

DEVELOPMENT OF PROFESSIONAL LEARNING COMMUNITY
ENABLING TEACHERS TO BECOME RESEARCHERS IN
MAHASARAKHAM UNIVERSITY DEMONSTRATION SCHOOL
(SECONDARY), THAILAND

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ABSTRACT

The objectives of this research were: (1) to study the current situation for research in schools; (2) to develop a professional learning community where teachers are researchers; and (3) to study the findings of the developments in research reports based on teacher collaboration, teaching innovation and learning outcomes. The research area was purposively selected as the research team in Mahasarakham University Demonstration School (Secondary) (DMSU), in the academic year 2020. The instruments consisted of a focus group, A.I.C. meeting and research forms. Frequency, percentage and content analysis were used to describe the data. The findings are as follows: (1) most of the teacher research was experimental research conducted by one person, which also shows a lack of participation. (2) It found that the six steps were as follows: 1) team building, 2) determination of solutions, 3) design of learning management, 4) observing the class, 5) data analysis and reflection and 6) reporting on classroom research. (3) There were eight research teams working together, with three people on each team. Most of the learning management innovation was based on the constructivism learning theory (5/62.50%), and learning outcomes increased after teachers participated in the learning community for the third cycle of lesson study, especially the cognitive learning outcomes.

INTRODUCTION

Professional learning community (PLC)

Educational quality development by the professional learning community has been implemented in many countries. Researchers and educational leaders point to the transformation of school systems into professional learning communities

(PLCs) as the most important initiative to improve schools (DuFour & Eaker, 1998; Hord, 2004). Researchers have found evidence that PLCs can have positive effects not only on a teacher's performance in the classroom but also on students' academic performance (Barton & Stepanek, 2012; Harris & Jones, 2010; Katz & Earl, 2010). In Thailand, the professional development committee of the teachers council of Thailand has identified five characteristics that should occur for the development of professional learning communities, including 1) shared values and norms, 2) collective focus on student learning, 3) collaboration, 4) expert advice and 5) study visits and reflection dialogues (Office of the Teachers Council of Thailand Secretariat, 2020). Lesson study is an important technique for implementing PLCs in schools, which has the important steps: plan - including jointly designing learning management; do - observing the teaching of fellow teachers; and see - reflecting on the teaching and learning, which leads to the development of the teaching and learning in the next cycle.

Teachers as researchers

Stenhouse (1975) introduced the notion of teachers as researchers. This notion entails that teachers engage in the research process (Admiraal et al., 2013; Piggot-Irvine and Zornes 2016). Teachers often collaborate with a research partner from, for example, a school to conduct the research. The teacher is not the researcher in some situations (as the research is conducted by an outsider), but they can be the researcher in other situations (as the research is conducted by the teacher). The researcher is part of the research environment as a professional working in this environment and not an outsider, but the teacher explores their own educational practice (Green and Bloome, 1997).

Lesson study

Lesson study comes from *Jugyokenkyu* in Japanese, which is made up of two words: “jugyo” refers to classes with “kenkyu” which means study or research (Yoshida and Fernandez, 2004). It has been studied through research based on the concept of collaborative lesson development: it is a lesson that a group of teachers choose to study and research (Charinee Trevarunyoo, 2013) and focuses on a team-oriented instructional design and shared responsibility for the instructional work and outcome (Dudley 2014; Elliott 2019). In other words, PLC is classroom action research (Wiseman et al., 2013) . In addition to student learning outcomes, PLC enables teachers to discuss and understand each other better to reduce the teachers' feelings of loneliness, an increased sense of commitment to the mission and goals of the school. (Newman, 1996).

PLC in Thailand

Although PLC has been used as a tool for teacher development in Thailand for more than a decade, it has been found that there are many problems related to the process: 1) the planning stage, teachers have a high workload; 2) the learning exchange stage, there was a lack of regular follow-up; and 3) reflection stage, where there was a lack of improvement in teaching and learning after reflection (Phanthiphaphon Aphipriya and Churairat Sudrung, 2019). From the results of

monitoring schools that had received the Teachers' Council of Thailand's PLC development scholarships during 2016 - 2020, it was found that no action had been taken against a large-scale secondary school (Chookhampaeng and Chookhampaeng, 2020).

Demonstration School

Maharakham University Demonstration School (Secondary) (DMSU) is a large secondary school located in the Northeast of Thailand. It is a self-managed school that is linked to Maharakham University. The school was established with the main objective of developing research into teaching and learning and to be a model for other schools. However, in the past, there were still obstacles in the development of research that truly reaches the learners. Most of the teacher research is work that does not directly affect the students. For example, most research studies are educational research that is not directly related to teaching research or research that relies on surveys to find the reasons related to students' attitudes, but it is not continually used to develop the students. It has also been found that the research done by teachers alone causes the teachers to develop inadequate collaborative learning (DMSU, 2019; DMSU, 2020). Therefore, schools need to improve on the concept of teacher development with a professional learning community to teachers as researchers who are truly targeted towards the learners.

Therefore, from the issues and challenges related to teaching development in the context of large schools, it needs to lead to the development of professional learning communities with teachers as researchers. It will provide instruction and a model for school development in the context of Thailand.

RESEARCH METHOD

The research design was participatory action research (PAR), which is divided into three phases as follows:

Phase 1: The study of the situation and the need for teaching and learning development through a synthesis of research by teachers in schools from 20 subjects, which are research from the past two years (Academic Year 2018 - 2019), and focus group discussions with eight groups of school teachers. The tools were research synthesis and meetings recorded in a form.

Phase 2: The development of the process. Two groups were participatory meetings: a group of 82 teachers and a group of 13 school administrators, aiming to develop a policy plan and action plan for development. The research tools were participatory meetings and teaching observations.

Phase 3: The study of the findings and development of research reports based on teacher collaboration, teaching innovation and learning outcomes. The research tools were research synthesis forms and meeting recording forms. The research method is shown in Table 1.

Table 1: Research method

Phase	Method
1. Study of situation	Research synthesis and focus group discussions
2. Development of process	Participatory meetings and teaching observation
3. Study of findings	Research synthesis and reflection meeting

RESULTS AND ANALYSIS

Study of situation

Teacher research situation

The results of the research synthesis during the past two years (Academic Year 2018 - 2019) found that there were a total of 13 studies, of which 13 subjects consisted of eight individual research topics, and five team research topics. Most of the teachers' research designs were experimental designs for 11 subjects (84.62 %) and the remaining were survey research. Most of the innovations in research were related to media and technology: movie media and computer-assisted instruction for six topics (46.15%) and five teaching innovations were found. For students, the outcomes found that most of the research studies were in the cognitive domain: seven subjects (53.85%) about achievement and one subject about analytical thinking. There were three subjects studying the affect: motivation and interest and two subjects about student behavior. Table 2 shows the teacher research situation.

Table 2: Teacher research situation (amount/percentage)

Research design	Innovation	Student outcome
Experimental (11/84.62)	Media and technology (6/46.15)	Achievement (7/53.85)
Survey (2/15.38)	Teaching (5/38.46)	Thinking (1/7.69)
		Affective (3/23.07)
		Behavior (2/15.38)

Teachers as researchers

The results of eight focus group discussions found that most teachers were anxious about PLC, especially when applying the lessons studied to the development of teaching. It is a new paradigm that everyone still lacks a good understanding and many people are not ready to open the class to peer observation. This should lead to an agreement for the school's strategic plan setting and action plans to develop schools using PLC for the development of teachers as researchers. This is an important strategy for building the lesson study process. Starting from creating understanding, awareness and using important techniques, are dialogue, team building and sharing lessons learned

from case studies, such as lessons studied in Japan, Singapore and pilot projects in Thailand, etc.

Development of process

It was found that the six steps were as follows:

1. Team Building. Team building was implemented allowing teachers throughout the school to review and set common directions or goals. The importance of starting PLC is primarily focused on the learner's learning goals. The main goal of this step is for everyone in the school to realize the importance of working together by allowing everyone to open their hearts and accept each other. The goal is to provide teachers with listening skills, openness to differences and ready to learn from each other.

2. Determination of solutions. This starts with administrators and school teachers sharing learning about the goals of the organization by bringing experiences and knowledge from each teacher's practice. The main goal at this stage was to join forces in analyzing the learning problems in their own educational institutions. There may be several issues identified from the group through analysis of variables and innovations that must be used to solve problems leading to the identification of research and planning lessons together in the next step.

3. Design of learning management. At this stage, each member who has a role as a researcher will design a learning management tool to focus on solving the learning problems of learners. It is necessary to study the teaching concepts that respond to changes, in which the researchers must group the correspondence between the learning goals and the learning innovations to lead to proper design. The main goal at this stage is the study and design of management innovation. The aim is to learn various things and design activities to solve problems and receive reflections from research participants.

4. Observing the class. Lesson study through the process of observing the classroom is an essential component of the learning community. An observer or co-researcher is necessary to understand the principles and how to observe the correct class to lead to further development of learning management. The main goal at this stage is the observation. The observer observes the learner's learning and what learners do, think or see what happens to them without interfering with the learning of the learners. An observer may use a photographic recording tool or video, but does not interfere with the learning.

5. Data analysis and reflection. Analysis and reflection about the data is a step that takes place after the observation of the class. This should be done immediately after completing the activity or sometimes video can be used to record the analysis and reflection. The main goal at this stage is a reflection on the analysis that the lessons have been designed together. Has the objective been achieved? What are the strengths and weaknesses throughout the next lesson? How to achieve the research goals?

6. Report on classroom research. To determine whether the process of the development of learning has been successful. How to create sustainability is about bringing those stories or mechanisms to the public, whether it is open to other communities to study and exchange ideas together. Creating a community buddy the key to openness with the public is to use the school's space as a source for learning and exchange, at a time that does not affect the normal activities of teachers. This will make the organization sustainable and continually develop important goals at this stage via a systematic dissemination, according to the research process.

Study of findings

The results showed that there were eight research teams working together, with three people in each. The research team building process for all teachers created teams from close subject matters and in relation to subject teaching, despite their prior personal relationships, they had the opportunity to study lessons together through lesson study in PLC. Most of the learning management was based on the constructivism learning theory (5/62.50%). The research synthesis from the research report showed that the teachers changed their roles from being lecturers to becoming facilitators of learning, such as collaborative learning management, STEM activities and the use of board games, etc. The variables of interest from this study related to the results of the research, and it was found that most of the variables were in terms of the cognitive domain, such as learning achievement, thinking skills and learning motivation. All teachers as researchers adapted the research method to use classroom action research or lesson study, and they found that the learning outcomes increase after the teachers participated in the learning community for the third cycle of lesson study. Table 3 shows the study findings from the research reports.

Table: 3 Study findings (amount/percent)

Learning theory	Learning outcome	Outcome cycle
Constructivism (5/62.50)	Cognitive domain (7/87.50)	3 cycles (6/75.00)
Cognitivism (2/25.00)	Affective domain (1/12.50)	4 cycles (2/25.00)
Behaviorism (1/12.50)		

CONCLUSION

1. From studying the current situation for research in schools, it was found that most teacher research is experimental research conducted by one person that lacks participation. Thailand has developed a policy and announced the use of PLCs in the development of teacher performance assessments in the 2017 academic year (Office of the Government Teacher and Educational Personnel Commission Thailand, 2017). The Academic Year 2018 - 2019 was the transition period as many schools still lacked an awareness of research development using PLCs, and there is no research that uses the classroom research process that has a real impact on students. Mahasarakham University Demonstration School (Secondary) (DMSU) is a school that has self-management, and has not yet specified its School Development Plan (DMSU,

2019). In participatory meetings were teachers concerned about action research that is difficult to develop research reports. Due to the details of the process and the sub-effects, there must be a focus on the overall decisions about the study methods. The researcher must clearly demonstrate the principle of reasoning with sufficient firmness. Sometimes the reviewers of action research may disagree with the use of these methods, and this is because most reviewers stick to conventional research (Mertler, 2006). Action research reports are more detailed and content than conventional research as there is feedback about what is being done to consider to make decisions for change or improvement. Therefore, writing an experimental report seems easier and more convenient. Correlation with the studies of Adul SananEua Mengthaisong (2017), Narinee Waree (2001) and Bunyaporn Chimpoy (2001) found the factors that make teachers researchers in Thailand depends on the administration policy of the supporters of the educational institutions.

2. To develop a professional learning community for teachers as researchers. It was found that a total of six steps were as follows: 1) team building, 2) determination of solutions, 3) design of learning management, 4) observation of the class, 5) data analysis and reflection and 6) report on classroom research. The six steps are a combination of the PLC and classroom action research concept. For the concepts of PLC through three philosophies (Sato Manabu, 2016), are as follows: 1) public philosophy - the perspective and beliefs of classrooms and schools as public spaces; 2) the democracy philosophy - valuing and treating all students equally with positive interactions; and 3) the philosophy of excellence - to develop children according to their potential. When the school faces any obstacles or conditions of students able to best cope with that obstacle or condition. Within the concept of classroom action research, there were three important principles, as follows (Greenwood and Levin, 2007): 1) self-operation (action) - problems in teaching and learning related to children's learning, which is the main task of teachers; 2) research (research) - data collection with systematically designed data collection, such as recording after the teacher's teaching or tools related to the teacher's teaching goals; and 3) participation (participation) - to reflect good performance in each circuit. This requires active participation in the practical feedback process to enable development and to improve the work. This process was developed by the mutual agreement of the teachers in the school, and they formed a strategic plan and action plans together throughout the school to be consistent with research in Thailand that found a good school strategy requires participation. The strategy plan is an important tool for schools to operate with goals and directions (Petchpong Treethepha, 2014; Watcharee Theppudtangkul, 2011).

3. To study the findings for development. It was found that eight research teams worked together, with three people each. Most of the learning management innovation was based on the constructivism learning theory (5/62.50%), and the learning outcomes increase after the teacher participated in the learning community in the third cycle of the lesson study, especially the cognitive learning outcomes. The results showed that the teachers transformed into teacher-researchers, and this affected the student learning outcomes, which was a part of an important process: building a professional learning community, thereby relying on a common framework for practical research. The results of

this development resulted in teacher collaboration and direct outcomes with students, which is correlated with Newman (1996) whose study found this in school cultures that emphasized collaborative learning between teachers. Teachers can obtain more learning opportunities by collaborating with peers and applying their knowledge to the collaborative learning more often with their own students. These schools actively supported the professional experimentation of teachers. Therefore, in these school cultures, the teachers are actively trying to use innovative teaching methods and actively trying to change their teaching context. This is correlated with Dufour (2011) who found that teachers in PLCs are effective. It will actively develop the quality of the teaching activities better. It also assists teachers when reviewing teaching practices. Teachers in effective learning communities believe with a full heart that every student has the ability to learn to improve, and teachers will continually try to develop new initiatives to improve their teaching activities.

In addition, the results of development also affected the learners according to the teacher research goals, for example, Newman (1996) found that students enrolled in schools with PLCs focused on learning activities. Teaching achievement was higher in mathematics and social studies than it was with students attending schools that did not have a PLC. Katz and Earl (2010) found that when teachers participated in PLCs, there were significant positive changes in schools, which resulted in higher learning outcomes. Students improved academically and researchers argued that membership in a PLC is not enough to positively influence school innovation or student achievement. Only intensive and continuous participation of teachers in the PLC can lead to improvements in student performance. In other words, it can be concluded that the professional learning community can effectively enhance student achievement, which has a positive impact on the sustainable educational management of the entire school system (Rungchatchadaporn Vehachart, 2018).

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