 4) verify guidelines for enhancing potential and strength for the ONESQA network centers. The key informants consisted of administrative committee of the ONESQA network centers, relevant agencies, and school administrators as service receipt agencies. Instruments used were an online focus group discussion, an online workshop, a synthesis form, a questionnaire, and a verification form. Data were analyzed by frequency, percentage, mean, standard deviation, content analysis, and inductive summary. The research results were as follows: 1) components and indicators of the ONESQA network centers with potential and strength consisted of 7 components with 52 indicators and the confirmative results of correction and appropriateness were overall at the highest level; 2) the factors supporting the potential and strength for the ONESQA network centers were overall both internal and external at the highest level; 3) the guidelines for enhancing potential and strength for the ONESQA network centers consisted of 3.1) objectives, 3.2) methods and activities for enhancing divided by the organization's excellent processes into 6 aspects, and 3.3) achievement conditions for implementing guidelines; and 4) the verification results for accuracy, suitability, and feasibility were overall at a high level in all aspects.

Keywords: guidelines, potential and strength, ONESQA network centers

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1. Introduction

According to the Office of the Council of State [1] in Part 10 involving with Public Participation Policy in Section 87 defined the State to act in compliance with the public participation policies to encourage and support public participation in the decision making process with respect to politics, economic and social development planning and the provision of public services. Therefore, the Office for National Education Standards and Quality Assessment (Public Organization) (ONESQA) [2] had established the Memorandum of Understanding (MoU) with universities on September 13, 2019 to determine roles of the ONESQA network centers as follows: 1) Organize a meeting of the ONESQA center board committee at least once a quarter and report that meeting's resolution to the ONESQA every quarter; 2) report on the operational results and receipt – payment of the ONESQA network centers every quarter within 15 days from the end of each quarter in accordance with the format and guidelines prescribed by the ONESQA; 3) promote, support, make an understanding, and be a learning resource center concerning internal quality assurance and external quality assessment for educa-

tional institutions at all levels; 4) follow up and report the performance of the external assessors of the ONESQA to meet the quality of the QC 100 policy correspondingly with the coordination for cooperation of the ONESQA; 5) support personnel training and development related to the development of educational quality assurance correspondingly with the coordination for cooperation of the ONESQA, 6) follow up to report on the situation of movement in driving educational quality assurance, 7) disseminate, publicize, and raise awareness concerning the external quality assessment of the ONESQA through various communication channels; and 8) others as the coordination for cooperation of the ONESQA.

The Office for National Education Standards and Quality Assessment network centers plays a role in accordance with the Memorandum of Understanding (MoU) in order to share some important workloads of the ONESQA and settle in regions in Thailand. If the ONESQA network centers have the potential and strength, the quality of education will be assisted more efficiently and effectively.

From the statement was mentioned above, as a researcher, a faculty lecturer in educational administration major of undergraduate and graduate levels, and as a vice president of the Chiang Mai university network center who has realized on the coordination

*Corresponding author; email: yongyouth.y@cmu.ac.th

for cooperation of the ONESQA; there should be guidelines for enhancing the potential and strength for the ONESQA network centers. Therefore, if this research has been successfully completed, the ONESQA network centers will be able to apply these guidelines for enhancing the potential and strength for the ONESQA network centers in order to be ready for cooperation to develop the better educational quality assurance as the authority of the ONESQA. It could share, help, and preserve the culture for the benefits of assurance, increasing confidence in the development of educational quality of schools. Moreover, the ONESQA center board committee has higher potential to drive a higher quality of education in Thailand.

2. Research Questions

2.1 What are the results of synthesizing the components and indicators concerning potential and strength of the ONESQA network centers?

2.2 What are the factors supporting the potential and strength for the ONESQA network centers?

2.3 What should be the guidelines for enhancing the potential and strength for the ONESQA network centers?

2.4 What are the results of verifying guidelines for enhancing the potential and strength for the ONESQA network centers?

3. Research Objectives

3.1 To synthesize the components and indicators concerning potential and strength of the ONESQA network centers.

3.2 To investigate the factors supporting the potential and strength for the ONESQA network centers.

3.3 To formulate guidelines for enhancing the potential and strength for the ONESQA network centers.

3.4 To verify guidelines for enhancing the potential and strength for the ONESQA network centers.

4. Definitions

The researcher defines terms used in this research as follows:

4.1 Enhancing potential and strength refers to mobilization approach of personnel and existing materials of the ONESQA and the university as the network centers of the ONESQA. Therefore they have stability and strength to play roles and functions to create innovation by improving the existing good sectors and adding the lacking sectors in order to management of the ONESQA network centers efficiently. The achievement of collaborative missions of both the

ONESQA network center and the ONESQA according to the determined vision results in continually effective education in Thailand.

4.2 Potential of the ONESQA network centers refers to the abilities of each ONESQA network center demonstrating in various aspects: 1) having clear objectives, goal, and organizational structure; 2) having good organizational culture; 3) having work patterns; 4) having the management committee and secretary of the ONESQA network centers who have knowledge, skills, and ability to work towards the collaborative determined goals; 5) having good communication and modern database ready to use; 6) having a correct financial management system to reduce costs and risks and to make a realization on the success in monetary and financial flows; 7) being a learning organization; 8) having continuous research and development; and 9) having good image and reliability.

4.3 The strength of the ONESQA network centers refers to the ability of the of the ONESQA network centers to cope with the severe changes and to do the assigned duties with its full potential, as well as to create innovation for the quality assurance continuously causing the ONESQA network centers and the ONESQA to be the acceptable and sustainable organizations. There are indicators as follows: 1) communicating to service recipients through symbols; 2) having the chairman and management committees who recognize traditional missions, strength, and determination of the ONESQA network centers establishment, as well as increase potential by innovating and creating new things; 3) maintaining potential of teamwork at all levels; 4) driving the ONEAQA network centers with an excellent system and being flexible to handle any situations; and 5) performing roles and functions with continuously advanced and sustainable manners.

4.4 Factors supporting building potential and strength of the ONESQA network centers refer to the causes or characteristics of the environment that support the ONESQA network centers to perform its mission effectively and efficiently. The internal and external factors are as follows: 1) Internal factors consist of 1.1) strategy, 1.2) structure, 1.3) system, 1.4) management style, 1.5) staff, 1.6) skill of the management committee, and 1.7) Share value. 2) External factors consist of 2.1) customers (C), 2.2) politics (P), 2.3) environment, economic (E), 2.4) society, culture, value (S), and 2.5) technology (T).

4.5 Guidelines for enhancing potential and strength to the ONESQA network centers refer to methods, procedures and activities for enhancing potential and strength to the ONESQA network centers to perform its duties according to the defined objectives efficiently and effectively. The guidelines consist of the following parts: 1) objectives, 2) methods for organizing activities based on six aspects of excellent organizational processes, 3) conditions for success of implementing the guidelines derived from the study of the compo-

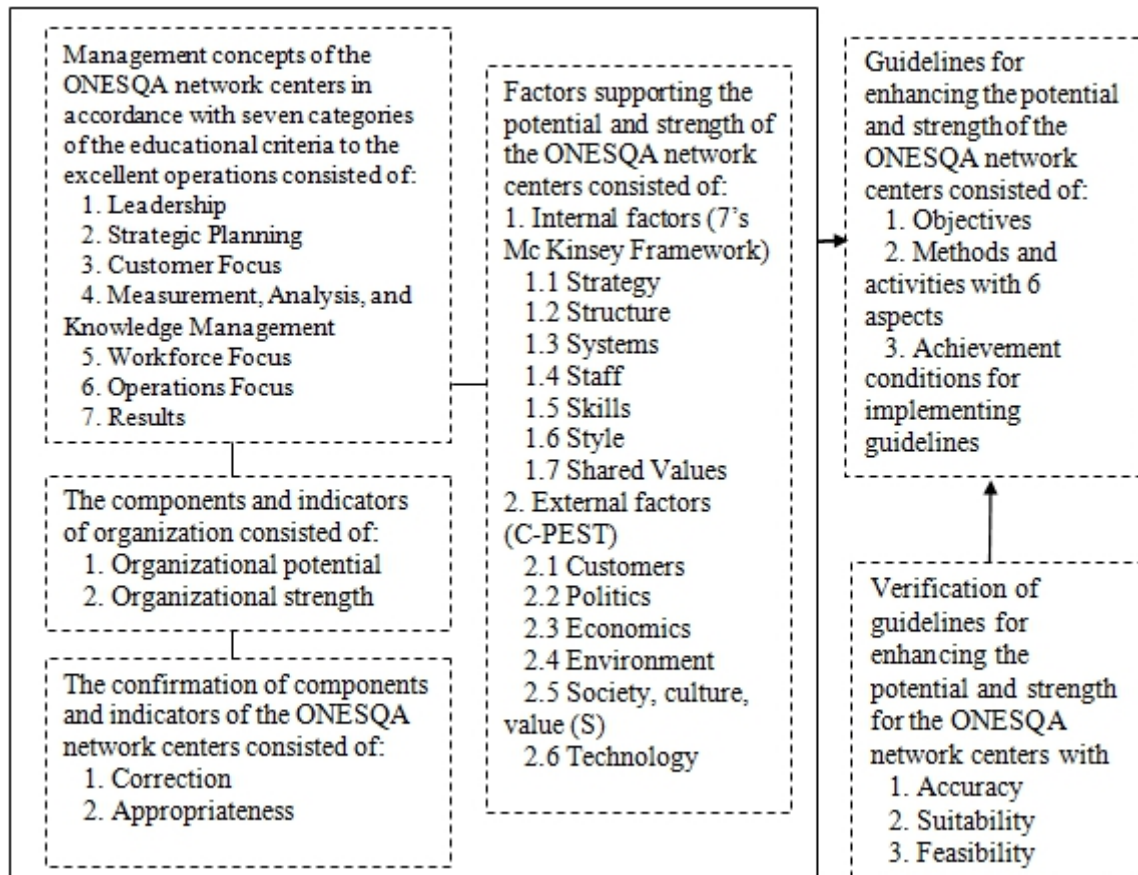


Figure 1: Research framework.

nents and indicators of the potential, and for building potential and strength of the ONESQA network centers. The study of factors supporting to the strength, drafting and verification of guidelines for empowering and strengthening the ONESQA network centers is set the criteria for making decision at an average of 3.51 or higher.

5. Materials and Methods

The research process was divided into four phases as follows:

Phase 1: Synthesizing the components and indicators concerning the potential and strength of the ONESQA network centers, divided into two steps:

Step 1.1: The researchers studied the documents, articles, and related researches, both Thai and abroad, for synthesizing the components and indicators based on the selected criteria concerning the organizations with excellence, potential, and strength. The instrument used was a content synthesis form. Data were analyzed by summarizing into issues.

Step 1.2: The components and indicators of the ONESQA network centers with potential and strength were confirmed. Key informants were twelve experts in the online focus group discussion selected by purposive sampling, and the instrument used was a con-

firmed form and summary. Data were analyzed by frequency, percentage, mean, and standard deviation.

Phase 2: Investigating the factors supporting the potential and strength of the ONESQA network centers. Key informants were divided into three groups, consisting of thirty-one stakeholders, four directors or acting directors, twenty-six committees from thirteen centers, and a head of mission promotion and development relation. The instrument used was a questionnaire. Data were analyzed by frequency, percentage, mean, and standard deviation.

Phase 3: Formulating guidelines for enhancing the potential and strength of the ONESQA network centers, divided into two steps as follows:

Step 3.1: The guidelines for enhancing the potential and strength of the ONESQA network centers were studied. The key informants, selected by purposive sampling, consisted of administrators of the educational institutions and committees of the quality assurance system development, totaling five respondents. The instrument used was an unstructured interview. Data were analyzed by content analysis and inductive reasoning.

Step 3.2: The guidelines for enhancing the potential and strength of the ONESQA network centers were formulated. The key informants consisted of presidents, vice presidents, representatives, and sec-

Table 1. Results of synthesizing the components and indicators based on the selected criteria concerning the organizations with excellences, potential, and strength.

Components	Indicators
1. Leadership	<p>1.1 The ONESQA center board committees define vision, mission, goals, shared values, expectations, value creation, and the successful image of the ONESQA network centers in accordance with the ONESQA policy / university and the contexts of each center.</p> <p>1.2 The ONESQA center board committees create a working atmosphere to encourage working in accordance with the relevant laws and regulations, morality, ethics, organizational culture to be consistent with the contexts of the areas, responsibilities, and regions.</p> <p>1.3 The ONESQA center board committees promote research and development, as well as create an innovation for the centers' management.</p> <p>1.4 The ONESQA center board committees supervise and monitor the centers' operations to achieve mission and their assigned roles, review, assess, and continually improve the efficiency of all operations focus.</p> <p>1.5 The ONESQA center board committees have good leadership, personality, and human relations. They also have emotional intelligence and are a good role model for those relevant persons.</p> <p>1.6 The ONESQA center board committees have good and efficient communication to create knowledge, understanding, and friendship between customer focus and all levels of stakeholders.</p> <p>1.7 The ONESQA center board committees have responsibilities for the centers' management by using the principles of good governance and protect for the advantages of the relevant universities / schools / faculties at all levels, as well as the public society.</p> <p>1.8 The ONESQA center board committees have effective and efficient risk management.</p>
2. Strategic Planning	<p>2.1 The ONESQA network centers have an environmental analysis of the centers to identify strengths, weaknesses, opportunities, and threats completely, accurately, and clearly.</p> <p>2.2 The ONESQA network centers have a process for preparing an organizational development plan and a participatory action plan.</p> <p>2.3 The ONESQA network centers have an organizational development plan and an action plan focusing on the vision, mission, and both proactive goals in accordance with the mission, to be flexible for adjusting with situations.</p> <p>2.4 The ONESQA network centers inform the vision, mission, roles, and action plan, and the responsible persons are clearly defined the workload.</p> <p>2.5 The ONESQA network centers have continuously monitored the progress and assessed the implementation of the action plan.</p> <p>2.6 The ONESQA network centers report the operational results, analyze strong points, development points, and the better development guidelines, and present to the ONESQA every quarter.</p>
3. Customer Focus	<p>3.1 The ONESQA network centers serve customers with full of abilities.</p> <p>3.2 The ONESQA network centers listen to customers' opinions and requirements through various channels for improving the quality of centers.</p> <p>3.3 The ONESQA network centers conduct comments / requirements and suggestions to operate and improve the operations of their roles to meet customers' requirements and satisfaction appropriately and on time.</p> <p>3.4 The ONESQA network centers conduct both customers' satisfaction / dissatisfaction evaluation in various services and use the evaluation results to improve and develop the centers' operations.</p> <p>3.5 The ONESQA network centers have techniques and methods for building friendly relations to engage customers to use the service continuously.</p> <p>3.6 The ONESQA network centers have methods for obtaining both desirable and undesirable information affecting the operation of the centers and related agencies at all levels for adjustment and better improvement in a timely situations.</p>
4. Measurement, Analysis, and Knowledge Management	<p>4.1 The ONESQA network centers design the measurement and evaluation methods, as well as appropriate implementation of the action plan.</p> <p>4.2 The ONESQA network centers have participatory and well-rounded monitoring and assessment of the operation.</p> <p>4.3 The ONESQA network centers analyze the evaluation results, reflection, and feedback of the past operations and use the results to support decision making in the future.</p> <p>4.4 The ONESQA network centers have methods for acquiring data and information of the ONESQA and customers that is correct, complete, up-to-date, and can be used in accordance with the requirements.</p> <p>4.5 The ONESQA network centers have abilities for handling data and information appropriately and safely through information and communication technology (ICT).</p> <p>4.6 The ONESQA network centers have a knowledge management system to create new knowledge that is correct, reliable, and timely to the requirements and changes, as well as be accessible by customers.</p> <p>4.7 The ONESQA network centers disseminate new knowledge and best practices to customers of other centers and interested parties.</p>
5. Workforce Focus	<p>5.1 The ONESQA network centers have appropriate criteria and methods for recruiting and appointing the ONESQA center board committees.</p> <p>5.2 The ONESQA network centers give priority to factors affecting the performance, engagement, and satisfaction of the ONESQA center board committees and customers.</p> <p>5.3 The ONESQA network centers have an organizational culture that helps workforce have good operation, motivation, cooperation, and efficient communication.</p> <p>5.4 The ONESQA network centers integrate objectives, empowerment, decision-making, working, as well as diverse thinking of workforce in cooperating to create educational innovation.</p> <p>5.5 The ONESQA network centers have criteria, methods for measuring and evaluating the performance of the centers' secretaries, and give praise and reward in reasonable and appropriate occasions to build morale.</p> <p>5.6 The ONESQA network centers develop a learning system or methods for the ONESQA center board committees and centers' secretaries to keep up with the situations and changes.</p> <p>5.7 The ONESQA network centers assess the engagement with the ONESQA network centers of the ONESQA center board committees and centers' secretaries through various methods and use the results for managing the centers efficiently.</p> <p>5.8 The ONESQA network centers study the requirements and necessities for the development of knowledge, skills and competencies of the ONESQA center board committees and centers' secretaries, including supporting and promoting the appropriate development.</p> <p>5.9 The ONESQA network centers prepare the readiness and develop the potential and various abilities of the ONESQA center board committees and centers' secretaries with a variety of methods appropriately and continuously.</p> <p>5.10 The ONESQA network centers assign of the ONESQA center board committees in accordance with their abilities and expertise in order to achieve their working goals and benefits for customers.</p> <p>5.11 The ONESQA network centers have planned and succession processes, knowledge, and organizational culture for the new ONESQA center board committees for smooth operation of the centers.</p>
6. Operations Focus	<p>6.1 The ONESQA network centers stipulate the competencies of the ONESQA network centers that link to vision, missions and assigned roles.</p> <p>6.2 The ONESQA network centers prepare essential regulations, including design the main work system and supporting activities clearly.</p> <p>6.3 The ONESQA network centers have work processes that are consistent with the customers' requirements and create new methods by applying ICT appropriately to achieve work efficiency and effectiveness.</p> <p>6.4 The ONESQA network centers have a system to improve work processes, set the direction to drive educational innovation to achievement according to the customers' requirements.</p> <p>6.5 The ONESQA network centers get the environment and working atmosphere ready for service, prepare for safety, and prevent accidents, disasters and emergencies for work efficiency.</p> <p>6.6 The ONESQA network centers control overall operating costs efficiently.</p> <p>6.7 The ONESQA network centers focus on linking all relevant operational processes and coordinate with collaborative networks and other agencies for the efficient operations.</p>

Table 1. Results of synthesizing the components and indicators based on the selected criteria concerning the organizations with excellences, potential, and strength. (Cont.)

Components	Indicators
7. Results	7.1 The customers have knowledge, understanding, and good attitudes towards the external quality assessment and quality-oriented working culture.
	7.2 The ONESQA board committees have knowledge, skills, competencies, and good attitudes to perform duties in accordance with the assigned roles.
	7.3 The ONESQA board committees have good relationship and are friendly with one another and with customers.
	7.4 The customers feel warm and confident in quality assurance operations, and have morale in performance.
	7.5 The customers are satisfied with the centers' services.
	7.6 The ONESQA network centers manage budget efficiently and flexibly within the determined framework of relevant budget and laws.
	7.7 The ONESQA network centers have guidelines for the development of the ONESQA network centers systematically, continuously, and concretely to benchmark with other organizations.

retaries of the ONESQA network centers, totaling twenty-seven respondents. The instruments used were a workshop agenda and a meeting record. Data were analyzed by content analysis and inductive reasoning.

Phase 4: Verifying guidelines for enhancing the potential and strength of the ONESQA network centers. The key informants were fifteen specialists of organizational administrators concerning educational quality assurance and the cooperative network administration, selected by purposive sampling. The instrument used was a verifying form of accuracy, suitability, and feasibility. Data were analyzed by frequency, percentage, mean, and standard deviation.

6. Results and Discussion

The results of this research were as follows:

Phase 1: Results of synthesizing the components and indicators of the potential and strength of the ONESQA network centers was divided into two steps:

Step 1.1: Results of synthesizing the components and indicators based on the selected criteria concerning the organizations with excellences, potential, and strength consisted of 7 components, 52 indicators as follows: 1) 8 indicators of leadership, 2) 6 indicators of strategic planning, 3) 6 indicators of customer focus 4) 7 indicators of measurement, analysis, and knowledge management 5) 11 indicators workforce focus 6) 7 indicators of operations focus and 7) 7 indicators of results. They are presented in Table 1.

In terms of leadership, strategic planning, customer focus, measurement, analysis, and knowledge management, workforce focus, operations focus, and results; these were in accordance with Chamas *et al.* [3] who studied the quality assurance management model for world-class standard excellence. It was found that a process for school quality management comprises 1) organization leadership, 2) strategy, 3) students and stakeholders, 4) measurement, analysis and knowledge management, 5) workforce, 6) operations, and 7) the results.

Step 1.2: The confirmative results of the potential and strength of the ONESQA network centers by twelve experts in terms of correction and appropriateness were overall at the highest level, as shown in Table 2.

This may be because the researcher defined the scope of content from educational quality in accordance with National Institute of Standards and Technology (NIST) [4] stated concerning Education Criteria for Performance Excellence (EdPEX) for excellent operations based on the framework of Malcolm Baldrige National Quality Award (MBNQA) criteria, which was the prototype of the Thailand Quality Award (TQA). The EdPEX criterion was a framework that could be viewed or thought as 'Organizational Profile' and allowed for the leap and sustainable development from the real institutions' main focus. This criterion had been applied in Thailand since 2002, and adjusted to Thai version and named as Thailand Quality Award (TQA). The value of the criterion allowed educational institutions to develop to excellence and increase competitiveness by the great jumps.

Phase 2: Results of investigating the factors supporting the potential and strength of the ONESQA network centers were divided into two parts:

Part 2.1: Results of investigating the internal factors supporting the potential and strength of the ONESQA network centers in terms of 7's McKinsey framework [5] were overall at the highest level. When considering each factor and ranking the average scores from the highest to the lowest, the results were as follows: the aspects of staff and skills of the ONESQA center board committees had equally average, followed by system and style. The aspect with the lowest average was strategy. This was not in consistent with Phubet and Choocheep [6] who studied a model of work-integrated learning to prepare educational administrators for Thailand. In terms of system, the model system and mechanism concerning committee was appointed to manage activities according to standards.

Part 2.2: Results of investigating the external factors supporting the potential and strength of the ONESQA network centers in terms of C-PEST were overall at the highest level. When considering each factor and ranking the average scores from the highest to the lowest, the aspects were politics (P), technology (T), customers (C), and the aspect with the lowest average score was society, culture, value (S).

It was different from the study of Phongthun *et al.* [7] who studied concerning the administration model of civil state schools to improve the quality of educa-

Table 2. Mean, standard deviation, and meaning of correction and appropriateness of the components and indicators of the potential and strength of the ONESQA network centers.

Components and indicators of the potential and strength of the ONESQA network centers	Level of correction			Level of correction		
	n = 12		Meaning	n = 12		Meaning
	\bar{X}	S.D.		\bar{X}	S.D.	
1. Leadership	4.67	0.33	Highest	4.69	0.39	Highest
2. Strategic planning	4.82	0.35	Highest	4.63	0.57	Highest
3. Customer focus	4.86	0.29	Highest	4.86	0.29	Highest
4. Measurement, analysis, and knowledge management	4.77	0.36	Highest	4.73	0.46	Highest
5. Workforce focus	4.67	0.49	Highest	4.55	0.54	Highest
6. Operations focus	4.80	0.34	Highest	4.70	0.48	Highest
7. Results	4.77	0.46	Highest	4.75	0.48	Highest
Total average	4.76	0.32	Highest	4.70	0.39	Highest

tion. The supporting factors of administration, materials, budget, and personnel were at a high-level.

Phase 3: Results of formulating guidelines for enhancing the potential and strength of the ONESQA network centers were as follows:

1) Objectives are goals or the achieved results for those relevant persons of the ONESQA network centers to be used as a prototype for enhancing the potential and strength of the ONESQA network centers.

2) Methods and activities used for enhancing the potential and strength of the ONESQA network centers are an important part of the guidelines or the ways to set a prototype into action. The organizational excellent process was divided into 6 areas as follows: 2.1) leadership, 2.2) strategic planning, 2.3) customer focus, 2.4) measurement, analysis, and knowledge management, 2.5) workforce focus, 2.6 operations focus, and 2.7) results. Each area showed the action of whom, what, and how.

3) Achievement conditions for implementing guidelines: whether the guidelines will lead to success or in accordance with the objectives? How the potential and strength of the ONESQA network centers should be enhanced? These guidelines will enable the ONESQA network centers to cooperatively develop education quality assurance and to support the adjustments of the new approach of educational quality assurance to appropriateness.

According to the development of learning in the 21st. century, Manasanan *et al.* [7], as the education quality development of the education reform guideline in 21st. century, it needs to have well management system. In case of Narumon and Thanarat [8] the study revealed that if focusing on the internal participation academic network, the administration by network member acceptance created agreement on academic network, resource management, and openness for cooperation of agencies or outsiders from public and private sectors; and covered network partner creation with higher education institutions to strengthen academic.

Phase 4: Results of verifying guidelines for enhancing the potential and strength of the ONESQA network centers, it was found that the accuracy, suit-

ability, and feasibility of the guidelines were overall at a high level in all aspects. This was in line with Narumon and Thanarat [9] who found that the results of suitability assessment and feasibility assessment of guidelines were overall at a high level.

7. Conclusion

From the results of the study, it was found that the developed guidelines for enhancing the potential and strength of the ONESQA network centers can be used to develop educational quality assurance to more efficiency and effectiveness, as well to support the adjustments of the new approach for more appropriate quality assurance. Nevertheless, to achieve the quality assurance of education in Thailand, the ONESQA center board committees and relevant parties have to realize the importance that the ONESQA network centers has truly committed to the development of quality assurance according to the Memorandum of Understanding (MoU).

8. Recommendations

8.1 The components and indicators can be applied in the suitable contexts of each center by preparing action plans in accordance with the roles in the Memorandum of Understanding for efficiency and effectiveness.

8.2 The factors supporting the potential and strength should come from the internal factors more than the external factors. Therefore, the ONESQA center board committees and relevant parties should speed up to develop the internal factors in terms of methods, roles of educational institutions and development coordination by focusing on all levels and all types of customers.

8.3 The developed guidelines for enhancing the potential and strength of the ONESQA network centers can be adapted to the contexts of each center which may have different administrative characteristics, including duration of establishment, executive committee, and centers' secretaries, and other contextual conditions.

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