

The Development of a Supervision Model for Educational Institution Quality Development Using Professional Learning Community Networks (PLCNs) in Thailand

Thaworn Wetchan
Nakhon Si Thammarat Rajabhat University

Nopparat Chairueang
Nakhon Si Thammarat Rajabhat University

Chusak Ekpetch
Nakhon Si Thammarat Rajabhat University

This mixed-method study set out to study, develop, and evaluate an educational supervision model and its use in a professional learning community network (PLCN) for use by education supervisors in Southern Thailand's Nakhon Si Thammarat Secondary Educational Service Area Office (NSTSESO). Additionally, a needs assessment using the $PNI_{Modified}$ formula for evaluation was conducted on 191 individuals who were participating in the model's development. The sample was obtained using both purposive sampling ($n=18$) and stratified random sampling ($n=173$). Questionnaire development was assisted by six experts, with another 12 experts joining a connoisseurship seminar to check the questionnaire's item suitability. Results from the three-phase study showed that the supervision model for quality development consisted of supervision Planning, Action, Reinforcing, Evaluation, and Feedback (PAREF Model). When ranked in importance from the supervisor survey data, they were planning, action, feedback, evaluation, and reinforcing, respectively. Assessment results of using the supervision model found that the aspect of promoting administrative and management processes of school administrators was ranked highest at an excellent level.

Keywords: educational supervision, educational institute quality development, Nakhon Si Thammarat, professional learning communities, Thailand

INTRODUCTION

Education is very important to the development of a nation, with various countries undertaking both recent and radical education reforms within their basic education systems (Al-Kiyumi & Hammad, 2020; Khamkerd, 2015). In Thailand, the National Education Act B.E. 2542 (1999) which was revised later in 2010 outlined what was to be expected from educators, their supervisors, and institutions moving forward. Specific aspects targeted for development in Section 6 included helping each Thai citizen become a more perfect human. This process took on a holistic focus as it included the mind, the body, a person's intellect,

and increasing knowledge. Other aspects include being virtuous, moral, and happily living with those that surround them.

However, since Thailand's National Education Act was written, there has been an amazing global change in information communication technology (ICT), learning management systems (LMS), digital devices, and cloud-based platforms used in education. For better or worse, these same technologies have become a type of 'salvation' in a world faced with a global pandemic forcing the closure of traditional forms of classroom education and the movement to online/distance learning. As 'face-to-face' learning became taboo, the race to online learning became the order of the day (UNESCO, 2020).

As such, a critical need arose to enhance existing online forms of education using non-traditional forms of pedagogies such as flipped classrooms, blended learning, problem-based learning, or gamification in an 'online learning environment' (OLE) (Kummanee et al., 2020). This then simultaneously required the deployment of new forms of educational management tools and a collaboration mechanism that was either expanded online or newly created where none existed previously (Ditsuwan & Sukkamart, 2022).

However, when one delves into the depths of these ideas, one will find that none of these things are 'new,' it is just that they have been forced on many who were wary of new technologies, were limited in their personal and institutional abilities to afford or access them or found little to no support from their supervisors or government ministries or local educational offices.

Fortunately, even before COVID-19, Thailand's education leadership saw the usefulness and need for the development of what some have called *professional learning communities* (PLCs) (Ditsuwan & Sukkamart, 2022; DuFour, 2004, 2007) or *continuous learning communities* (SLCs) (Kenan Foundation Asia, 2019). It has also been stated that PLCs are not a course one takes, but instead, today has become an ICT/online method to empower change within schools and their local communities at all levels for all stakeholders (DuFour, 2004, 2007 Ontario Principals' Council, 2009; Tanyarattanasrisakul, M. (2017). Wannapiroon and Pimdee (2022) have also added that PLCs support the essential nature of community-level lifelong development systems in flexible competency-based education (CBE). Thus, educators need to focus on what is being taught, with teachers at the center of a learner's emotional, cognitive, and behavioral development (Kanawapee et al., 2022).

Thus, local community support and instructional leadership become the backbones of successful and effective PLCNs (Bouchamma et al., 2014). In Thailand's southern province of Nakhon Si Thammarat, the Secondary Educational Service Area Office (NSTSESO) which operates as an educational agency under Thailand's Office of the Basic Education Commission (OBEC) is responsible for education management. As such, the NSTSESO has the authority to formulate district policies, educational development plans, and educational standards in line with national policies and the needs of local communities. The NSTSESO is also responsible for coordinating, promoting, supporting, controlling, supervising, monitoring, and evaluating the results of 71 educational institutions and their management to ensure that each meets established basic education standards and quality. However, recent studies and their reports have suggested that not all schools are taking concrete action to reach the stated goals and additionally lack innovation to implement the programs.

Therefore, the authors felt that a study would be useful to identify which elements would be useful in the creation of a supervision model (Boonmak & Sitthisomboon, 2021) that was focused on educational institution development through the use of PLCN (Bouchamma et al., 2014). It was also believed that to better increase the effectiveness of the study, a needs assessment of the local administrators and supervisors should be undertaken (Chainut et al., 2019).

Furthermore, a variety of approaches or development methods can be used, with educational supervision as an important mechanism for improving the quality of education. It has also been stated that educational supervision is one aspect of educational administration which provides help in *better teaching and learning situation* development. Barr and Burton have also stated that educational supervision is the foundation upon which all programs for teaching improvement must be built (Frase, 2005).

Because educational supervision is a process that focuses on obtaining quality products through collaboration between stakeholders, several aspects must be addressed simultaneously. These are *people development, learner development, coordination development, and finally, moral development.*

Yangsompoi et al. (2021) have also added that a critical component in supervision participation models is the creating *awareness, influence, direct experiences, reflection*, and the creation of *PLCs*.

Research Objectives

- 1) To study, develop, and evaluate the state of supervision of educational institutions in Southern Thailand's Nakhon Si Thammarat Secondary Educational Service Area Office (NSTSESO).
- 2) To conduct a needs assessment analysis concerning educational quality supervision on supervisors and administrators in Southern Thailand's NSTSESO.
- 3) To develop an educational quality supervision model and its use within a professional learning community network (PLCN).
- 4) To evaluate the educational quality supervision model's use.

CONCEPTUAL FRAMEWORK

Educational Supervision (ES)

From the study of concepts, principles, and related research, it was found that ES is one way to directly help improve the quality of education and the quality of teachers (Yangsompoi et al., 2021). Supervision is also a joint activity between executives and teachers which is one strategy that can help teachers transform learning by improving teacher performance. Glickman (2004) has also pointed out that ES must be appropriate and consistent and take into account the differences between the staff. These include areas such as experience, development levels, abstract thinking capabilities, and commitment. ES educational supervision is also a human development process that involves collaborative processes with teachers and educational personnel, which should also be focused on the creation of relationships between supervision and supervision recipients.

Other researchers have pointed out that ES is an essential if not critical process in raising student quality, which should be focused on the learner, which is the product of teaching and learning management. For this reason, the supervision organization aims to develop work to organize better teaching and learning activities. This is the result of working together, sharing responsibility, and sharing learning from each other.

Yet others have reminded us that ES involves the need for continuous training as change involves keeping up with developments in the field (Bouchamma & Michaud, 2014). However, if training is lacking supervisors can lose their way in how to perform ES, thus increasing uncertainty that can lead to role ambiguity (Zepeda & Kruskamp, 2007).

Finally, supervision by lower-level administrators is very important because administrators are close and work daily with their teachers, students, and educational personnel. Therefore, they know the problems better than outsider supervisors and are often better prepared to improve, develop, and support the efficient teaching and learning management of educational institutions. This then can result in higher student achievement. and students having desirable characteristics.

Professional Learning Community (PLC) Networks

Tanyarattanasrisakul (2017) has remarked that PLCs can be effective if educators and their community stakeholders participate in a caring community that shares their values and visions. Other studies have pointed out that PLC advantages include small educator teams working toward common goals, problem identification, solution examination, learner motivation, increased teacher job satisfaction, and higher morale (Kanawapee et al., 2022; Kenan Foundation Asia, 2019).

Additionally, Kunlasomboon et al. (2015) have reported that 21st-century education requires the ability for *'equal access'* which is achievable according to the Thai government through the creation of *'School Learning Communities'* (Mala, 2019). SLC teacher participation involves the sharing, observation, and listening to that develops learning diversity in both the learner and the teacher, which then can lead to high-quality education (Kerdtip & Angkulwattanakit, 2023).

In Japan, in the 1990s Professor Manabu Sato envisioned an SLC in which all education stakeholders learned together through school reform participation (Sato, 2016, 2018). This has then led to the establishment of over 4,000 SLCs in Japan (Lim, 2015), whose concept is constantly expanding to other Asian countries and has become recognized as a powerful method for enacting school reforms. Moreover, Murase (2018) has reported that the attraction of Japanese SLCs in their initial growth phases was due to SLCs allowing for teacher autonomy while seeking innovative vision. Moreover, the author states that the vitality of SLC is supported by three prominent theories, including Dewey's *Theory of Democracy*, Vygotsky's *Theory of Collaborative Learning*, and Schön's *Theory of Reflective Practitioner*.

Needs Assessment (NA)

Numerous studies have also explored how needs change and how they are met over a person's lifetime. One such method is through the use of a modified priority needs index ($PNI_{Modified}$) formula developed and modified by the Thai scholars Wongwanich and Wiratchai (2005). From the formula's use, an estimation can be done of an individual's 'needs' through a systematic process of determining 'gaps between the current condition and the 'gap' (Hongcharoen, 2020). Using this needs assessment (NA) process, 191 supervisors and administrators from 13 southern Thai schools were asked for their opinions concerning the *intended condition* (I) and their *desired condition* (D). The formula for calculating the outcome of this process was as follows:

$$PNI_{Modified} = (I - D) / D \quad (1)$$

PNI = priority needs index

I = the mean for the desired outcome

D = the mean for the actual results or success

This method of analysis is similar to another study that measured 400 undergraduate students in Bangkok (Chainu et al., 2019), and reported that a NA is an excellent tool for gap measurement between the current and desired states. It also plays an essential part in an individual's meta-skills development in preparing individuals for the future. Thus, the data was integrated into the supervision's model preparation. Also, Sittisak et al. (2022) have pointed out that NAs are useful in helping teachers acquire learning management skills and developing competency in developing learning management plans, technology use, media learning measurement, and using evaluation tools. Phetthong (2022) has also conducted a needs analysis comparing the desired status and current using $PNI_{Modified}$ of academic affairs administrative officials in Surat Thani, Thailand's the Office of Secondary Education Service Area 11. The researcher's findings suggested that there was a promotion for the sharing of research knowledge among other schools.

RESEARCH METHODS

Development of the study's supervision model used a mixed methods approach and consisted of three phases as depicted in Figure 1.

Phase 1: Six experts were assembled to review the results of the literature and document analysis and the subsequent development of a questionnaire for use by the educational institution's supervisors and administrators concerning their needs in executing their jobs. Content validity assessment was undertaken on each questionnaire item with the evaluation measured using the index of item-objective congruency (IOC) (Daengneam et al., 2023), with items having values of $\leq .50$ deleted or revised (Taherdoost, 2016).

Furthermore, a survey on the state of supervision of educational institutions and the desired 'needs' or needs assessment of the educational supervisors and administrators was also conducted out of a potential population of 370 individuals (Table 1). The sample size determination used *Krejcie* and Morgan's (1970) table with the sample group collected using purposive sampling (Groups 1 and 3) and stratified random sampling (Group 2).

TABLE 1
NEEDS ASSESSMENT INFORMATION PROVIDERS

Group	Information Provider	Population	Sample
1	NSTSESO Executives	27	9
2	NSTSESO School Administrators	334	173
3	NSTSESO Director of Communications	9	9
Totals		370	191

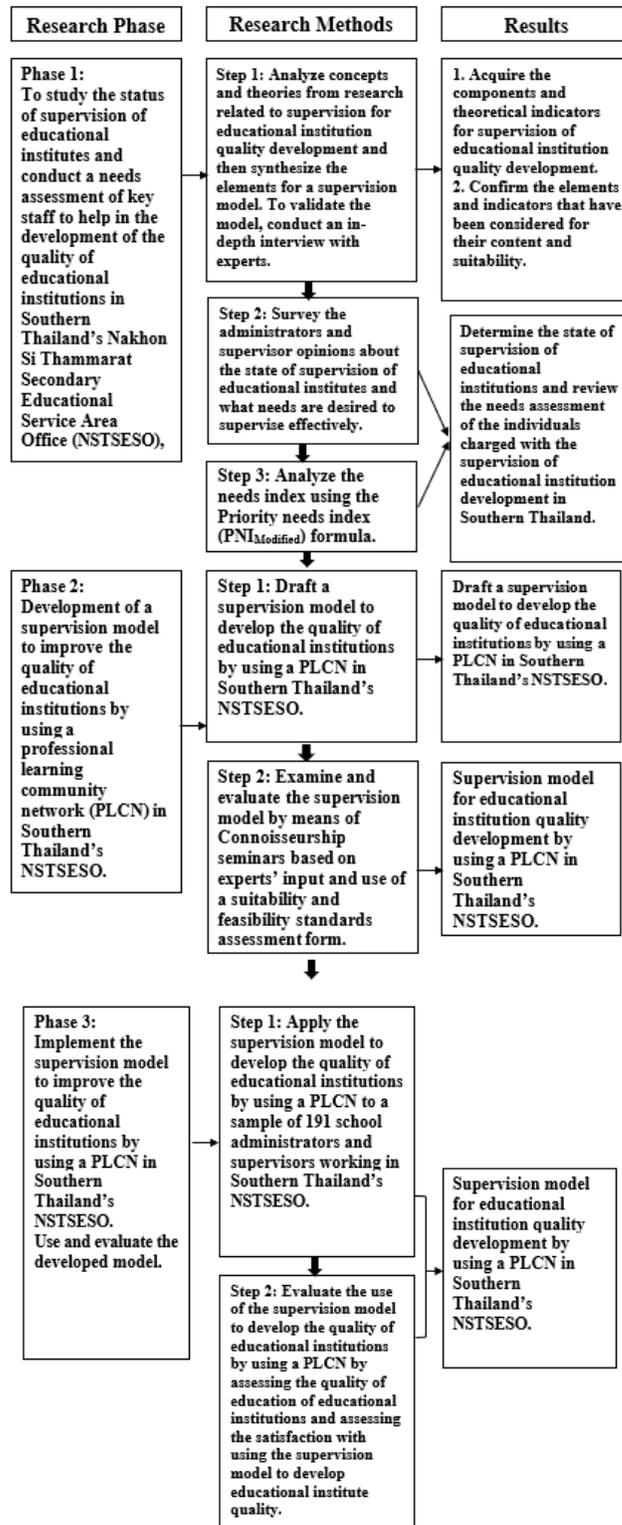
Phase 2 - Development of the supervision model then was reviewed by the study's team members whereupon a preliminary model draft was undertaken. The further evaluate the appropriateness of the language usage, 12 further experts were convened in an expert-based Connoisseurship seminar which made suggestions to improve it to be more complete and to check its suitability (Keativipak, 2017). The 12 experts were selected using purposive sampling and consisted of the following:

- 1) Three academic experts from universities who were academic advisors, administrators, or supervisors.
- 2) Three educational administrators from NSTSESO with outstanding achievements in educational administration.
- 3) Four national award-winning administrators from Thai secondary education institutions.
- 4) One Director of Supervision, Monitoring, and Evaluation from the Educational Management Group.
- 5) One representative from the Monitoring, Auditing, Evaluation, and Supervision Committee took the results of the analysis to develop a questionnaire supervision form for educational institution quality development by using a PLCN.

Phase 3: Implementation of the supervision model was undertaken using 13 NSTSESO schools during the first semester of the academic year 2022. Evaluation of the model's use and satisfaction used a 5-level assessment scale. Purposive sampling was used to select the following 38 educational quality assessment informants:

- 1) One Educational Administrator from NSTSESO.
- 2) Thirteen inter-campus presidents.
- 3) Ten Educational Supervisors.
- 4) One Monitoring, Evaluation, and Supervision Committee member.
- 5) Thirteen academic teacher representatives.

FIGURE 1
THE RESEARCH PROCESS PHASES, METHODS, AND RESULTS



RESULTS

Needs Assessment (NA) Informants' Characteristics

Table 2 shows the basic information from the NA informants who indicated that 80.10% were men, with 84.29% 50 years old or older. Education levels were high with 95.29% having a Master's degree with the remaining respondents indicating they had a Ph.D. Moreover, 90.58% indicated they were school administrators with 100% indicating they had 15 years or more of work experience.

TABLE 2
NEEDS ASSESSMENT OF INFORMANTS' CHARACTERISTICS

Basic Information		Number of Respondents (n=191)	
		Number	%
1	Gender		
	Male	153	80.10
	Woman	38	19.90
2	Age		
	less than 40 years old	-	-
	40 - 49 years old	30	15.71
	50 and up	161	84.29
3	Education Level		
	Master's Degree	182	95.29
	Ph.D.	9	4.71
4	Position		
	Education Executive	9	4.71
	School Administrator	173	90.58
	Group Director	9	4.71
5	Work Experience		
	Less than 10 years		
	10 - 15 years		
	More than 15 years	191	100

Needs Assessment (NA) Results

The results of the supervisor and administrator need assessment as a whole found that the state of supervision of educational institutions was at a moderate level ($\bar{x} = 3.16$, $SD = .44$), while the desired level for overall supervision of educational institutions was at the highest level ($\bar{x} = 4.62$, $SD = .51$).

The PLCN for NSTSESO was found to have an over PNI of 0.55. When the order of needs was ranked from the highest to the least, supervision planning (PNI =0.50) was most desired, followed by action (PNI =0.48), then feedback (PNI =0.48), evaluation (PNI =0.45), and finally, reinforcing (PNI = 0.37), respectively.

Supervision Model Development Results

The results from the development of the supervision model consisted of three parts. These were:

- Part 1: The introduction consisted of 1) principles of supervision, 2) supervision model objectives, and 3) Goals.
- Part 2: The supervision model for quality development consisted of supervision *Planning, Action, Reinforcing, Evaluation, and Feedback* (PAREF Model) (Figure 2).
- Part 3: The final part consisted of 1) coordination, supervision, and follow-up with the professional learning community network (PLCN), 2) success conditions, and the evaluation results of the supervision model found that the feasibility assessment results for both suitability and

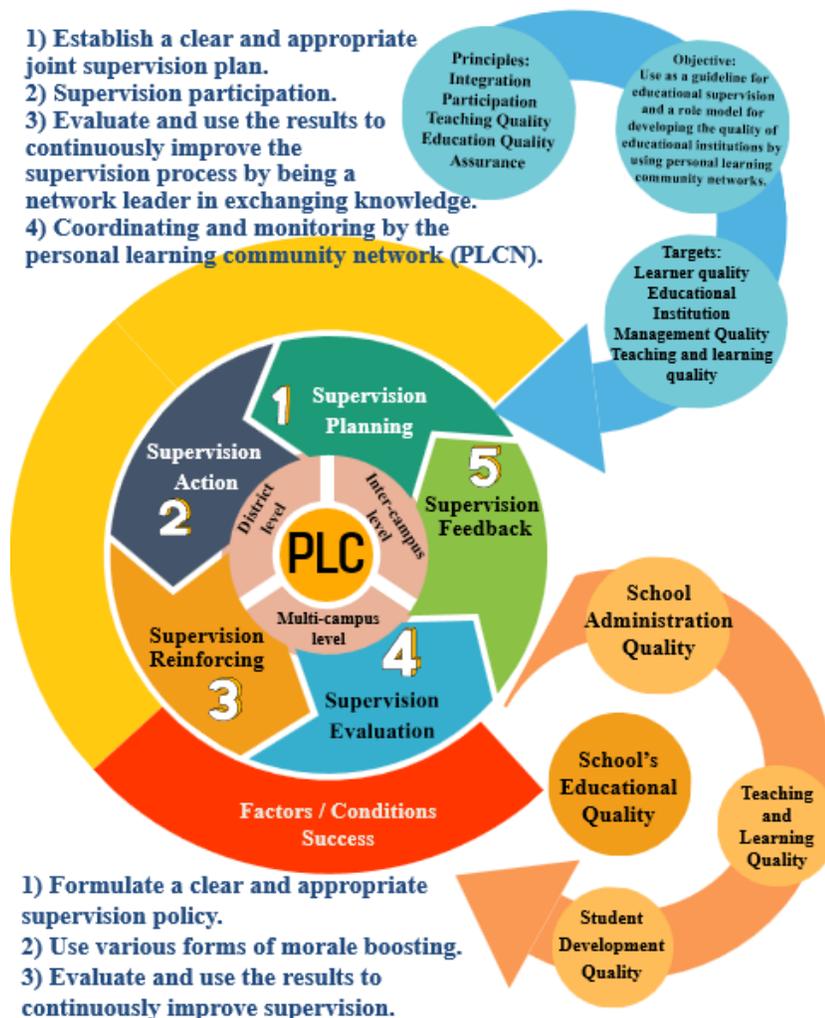
utilization overall showed that the results of the utilization analysis were at the highest level ($\bar{x} = 4.55$, $SD = .50$). The results of the analysis of suitability ($\bar{x} = 4.39$, $SD = .49$) and feasibility ($\bar{x} = 4.29$, $SD = .47$) were also at high levels.

Educational Quality Assessment

The results of using the supervision model to develop the quality of educational institutions and the evaluation of the developed model had the following results:

- 1) Educational quality assessment results of educational institutions using the supervision model found that the overall average ($\bar{x} = 4.50$, $SD = .51$) was at a good level. When each aspect was considered, it was found that *promoting administrative processes and management of school administrators* was at an excellent level ($\bar{x} = 4.52$, $SD = .51$), followed by *learner quality development promotion* at an excellent level ($\bar{x} = 4.51$, $SD = .48$), and the aspect of *promoting teaching and learning that emphasizes student-centeredness* at a good level ($\bar{x} = 4.46$, $SD = .53$).
- 2) The results of the satisfaction assessment of administrators found that the overall average ($\bar{x} = 4.35$, $S.D. = .64$) was at a high level.

FIGURE 2
SUPERVISION MODEL FOR EDUCATIONAL INSTITUTION QUALITY DEVELOPMENT USING PROFESSIONAL LEARNING COMMUNITY NETWORKS (PLCNs)



DISCUSSION

The researchers offer this discussion based on the study's findings.

Study Results

The results from the study of Thai supervision of educational institutions in Southern Thailand's NSTSESO and the needs assessment conducted on 191 supervisors and administrators revealed that the level of overall educational institute supervision was at a moderate level. However, the desired level of educational institute supervision conditions was at the highest level. This is because educational institute supervision is beneficial to administrators in terms of curriculum development planning, teaching methods, media selection, and evaluation processes. Moreover, the development of school personnel and administration is beneficial to teachers and school personnel in developing their knowledge and abilities and developing more efficient teaching techniques.

The findings of this study are also consistent with Beach and Reinhartz (2000) who stated that educational supervision aims to support teachers with goals for long-term professional development and growth, which then has a significant effect on the quality of teaching and learning. Also, productivity and development depend on a system based on trust and support for teachers' efforts to improve classroom teaching effectiveness, with educational supervision essential for a teacher's professional growth. Although the teachers are well trained, teachers must still constantly improve themselves while working in real-world situations. Therefore, educational supervision is essential in assisting teachers in organizing activities and keeping teachers up-to-date in ever-changing social and technological changes.

Regarding technological change, although school learning communities (SLC) is not a new concept, how it is accomplished has changed radically in a COVID-19 pandemic world. Fortunately, ICT, digital devices, the Internet, and cloud-based learning and collaboration tools such as Zoom, now facilitate interaction where face-to-face meetings are not possible. Moreover, according to Kerdtip and Angkulwattanakit (2023) SLCs assist with the management of student learning while creating a body of knowledge that allows learners to gain hands-on experience and create new skills, emphasizing participation among all educational stakeholders. Parents and communities have access to student work which helps create an atmosphere of listening to each other, both between students and between teachers. This interaction helps build the SLC which then can create a professional learning community (PLC) network (Anchunda, 2021; Kanawapee et al., 2022). In addition, school administrators play a role in systematic guidance, training, and supervision.

Development Results

The results of the development of a supervision model to improve the quality of educational institutions consisted of three parts. These were Part 1's 1) supervision principles, 2) objectives of the supervision model and 3) Goals.

Part 2's supervision process for quality development consisted of supervision *Planning, Action, Reinforcing, Evaluation, and Feedback* (PAREF Model). These ideas are consistent with Boonmak and Sitthisomboon (2021) who also developed a supervision model and determined there should be five aspects within it. These included principles, objectives, contents, procedures, and evaluation.

Part 3's 1) coordination, supervision, and follow-up by the PLCN and 2) the supervision model's guidelines are appropriate and should be implemented. These ideas are consistent with Bouchamma et al. (2014) in Canada in which it was stated that PLCs are dictated by their mission, their value, and their vision.

Connoisseurship Seminar Results

Results of the inspection and evaluation of the supervision model by way of seminars based on experts (connoisseurship) and use of suitability, feasibility, and utilization standard assessment form, found that the results of the feasibility, appropriateness and utilization assessment of the supervision model for educational institution quality development as a whole was at the highest level.

PLCN Assessment Results

Assessment results of using the supervision model to develop educational institution quality and a PLCN showed that overall, it was at a good level ($\bar{X}=4.50$, $SD=.51$). When considering each aspect it was found that the aspect of *promoting administrative and management processes of school administrators* was ranked highest and at an excellent level ($\bar{X}=4.52$, $SD=.51$), followed by the *promotion and development of student quality* ($\bar{X}=4.51$, $SD=.xx$) at an excellent level and the *promotion of teaching and learning that focuses on students as a priority* at a good level ($\bar{X}=4.46$, $SD=.53$).

Supervisor and Administrator Satisfaction

The results of the analysis of information on the *satisfaction of administrators and those in charge of educational supervision work* of educational institutions towards the use of the supervision model to develop the quality of educational institutions found that the overall satisfaction average was at a high level ($\bar{X}=4.35$, $SD=.64$). This is because in conducting supervision according to the supervision model to develop the quality of educational institutions, the model was deployed using the participation process of the PLCN.

CONCLUSION

This mixed-method study set out to study, develop, and evaluate an educational supervision model and its use in a professional learning community network (PLCN) for use by education supervisors in Southern Thailand's Nakhon Si Thammarat Secondary Educational Service Area Office (NSTSESO). Additionally, a needs assessment using the $PNI_{Modified}$ formula for evaluation was conducted on 191 individuals who were participating in the model's development. The sample was obtained using both purposive sampling ($n=18$) and stratified random sampling ($n=173$). Questionnaire development was assisted by six experts, with another 12 experts joining a connoisseurship seminar to check the questionnaire's item suitability. Results from the three-phase study showed that the supervision model for quality development consisted of supervision *Planning, Action, Reinforcing, Evaluation, and Feedback* (PAREF Model). When ranked in importance from the supervisor survey data, they were planning, action, feedback, evaluation, and reinforcing, respectively. Assessment results of using the supervision model found that the aspect of *promoting administrative and management processes of school administrators* was ranked highest at an excellent level. Results of the inspection and evaluation of the supervision model by way of seminars based on experts (connoisseurship) and use of suitability, feasibility, and utilization standard assessment form, found that the results of the feasibility, appropriateness and utilization assessment of the supervision model for educational institution quality development as a whole was at the highest level. The results of the analysis of information on the *satisfaction of administrators and those in charge of educational supervision work* of educational institutions towards the use of the supervision model to develop the quality of educational institutions found that the overall satisfaction average was at a high level

SUGGESTIONS FOR APPLYING THE RESEARCH RESULTS

- 1) The research results should be used as information to help formulate policies and promote and support internal supervision to improve the quality of educational institutions.
- 2) The PAREF Model's five main components of *Planning, Action, Reinforcing, Evaluation, and Feedback* were evaluated by numerous experts as excellent steps in educational supervision development. When combined with a professional learning community network (PLCN), the process is even further enhanced. Users are advised to establish the PLCN first and use it as the foundation for the model's employment.
- 3) Organizations that apply the PAREF supervision model with the PLCN in helping with the development of educational institution quality will raise awareness and empower their teachers to see the importance together. Also, both the PAREF Model and the PLCN will help in the

organization of a variety of development activities and encourage teachers to participate in thinking, planning, cooperating, and participating in a beneficial evaluation process.

SUGGESTIONS FOR FUTURE RESEARCH

1. It is suggested that a follow-up study be undertaken on the factors affecting the efficiency and effectiveness of supervision to improve the quality of educational institutions.
2. It is suggested that a follow-up study be undertaken on a study of the results after applying the PAREF supervision model to develop the quality of educational institutions.
3. It is suggested that a follow-up study be undertaken on the sustainability of the teacher's learning management quality after the PAREF Model use for educational institution quality development.

STUDY LIMITATIONS

The study can be considered limited due to the research only being conducted in a single province in Thailand and a single education district.

ACKNOWLEDGEMENT

The authors would like to thank Ajarn Charlie for his assistance with English language editing and proofing.

REFERENCES

- Al-Kiyumi, A., & Hammad, W. (2020). Preparing instructional supervisors for educational change: Empirical evidence from the Sultanate of Oman. *SAGE Open*, 10(2), 2158244020935905. <https://doi.org/10.1177/2158244020935905>
- Anchunda, H.Y. (2021). A teacher development model based on coaching and Professional Learning Community (PLC) to enhance foreign teachers' effective teaching ability in Thailand. *Kasetsart Journal of Social Sciences*, 42(4), 932–939. Retrieved from <https://tinyurl.com/yry4zve6>
- Beach, D.M., & Reinhartz, J. (2000). *Supervisory Leadership: Focus on Instruction*. Allyn and Bacon.
- Boonmak, V., & Sitthisomboon, M. (2021). The development of integrated supervision model to enhance active learning competency of teacher of basic education. *Journal of Education Naresuan University*, 23(2), 269–280. Retrieved from <https://tinyurl.com/ukmk5vds>
- Bouchamma, Y., & Michaud, C. (2014). Professional development of supervisors through professional learning communities. *International Journal of Leadership in Education*, 17(1), 62–82. <https://doi.org/10.1080/13603124.2013.778332>
- Bouchamma, Y., Kalule, L., April, D., & Basque, M. (2014). Implementation and supervision of the professional learning community: Animation, leadership and organization of the work. *Creative Education*, 5, 1479–1491. <https://doi.org/10.4236/ce.2014.516165>.
- Chainut, A., Suwanjan, P., Pupat, P., & Pimdee, P. (2019). Needs assessment for the global-mindedness of vocational certificate students under the Office of the Vocational Education Commission. *Mediterranean Journal of Social Sciences*, 10(2), 25–33. <https://doi.org/10.2478/mjss-2019-0020>
- Daengneam, B., Deebhijarn, S., & Saengnoee, A. (2023). Integrative medicine and health training for Thai general practitioners (GP): A SEM Analysis. *Journal of Higher Education Theory and Practice*, 23(1). Retrieved from <https://articlegateway.com/index.php/JHETP/index>
- Ditsuwan, S., & Sukkamart, A. (2022). School Management Factors Affecting Student Quality: A Case Study of the Thai Triam Udom Suksa Pattanakarn School Group. *Journal of Higher Education Theory and Practice*, 22(12). <https://doi.org/10.33423/jhetp.v22i12.5472>
- DuFour, R., & Eaker, R. (2009). *Professional learning communities at work to best practices for enhancing students' achievement*. Solution Tree Press.

- Frase, L. (2005). Refocusing the purposes of teacher supervision. *The SAGE Handbook of Educational Leadership. Advances in Theory, Research, and Practice*, pp. 430–455.
- Glickman, C.D. (2004). *Supervision of Instruction*. Allyn and Bacon.
- Hongcharoen, T. (2020). The priority needs of school management in the special economic zone, Sa Kaeo Province, Based on the student desirable characteristics. *Educational Management and Innovation Journal*, 3(1), 40–60. Retrieved from <https://tinyurl.com/5t2eb2md>
- Kanawapee, C., Petsangsri, S., & Pimdee, P. (2022). The importance of sharing, caring and collaboration in Thai teacher competency development through online professional learning communities. *Journal of Positive Psychology and Wellbeing*, 6(1), 3674–3689. Retrieved from <https://tinyurl.com/bdd9spm9>
- Keativipak, K. (2017). Connoisseurship technique in design. *Rajabhat Journal of Science and Humanities and Social Sciences*, 18(2), 254–266. Retrieved from <https://tinyurl.com/43bfy27w>
- Kenan Foundation Asia. (2019, July 25). *How professional learning communities are transforming education in Thailand*. Retrieved from <https://tinyurl.com/4rw9rjww>
- Kerdtip, C., & Angkulwattanakit, R. (2023). Thai school learning communities (SLC): An exploratory factor analysis. *Journal of Higher Education Theory and Practice*, 23(2). Retrieved from <https://articlegateway.com/index.php/JHETP/index>
- Khamkerd, T. (2015). Discussion of Educational Supervision 30 Experiences of Educational Supervision at the Educational Area. *Journal of Wittayachan*, 114(8), 20–23.
- Krejcie, R.V., & Morgan, D.W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610.
- Kummanee, J., Nilsook, P., & Wannapiroon, P. (2020). Digital learning ecosystem involving STEAM gamification for a vocational innovator. *International Journal of Information and Education Technology*, 10(7). <https://doi.org/10.18178/ijiet.2020.10.7.1420>
- Kunlasomboon, N., Wongwanich, S., & Suwanmonkha, S. (2015). Research and development of classroom action research process to enhance school learning. *Procedia-Social and Behavioral Sciences*, 171, 1315–1324. <https://doi.org/10.1016/j.sbspro.2015.01.248>
- Lim, E.W. (2015). A review lesson study for learning community (LSLC). *International Journal for Lesson and Learning Studies*, 4(4), 418-420. <https://doi.org/10.1108/IJLLS-02-2015-0009>
- Mala, D. (2020, November 12). Govt sets targets to transform learning. *Bangkok Post*. Retrieved from <https://tinyurl.com/2p8rnf3>
- Murase, M. (2018). History and theory of School as Learning Community. In *Lesson Study and Schools as Learning Communities* (pp. 14–25). Routledge.
- National Education Act B.E. 2542. (1999). Retrieved from <https://tinyurl.com/5x849bxn>
- Phetthong, P. (2022). The participation in academic administration of administrators and teachers engaged in schools of the Association Committee Under the Secondary Education Service Area at Surat Thani, Chumphon. *Journal of Academic and Innovation in Social*, 4(2), 43–60. Retrieved from <https://tinyurl.com/5n99ebbp>
- Sato, M. (2016). Enhancing Collaborative Learning: Challenges of School as Learning Community. *Keynote for EDUCA2016*. October 12-13, Thailand.
- Sato, M. (2018). Spread and progress of Schools as Learning Community in Asia. In *Lesson study and schools as learning communities* (pp. 3–13). Routledge.
- Sittisak, R., Sukkamart, A., & Kantathanawat, T. (2022). Thai Pre-Service Teacher Learning Management Model Development for Online Learning and Coaching. *Journal of Higher Education Theory and Practice*, 22(12). <https://doi.org/10.33423/jhetp.v22i12.5460>
- Taherdoost, H. (2016, August 10). *Validity and reliability of the research instrument; How to test the validation of a questionnaire/survey in research*. Retrieved from <https://tinyurl.com/ykd5pyf8>
- Tanyarattanasrisakul, M. (2017). The professional learning community: Practices guidelines for teachers. *RMUTSB Academic Journal for the Humanities and Social Sciences*, 2(2), 214–228. Retrieved from <https://tinyurl.com/2wdjrj64>

- UNESCO. (2020, April 21). *Education Minister Nataphol Teepsuwan on COVID-19 strategy in Thailand*. Retrieved from <https://tinyurl.com/4kev72z5>
- Wannapiron N., & Pimdee, P. (2022). Thai undergraduate science, technology, engineering, arts, and math (STEAM) creative thinking and innovation skill development: A conceptual model using a digital virtual classroom learning environment. *Education and Information Technologies*. <https://doi.org/10.1007/s10639-021-10849-w>
- Wongwanich, S., & Wiratchai, N. (2005). A follow-up and evaluation of the government educational reform results based on the state fundamental policy and the national act. *Journal of Research Methodology*, 18(1), 93–124.
- Yangsompoi, P., Chaijaroen, S., Jackpeng, S., & Jedaman, P. (2021). Developing model of participation supervision to promoted the competencies in learning management innovation design as higher-order thinking. *Journal of Positive Psychology and Wellbeing*, 5(3), 839–854. Retrieved from <https://tinyurl.com/mww73m59>
- Zepeda, S.J., & Kruskamp, B. (2007). High school department chairs—Perspectives on instructional supervision. *The High School Journal*, 90(4), 44–54. Retrieved from <https://www.jstor.org/stable/40364192>