Journal of Research and Curriculum Development, Vol.13, Issue.2, July – December, 2023
ISSN: 2730-387X (Online) https://so03.tci-thaijo.org/index.php/jrcd/index

Coaching and Mentoring Supervision for Enhancing Learning Management Competency for Mathematics Internship Students

Thanya Kadroon*
Faculty of Education, Suratthani Rajabhat University, Suratthani, Thailand 84100
*Corresponding author e-mail: thanya.kad@sru.ac.th

Received: September 14, 2023
Revised: October 26, 2023
Accepted: November 21, 2023

Abstract: The objectives of this research are as follows: (a) to study the approaches of coaching and mentoring supervision in enhancing learning management competency; and (b) to assess the learning management competency of mathematics internship students. This research was conducted with a multi-case study research, including six participants who were mathematics internship students practicing in the school practicum in the first semester of the 2020 academic year in three schools in Surat Thani province. The data was collected from the learning management competency assessment form including interviews, class observations, lesson plans, and field notes. The data analysis implemented descriptive analysis and statistics consisting of arithmetic mean, percentage, and standard deviation. The research results found that coaching and mentoring supervision approaches to enhance learning management competency for mathematics internship students can be summarized into four steps, as follows: Step 1: preparation before teaching (Design); Step 2: the implementation of teaching and learning activities (Practice); Step 3, reflection after teaching (Feedback), and Step 4, improvement and development of teaching (Revise) and all six mathematics internship students had good rating scores in the assessment of the competency of learning management for both ratings. The average learning management competency assessment recorded the second time was higher than the first time for all participants.

Keywords: Coaching and mentoring supervision, Learning management Competency, Mathematics internship students

Introduction

Teaching professional experience training is the heart of the student teacher production process because it is a practical process that will help build the faith of student teachers in the teaching profession, their knowledge, and their ability to effectively perform their duties as teachers. Organizing learning activities is one of the main tasks that internship students are tasked with performing in educational institutions, as defined in the Teacher Professional Training Experience Manual. This is to give internship students the opportunity to develop themselves, be aware of the advantages and disadvantages of teaching, improve their skills to become professional teachers and readiness for future employment. Currently, the supervision process of teacher experience at the Faculty of Education and scheduled to be initiated and evaluated in school four times. The first initiation is the general examination, the second and third initiation were teaching practices, and the fourth initiative was the receipt of the evaluation documentation of the students (Faculty of Education, Surat Thani Rajabhat University, 2019). The overall supervision process and the role of the supervisor may not be sufficient and have not yet fully promoted the competency of the internship of learning management among students. This is because some teachers still lack the understanding of the role of teachers. Some teachers do not have much time to educate (Maitreephun, 2010). When considering the details through the lesson plans, including participation, observation, and organization of the learning activities in the student classroom, it was found that internship students made the effort to emphasize their importance, but there was a variety of teaching guidelines, and when faced with clumsy situations in the classroom, they often chose the most familiar and

accurate teaching methods, that is, explanations, examples, and summaries, so that the content can be taught promptly. This is because internship students lack experience or new perspectives on how to manage classroom learning, so there is a need for experienced teachers and supervisors to serve as coaches, close counselors, and mentors to encourage and support a continuous and consistent course through the period and process of the professional experience of training teachers, inside and outside the school. Creating an atmosphere of mutually friendly development will help develop students to lead to efficient learning competency development and learning management (Satjapiboon, 2017). The concept that the heart of teacher development is continuing professional development (Gordon, 2004) emphasizes an andragogical process model for learning, rather than a process model that focused on content (Content model). Guskey (2000) suggested that educational career development must have key characteristics: (1) having intentions; (2) having an ongoing operation; and (3) having a systematic operation. By definition, the development of teachers (Gordon, 2004) suggested that operations should focus on the three main components: (1) capacity building for teachers; (2) core elements; and (3) the quality of students, is the goal of development. The process model was (1) training; (2) coaching; (3) supervision; and (4) mentoring.

Coaching and mentoring are a concept of innovation that aims to develop teachers and educational staff on the basis of competency to be good, skilled, and qualified teachers, with a focus on the whole-school approach. Coaching and mentoring supervision and counselling is the interaction between the supervisors and supervisees in small groups or individuals. This continuous development is focused on sharing, self-discovery, and empowerment. The process is ideal to use with assistant teachers and internship students. They can learn from the process of sharing, guiding, and supporting systematically. Moreover, this strengthens the teaching spirit in a friendly environment that directly guides the student teachers to manage their learning management systematically (Satjapiboon, 2017). The role of mentor teachers and supervisors and the process of supervision play an important role in the development of learning management. This infers that having a mentor and an experienced coaching teacher serving as a coaching assistant, providing close counseling, mentor support, encouraging motivation throughout the course and the training process can help develop internship students to be proficient in terms of learning management competency. Therefore, this research aims to promote the competency of learning management and developing the process of teaching professional experience training of mathematics program, using the approach of coaching and mentoring.

Research methodology

This research was conducted with a multi-case study research. The data was collected from the learning management competency assessment form including interviews, class observations, lesson plans, and field notes. The process of conducting research and collecting data was as follows: (1) conducting an orientation of the case study to clarify the details of the research process and creating common understanding; (2) the Open-Approach method to the case study, as it requires training in the context of a school that uses innovation in the development of mathematics lessons; (3) assembling a case study to analyze, plan, and provide guidance on the design, management, learning, and planning of learning activities, (4) combined case studies, design, learning and management plans, and presenting a learning plan to the mentor teacher, the academic

head/deputy director of the academic affairs, and supervisors. This provides observations, suggestions, and pre-implementation edits in the classroom; (5) implemented Open-Approach method activities in schools, which is the in-class observation by the mentor, the academic head/deputy director of academic affairs, and the supervisors. In this case, one set of the learning management competency assessment form and the classroom observation form should be completed; (6) gave feedback after teaching observations to reflect on the classroom observation and find solutions to develop teaching; (7) used the case study to guide solutions for improvement and designed the learning management of upcoming lessons; (8) implemented the designed activities in the classroom by a case-study internship, which was observed and completed in the second set of the learning management competency assessment form and the classroom observation form by a mentor teacher, the academic head/deputy director of academic affairs, and supervisors; (9) gave feedback after teaching observation to reflect on the classroom observation and finding solutions to develop teaching; (10) the case-study internships summarized duties using a diary and was supervised by a supervisor once a week and 16 times in total; and (11) the case-study internships handed in the lesson plans of the first semester of the 2020 academic year of the researcher to collect and analyze the data obtained.

Case Study

The case study was conducted by six students from the Mathematics Department of the Faculty of Education at Surat Thani Rajabhat University, consisting of two males and four females, who practiced teaching in the first semester of the 2020 academic year of three schools in Surat Thani province. The schools were divided into large secondary schools, medium-sized primary schools and private schools, all of which were innovative schools that manage the mathematics classrooms through lesson study and the Open-Approach method (Inprasitha, 2022; Nohda, 2000; Kadroon, 2018)

Research tools

1. The learning management competency assessment was used to evaluate the learning management competency of internship students. The content of the assessment was divided into two aspects, the learning management process, and lesson plans. The assessment was conducted by both supervisors and mentor teachers. The assessment form was developed based on the teacher professional training experience manual by the Faculty of Education at Surat Thani Rajabhat University, in the 2019 academic year, which has been reviewed jointly by the Teachers' Experience Training Board of the Faculty of Education at Surat Thani Rajabhat University. The researchers have adjusted some points to suit the context of the research and submitted the assessment form to three experts to evaluate the consistency of the learning management competency assessment of the internship students. This assessment form has been applied to all six internship students. The assessors were the supervisors and the mentor teachers. The assessment includes 27 questions, 14 questions on the learning process, and 13 questions on the lesson plans.

2. The classroom observation form was used to record the information during the classroom observation and post-learning management reflections, which defined the questions of classroom observations in the sequence of steps of learning management based on an Open-Approach method. This form was recorded by supervisors and mentor teachers.

3. The lesson plans were designed based on the principle of an Open-Approach method, with a class learning team consisting of internship students, mentor teachers, the academic head/deputy director of academic affairs, and the supervisors working together to provide observations and suggestions that have been modified before being applied to actual teaching.

4. The post-lesson report of internship students was used to record the post-lesson results which is recorded by the internship students, where the professional experience of teachers took place.

5. The semi-structured interview forms for interviewing mentor teachers and internship students, conducting interviews by researchers.

Data Analysis

The assessment of the learning management competency of mathematics internship students are based on the purposes of research: (1) to study the approaches of coaching and mentoring supervision in enhancing learning management competency through document synthesis, school contextual studies, and semi-structured interviews; and (2) to assess the learning management competency of mathematics internship students using the learning management competency assessment form, including lesson plans and the post-lesson report of internship students. The analysis was carried out by living the analytical framework based on the teacher professional training experience manual of the Faculty of Education, Surat Thani Rajabhat University in the 2019 academic year. The data analysis implemented descriptive analysis and descriptive statistics consisting of arithmetic mean, percentage, and standard deviation.

Research results

Coaching and mentoring supervision approach, which was a key conceptual framework for defining the role of the initiator. It consists of supervisors, mentor teachers, and school administrators as instructors, supporters, and motivators throughout the process. Combined with the use of lesson study and open approaches, lesson study is a concept that lives in a ‘shared’ process at work. For shared learning through an open approach, this is a teaching approach that focuses on problem-solving and self-learning processes. In this research, it has helped develop organizational learning activities and create a space for collaborative learning among those involved in the school context. The research results show that coaching and mentoring supervision approaches can promote learning management competency for mathematics internship students. It consisted of the following four stages, as follows:

Stage 1 – Preparation before teaching (Design)

The first stage of the preparation before teaching (Design) is after the internship students receive feedback on the design and organization of an Open-Approach activities, including completion of the lesson plan, a single page plan, and a plan to use a classroom from the supervisor. The students design the mathematics learning management activities and prepares lesson plans, and sends them to the mentor teacher, the head of the academic department and a supervisor to review it and give feedback. Then the internship student improves the lesson plan before implementing it in the classroom.

Stage 2 – Implementation of teaching and learning activities (Practice)

In this stage, the internship students implemented a revised lesson plans based on the Open-Approach method in class. The mentor teacher, the academic head/deputy director of academic affairs, and the supervisors will be invited to observe the class.

Stage 3 – Reflection after teaching (Feedback)

In this stage, internship students and participants observe a class, which consists of a mentor teacher, the academic head/deputy director of academic affairs, and supervisors, join in a discussion, and reflect the results of the teaching. The reflection begins with the internship students reflecting their own class based on the objectives of the lesson together with needed improvement points followed by the mentor teacher, the academic head/deputy director of academic affairs, and the supervisors. The observers will focus on the improvement and development of the class based on the objectives of the lesson and the concepts that occur in classrooms so that the internship students can improve and develop their learning management and their lesson plans for the coming lessons.

Stage 4 – Improvement and development of teaching (Review)

In this stage, the internship students recorded points and observations from the participants, reflections and details of the class, especially work that reflects the concepts of the students in the post-lesson report. This gives students a view of the details, aspects and guidelines to improve and develop lesson plans, students and classes. It was also found that the teaching competency evaluation of the teaching experiences of students in the first semester of the 2020 academic year of all six students had an evaluation according to the criteria of the Department of Teachers' Experience, at a level of excellence (A-level score 90 - 100, score 4.00 excellent). Based on the above methods and innovations, the approach of coaching and mentoring is combined with the use of classroom innovation and Open-Approach method. It promotes competency, learning management, and classroom research for students to train in the professional experience. It can reflect progress through work processes, management of learning in classrooms, as well as the work of students, lesson plans, or teaching media.

Coaching and mentoring supervision also enhances the evaluation of learning management competency of mathematics internship students, from the first learning management competency assessment, as detailed in Table 1.

Table 1. The first learning management competency assessment of the internship students

The internship students	The first learning management competency assessment (Total: 81)				
	Mentor teachers	Supervisor	M	SD	Criteria
1	79.00	78.00	78.50	0.71	Good
2	78.00	77.00	77.50	0.71	Good
3	77.00	70.00	73.50	4.95	Good
4	77.00	67.00	72.00	7.07	Good
5	79.00	72.00	75.50	4.95	Good
6	76.00	76.00	76.00	0.00	Good

In Table 1, it was found that the first learning management competency assessment of the internship students, which was evaluated at the beginning, found that all six internship students had a good score. The first internship student had a mean score of 78.5; the second internship student had a mean score of 77.5; and the third internship student had a mean score of 73.5; the fourth internship student had a mean score of 72; the fifth internship student had a mean score of 75.5, and the sixth internship student had a mean score of 76.

The evaluation of the learning management competency of mathematical internship students, from the second learning management competency assessment, as detailed in Table 2.

Table 2. The second learning management competency assessment of the internship students

The internship students	The second learning management competency assessment (Total 81)				
	Mentor teachers	Supervisor	M	SD	Criteria
1	80.00	80.00	80.00	0.00	Good
2	80.00	80.00	80.00	0.00	Good
3	80.00	79.00	79.50	0.71	Good
4	80.00	78.00	79.00	1.41	Good
5	79.00	76.00	77.50	2.12	Good
6	78.00	76.00	77.00	1.41	Good

In Table 2, it was found that the first learning management competency assessment of the internship students, which evaluated the final, found that all six internship students were at a good level. The first internship student had a mean score of 80; the second internship student had a mean score of 80; the third internship student had a mean score of 79.5; the fourth internship student had a mean score of 79; the fifth internship student had a mean score of 77.5, and the sixth internship student had a mean score of 77. The evaluation of the learning management competency of mathematics internship students, from both learning management competency assessment forms, as detailed in Table 3.

Table 3. Learning management competency assessment of internship students

Learning management competency assessment (Total: 81)	First	Second	Criteria
The first internship student	78.50	80.00	Good
The second internship student	77.50	80.00	Good
The third internship student	73.50	79.50	Good
The fourth internship student	72.00	79.00	Good
The fifth internship student	75.50	77.50	Good
The sixth internship student	76.00	77.00	Good

In Table 3, it was found that the learning management competency evaluation of the internship students in two combined examples of the six case-study internships were at a good level, and the average learning management competency in the second time was higher than in the first time. All of these examples from Table 3 can summarize the management competency assessment of internship students the first and second time, as shown in Figure 1.

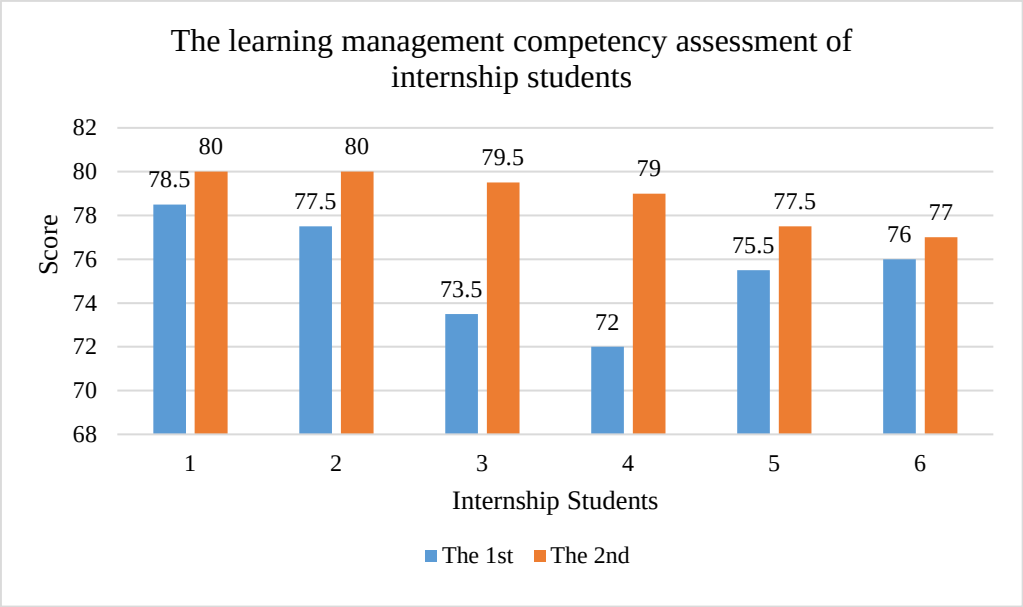

Figure 1. summarizes the learning management competency assessment of internship students.

In Figure 1, it was found that the learning management competency of the six internship students, in each study case, the second had a higher average than the first. In addition, the researchers conducted interviews with internship students, and mentor teachers after completing the innovation process using coaching and mentoring supervision. It was found that the benefits that internship students gained from the overall innovation process were as follows: the case studies were counselled in the areas of lesson planning, problem situation design, learning activities design, as well as guidelines for learning management in the classroom, the use of media to manage learning from class initiatives, each time jointly by mentor teachers, the academic head/deputy director of academic affairs, and the supervisors. This allows case studies to be able to apply to the development of their own teaching. From the point of view of teachers, the innovative process contributes to the continuous development of the case. An integrated learning activity design can bring the situation closer to students. The activity is fun and exciting, encouraging students to study mathematics. The case study can organize learning activities appropriate to students. There is an interesting teaching medium that gives students the opportunity to think. There are periodic measurements in student evaluation, as well as an appropriate ethical insert for students. In addition, the innovation process also enables mentor teachers to have a common understanding and develop an internship care and support system. The mentor teachers have experience in their careers. Therefore, mentor teachers have built friendly networks and has seen guidelines for the development of mathematics classes, including concepts for designing learning activities and creating a medium for developing the thinking processes of students. As detailed, the interviews with teachers detailed the benefits received from the teaching publicity and consulting process are as follows:

The first case study mentor teacher (personal communication, November 5, 2020) commented that the internship student had a real experience of teaching students in the classroom, had problems and solved them on his own. The mentor teacher had even more sophisticated teaching media experience.

The second case study mentor teacher (personal communication, November 5, 2020) commented that by passing the training process, the professional experience of teachers may develop the internship student as a whole. Internship students have always been aware that they are still under academic supervision. Teachers are keen to advise on many issues that mentor teachers are unable to help with. It makes students enthusiastic and creative. In the field of supervisors, there are opportunities to exchange knowledge in the organization of teaching activities, which reflects on teaching. It can be improved by both their own mentor teacher and internship students.

The third case study mentor teacher (personal communication, November 5, 2020) commented that systematic innovation can be used as a way to apply it and friendly collaboration, like sisters and brothers. Collaboration helps to develop plans, design, organize learning activities, media and innovation, so that students can successfully build their own knowledge. Furthermore, the organizer of learning activities can design learning activities.

The fourth case study mentor teacher (personal communication, November 5, 2020) commented that it was a friendly situation, including collaborating in developing a plan, designing an innovative learning activity so that students can successfully build their own knowledge and able to design effective learning activities, including the innovative type.

The fifth case study mentor teacher (personal communication, October 30, 2020) commented that it could be developed by jointly introducing and observing classes from supervisors and getting guidance on how to develop a classroom and focus effectively on the target.

The sixth case study mentor teacher (personal communication, October 30, 2020) commented that this helps the internship students to develop teaching management, teaching procedures and content. Moreover, this helps mentor teachers in developing an accurate, targeted, and effective management system.

The interviews with internship students on the benefits of the coaching and mentoring supervision process were as follows:

Internship Student One: (personal communication, November 9, 2020) commented that during the course of the 1st semester, the internship students were well advised, assisted and guided by their supervisor and mentor teacher in their career development, teachers are sharing so they understand more on the good points and points that need improvement in the professional experience of training teachers.

Internship Student Two: (personal communication, 9 November, 2020) commented that it is a good process which shows progress in his teaching career in terms of feeling ready for a future in the classroom.

Internship Student Three: (personal communication, November 9, 2020) commented that I learned from my mistakes, which leads to finding solutions and self-development; 2. Knowing their strengths and planning to apply for coming situations; and 3. Knowing what he has taught, may have some mistakes or miss some points, but the coaching and mentoring can help solve these problems.

Internship Student Four: (personal communication, November 9, 2563) commented that the supervision showed that when teaching, teachers should follow lesson plans to enable students to achieve the goals or objectives of the lesson. The Open-Approach method focuses on the students which makes the classroom more fun and stress-free.

Internship Student Five: (personal communication, November 9, 2020) commented that she was aware of a problem in teaching that she had not yet noticed, or something the teacher did not do well, in order to give feedback on the next lesson.

Internship Student Six: (personal communication, November 9, 2020) commented that the benefit of the coaching and mentoring supervision was that she was given good guidance on how to write a lesson plan, design activities, and planning teaching procedures, in which she can adapt and improve her next lesson. She wanted the supervisor to attend the class more frequently. She felt more enthusiastic than usual and the students were more engaging in the lesson.

Discussion

Coaching and mentoring supervision to enhance learning management competency for teachers consists of four stages: Stage One, Preparation before teaching (Design), Stage Two, Implementation of teaching and learning activities (Practice), Stage Three, Reflection after teaching (Feedback), and Stage Four, the improvement and development of teaching (Review). Teaching competency promotes the learning experience of teachers, which can reflect work process development, classroom learning management, as well as students' work, whether it is a lesson plan, teaching media, and competency evaluation, teachers' learning experience management, or both. The first evaluation aimed to evaluate the learning management competency of internship students at the beginning of the semester, and the second evaluation was at the end of the semester. It was found that all six internship students had good rating scores, and the average management learning competency was higher the second time than in the first time. This shows that coaching and mentoring supervision processes that supervisor and mentor teachers served as coaching counsellors, provided guidance to internship students, lesson planning, learning activity design, the roles of teachers in the classroom, using motivating questions, motivating students, and also feedback from the observation. It helps teachers see themselves when they are in the classroom, important concepts for students, strengths and weaknesses, and points that needed improvement to improve their upcoming teaching. This helps improve the learning management competency of mathematics internship students. Kruekamai and Kodsiri (2019) conducted a research study on the development of coaching and mentoring supervision to enhance learning management in the 21st century. It was found that supervisees could write learning management plans for the 21st century learning that can be implemented in teaching at a very good level, estimated at 83.33%. Also, Chonburapun (2017) conducted research on the instructional supervision model to enhance thinking skills in basic education and found that the current state is generally high on average. The most practical aspect is to organize the most demanding teaching activities, techniques and innovations. The teaching initiative pattern had four principles: principles of quality, principles involved, integration, continuity, and modernity of information technology and accurate information. This remains consistent with the research of Inprasitha (2022) that teachers participate in the TLSOA model had a significant impact on the practices of teachers, colleagues, and vocational traits. The students also experienced changes in learning behaviour. This change was consistent with student-centered and active learning approaches, resulting from the beliefs of teachers about classroom innovation and open approches. Moreover, Boonchai (2021) who has conducted research on the development of learning management competency enhancement patterns to develop

students with 21st century skills among primary school teachers, found that there are three components of learning management competence to develop students and the 21st century skills of primary school teachers: (1) cognitive competence to manage learning in the 21st century; (2) learning management skills competence in the 21st century; and (3) the characteristics of learning management in the 21st century. There were four phases of competency development. Phase 1 creates awareness of being a teacher in the 21st century, Phase 2 enhances understanding in learning management in the 21st century, Phase 3 implements in lesson development activities in the classroom and the professional learning community, and Phase 4 shares sustainable development.

Conclusion

The coaching and mentoring supervision process focuses on development, support, and encouragement. It ensures that the supervisees may not feel uncomfortable under supervision. The preparations of teachers through the lesson and the Open-Approach method focused on continuous teamwork on designing, planning, classroom observations, and giving feedback. It helps develop a guideline for collaboration between teachers and lesson plan improvement. This leads to self-improvement among teachers in learning management in various areas, is the beginning of competency development in learning management, and gaining more perceptions of classroom research. This also leads directly to solving student problems in terms of learning using classroom research. Mentor teachers, school directors, supervisors, or relevant institutions can use coaching and mentoring supervision as a guideline or formulate the policy to develop competency in learning management and classroom research. This research had the following suggestions: (1) the collection of data in the next study may increase the methodology of collecting data by recording video or audio, and take the data away from the class protocol for a deeper and more detailed class analysis, in terms of instruction, teacher roles, teacher discussions, teacher questions, teacher-student interaction, class time management, etc.; and (2) research should be done on both student learning performance development, learning effectiveness development, mathematical processing skills, and mathematics habits related to the learning management competencies of teachers.

Acknowledgement

This research was supported by the Suratthani Rajabhat University Research Grant.

References

Boonchai, P. (2021). Development of a model for enhancing learning management competency to develop 21st century learners for elementary school teachers. *Journal of Rangsit Univrsity: Teaching & Learning, 15*(1), p.118-137.

Chonburapun, P. (2017). *The instructional supervision model to enhance thinking skills in basic education.* Dissertation In Doctor of Philosophy Program in Educational Management, College of Education Sciences, Dhurakij Pundit University.

Faculty of Education. (2019*). The teacher professional training experience manual*. Suratthani Rajabhat University.

Gordon, S. P. (2004). *Professional development for school improvement: Empowering learning communities.* Pearson Education.

Guskey, T. R. (2000). *Evaluating professional development.* Corwin Press.

Inprasitha, M. (2022). Lesson study and open approach development in Thailand: A longitudinal study. *International Journal for Lesson and Learning Studies, 11*(5), p.1-15.

Kadroon, T. (2018). Enhancing teacher competency in mathematics teaching with lesson study and open approach. *Narkbhutparitat Journal*. *10*(s), p.179-188.

Kruekamai, W., & Kodsiri, C. (2019). The development of coaching and mentoring supervision to enhance learning management in 21st century in the service area of the Office of the Basic Education Commission in Chiang Mai province. *Journal of the Association of Researchers, 24*(1), p.121-135.

Maitreephun, W. (2010). *The role of teacher and educational personnel as supervisor in faculty of education Prince of Songkha University, Pattani campus served in the area of 3 southern border provinces.* Master Of Education Thesis in Supervision and Curriculum Development Graduate School Chulalongkorn University.

Nohda, N. (2000). Teaching by open-approach method in Japanese mathematics classroom. In T. Nakahara, & M. Koyama (Eds.), *Proceedings 24th of the Conference of the International Group for the Psychology of Mathematics Education, 1*, p. 39-53.

Satjapiboon, S. (2017). Supervision concept for the development of learning management competencies in the 21st century. *Silpakorn University Journal, 37*(1), p. 203-222.