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Learning management and classroom assessment competency of teachers according to education reform policy in Thailand: A case study of schools in Chiang Mai education sandbox

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Abstract

This research has three objectives in conducting research studies with schools in Chiang Mai Education Sandbox which are (1) to investigate the circumstances, needs, and assessment of the teachers' competencies in learning and classroom assessment, (2) to create and develop a model of learning management and classroom assessment competency development according to the sandbox concept policy, and (3) to use a model of learning activity and classroom assessment competency development of teachers according to the sandbox concept policy. This research was comprised of administrators, teachers, educational personnel, students, parents, communities, and key stakeholders in 15 schools in Chiang Mai. All schools voluntarily participated. The statistics used in this research were frequency, percentage, mean, standard deviation and content analysis. The results show that the schools had problems in designing learning management innovation and choosing appropriate evaluation and assessment according to the educational institutions context. Teachers needed to develop themselves to solve the problems. The model for teachers' competencies in learning and classroom assessment according to the sandbox policy was developed on this problem finding and applied. The model consisted of six principle purposes: objectives of the study, processes of the model, roles of stakeholders, efficiency and effectiveness of innovations' evaluation and assessment, training curriculums, and conditions for success needed to build the promoting of innovation development in ecosystem. The results of the model show that teachers had improved their competencies such as competencies of designing learning management, evaluation and assessment, which correspond to Education Sandbox Act, B.E.2562 (2019).

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Introduction

The concept of active learning development is defined by the education sandbox as an educational policy. It is an urgent topic of educational development especially suitability of the specific characteristic areas among the trend of using technology replacing human resources and the need of high potential human resources (Disruption). Among the global volatility and rapid development of education era (VUCA), the government has to speedily develop education to keep up with the changes. Therefore, the concept of setting up an innovative learning space or "Education Sandbox" was initiated, which is a new educational management concept relying on all local resources, such as government agencies, private agencies, academics, business, social sectors, philosophers, and scholars collaborating to create appropriate education specifically in that locality. Human resource productivity must serve the needs of states in society, communities, and changes in contemporary society. Education sandbox is the application of spatial education management principle, also known as "Area-based Education," along with the principle of community participation in education management recommended for development of local education, also known as "Empowerment." In addition, it uses sustainable education development to be developed into an effective education management model. The countries that initiated this concept include the United States, Australia, and the United Kingdom. The outcomes after implementation are the transforming of students to become knowledgeable, up-to-date, and multi-talented. They have advanced-thinking skilled people and become developers or creative people who are also known as "innovators" (Council of Chief State School Officers, 2013; McGuinn & Supovitz, 2016; Supovitz & Spillane, 2015).

Therefore, the Thai government cannot be complacent with the changes of the world societies: epidemic of infectious diseases, economic volatility, and the rapid development of various kinds of technology. Traditional methods and recent models of educational management are unable to respond to the current situation. Consequently, the policy of education sandbox was established as an urgent policy of the government. Moreover, the government defined five pilot areas nationwide for decentralizing the local authority to manage education according to the circumstances by giving authorities comprehensive management (Ministry of Education, 2019). Even though there is the establishment of the education sandbox and allowing a local authority to take full action, one factor that still needs addressing is reviewing the system of teacher production and coping with the rapid changes. Unfortunately, the processes cannot be adjusted. The regular teachers are called to develop and restore knowledge to keep up with the changes, but this cannot drive quality students. Moreover, the results of teachers' learning management and classroom assessment competencies indicated that the teachers' competencies were at a fair level; teachers lacked applying new teaching methods to students, as well as the use of critical thinking skill for analyzing local or current situations in the class. They also lacked knowledge of understanding new approaches to measurement and evaluation aimed to develop the students and apply measurement and evaluation as part of their learning or Assessment for Learning and Assessment as Learning. Likewise, several studies underlined that "the teachers still do not implement a variety of assessment methods, and they emphasize mainly the assessment for the academic performance or summative assessment" (Chukampang, 2018).

The Faculty of Education, Chiangmai University, is a government education agency as the leading institution in educational management development according to the education sandbox in the upper northern region of Thailand, where Chiang Mai is a center. Consequently, Chiangmai University has developed teaching and evaluation competencies for teachers teaching in the basic education level in the area. The development relies on principles according to the needs and specific characteristics of the area, such as language, traditions, culture, economic resources, and local wisdom as the key factors for development. It includes strengthening teachers' potential to keep up with the changing world. This research has examined concepts, principles, and theories as follows:

Competency of Teachers/Student Teachers

Competency of student-centered learning management

Learning management in the 21st century must be student-centered, and students become self-learners. Project-Based Learning is one of the methods that teachers use to teach based on student-centered instruction to develop the students, both knowledge and skills, through working methods. It is a designation of work model systematically. Conclusion: there is a straightforward process to produce the work piece or works related to the course and such can be applied to real life. The students thereupon must design their projects. The teachers act as the key players who encourage students to learn through

practical learning with friends and other people except for teachers. The teachers have to provide advice and enhance their knowledge without providing answers to the students immediately in order for them to learn from practice on their own. The learning designer changes from the instructors to the trainers and serves as facilitators (Kobalia & Garakanidze, 2010).

Competency of measurement and evaluation for developing considering various differences between individuals

The teachers have to have the competency of measurement and evaluation different from those of the traditional way that measures for consideration of adjustment to evaluate the students' learning development, emphasizing speaking and commutation skills such as oral discussions. The teachers propose interesting topics or collaborate with the students, searching for their interest, then set it as the discussion topic. Later on, the students discuss various topics based on the evaluation. An oral evaluation, as mentioned in the evaluators, can clearly help one realize the quality and qualifications of those being evaluated. In addition to the evaluation of learning outcomes, the teachers will take into account the consistency of the objectives according to authentic evaluation, methods, and tools. The students have an opportunity to participate in the evaluation. Its results have been used to develop the students continuously. Measurement and evaluation have to take into account the heterogeneity between individuals. The results of the evaluation must be applied in designing the learning management of different students (Dechakup, 2015; Panich, 2012).

Competency of computer and technology and media literacy

The teachers must be equipped with the competency of computers, have the ability to utilize computers at a basic level, and apply technology media, which are considered the basic competencies of basic education level teachers, and they also need to be equipped with advanced technology and information systems, including more modern communication forms. Mobile phones are modern, fast, easy to use, inexpensive communication tools and channels. They are a tool that allows us to reach people or groups of people to information and knowledge resources, leading the students to access information rapidly. However, the students still lack the maturity ability to analyze the content derived from the media properly; even parents or teachers themselves still lack knowledge and understanding about media literacy. Therefore, the teachers must be responsible for guiding and recommending the accurate use of technology. The teachers will also need to know how to develop themselves to learn new teaching techniques or methods for the better quality of children, promote and develop the students' ICT potential with abilities to think critically, and choose creative media suitable for their age. In addition, they should have discretion in perceiving media, including media usage for education, learning, self-development, rather than aiming for entertainment in the form of superficial media consumption. They can apply ICT knowledge skills to create good media for social and national benefits in the future. Besides, skills training will enable the teachers to create and/or utilize resources and content, and learning in digital form, the teachers should have knowledge and understanding and can utilize the potential of applying ICT as a tool to manage a learning environment that directs the students' thinking skills (Dechakup, 2015; Suganthan et al., 2005).

Competency of morality, ethics, and professional ethics

1. The teachers have love and compassion, have attention, give help, support the students, and encourage equality and equal education. However, besides love and compassion, the teachers in the 21st century must also scarify properties and dedicate time to students, both working hours and out-of-office hours.

2. The teachers must be good role models, be good examples which the students can observe by themselves for adhering to and implementing. The teachers in the 21st century, therefore, convey virtues and ethics by being the role models and behaving themselves physically adequately, both verbally and mentally (Dechakup, 2015).

Competency of teamwork and knowledge sharing

Each teacher's teaching ability is different. In the early 20th century, a teacher would teach all subjects and perform other administrative tasks along with it. However, with the era and society changing, more and more talented teachers with remarkable abilities have more opportunities to work in schools. Traditionally, only one teacher was responsible for all subjects. Teachers in the 21st century excel in a specific area of study, such as math, or the Thai language. Due to the different teachers' abilities, working methods or teaching methods must be adjusted, to be most effective, by using cooperation to teach and develop students and refer to and understand different students individually (Tianudom, 2003).

Competency of cross-cultural awareness

Teachers must understand and be able to transfer knowledge to the students in a multicultural society. It is described that those with cross-cultural competencies can think, feel, and behave in a way that accepts ethnic, social, cultural, and linguistic diversity. It is consistent with the 21st century skills that everyone needs to learn from kindergarten to university and throughout his/her life. This is known as 3R x 7C, where cross-cultural understanding skills and different paradigms of cross-cultural understanding are one (Chanpen, 2013; Panich, 2012).

Competency of coaching and facilitating

It is essential to adjust to this situation. In the past, teachers had the role of transferring knowledge to students, but teachers in the new century have to change their roles as facilitators of learning instead. They are responsible for planning activities that focus on student-centeredness by allowing them to think hands-on, seek knowledge, and find answers for themselves as much as possible. Developing learning management skills in the classroom is an essential point for teachers to change their teaching methodologies by engaging children in thinking, doing, and speaking more in their pursuit of self-knowledge. The teachers have to teach less but become more prepared for learning experiences, encourage children to seek information, build knowledge, and apply knowledge. According to the Singapore Education Minister, such is referred to as "Teach Less Learn More." To develop the potential of Thai teachers, it requires the 7C skills of professional teachers. The main recommendations are using the coaching system and the mentoring process (Dechakup, 2015).

Methodology

This research has three main objectives in conducting research studies with schools in the Chiang Mai Education Sandbox as follows: (1) to investigate the circumstances, needs, and assessment of the teachers' competencies in learning and classroom assessment; (2) to create and develop a model of learning management and classroom assessment competency development according to the sandbox concept policy; and (3) to use a model of learning activity and classroom assessment competency development of teachers according to the sandbox concept policy.

This research was conducted with target groups that included administrators, teachers, educational personnel, students, parents, communities, and key stakeholders in 15 volunteer schools in Chiang Mai education sandbox.

The research instruments for data collection were classified to each research phase. The first instrument was a semi-structured interview, asking about current circumstances, problems, needs, development guidelines, expectations, and appropriate components for the development of learning management competency and classroom assessment that is suitable to Chiang Mai education sandbox schools' characteristics. The research instruments in the second phase included the model of learning management and classroom assessment competency development of teachers according to the education sandbox concept policy as spiral and the quality assessment form.

The third phase instruments were a reflective form and in-depth interview. The reflective form was a reflection of self-assessment and explanation about what they had gained from participation in the research. It also included an in-depth interview by experts to assess performed outcomes on learning management and classroom assessment spiral and guidance on developing the complete model.

The researcher conducted the research according to the research objectives; therefore, the research process was divided into three phases. In the first phase, the researcher used a set of questionnaires to survey the research subjects' conditions, problems, and needs and conducted a group interview with individuals as stakeholders to analyze qualitative data by content analysis and triangulation. The information will be applied in the form of a model. In the second phase, the researchers created a model of learning management and classroom assessment competency development. After that, experiments were conducted according to spiral using the reflexive for collecting data on the competency development results of research subjects. It also applied the results of competency development to be presented to experts for considering the accuracy, appropriateness, feasibility, and cost-effectiveness of implementing a model to develop a complete model according to the spiral. As for the quantitative data, the researcher utilized descriptive statistics for frequency, percentage, mean, and standard deviation analysis. Finally, the researcher analyzed content analysis and triangulation and concluded them in a form of this research.

Results and Discussion

The Results of the Investigation on the Condition, Needs, and Assessment of the Teacher's Competencies in Learning Management and Classroom Assessment

1. The findings of learning management in the schools in Chiang Mai education sandbox indicated the following issues;

(1) The first problem is about the use of innovation. They use Basic Education Core Curriculum Standards B.E. 2551 and the B.E. 2560 (amendment) curriculums. Such contain a large number of learning standards and indicators. In addition, there is an unclear proportion of the local curriculums in educational institution management; (2) The second problem is about teachers. There is a lack the designing of new innovative curriculum. They also lack knowledge about the development of educational innovations in accordance with the direction of education management in the new era; (3) The third problem is about students. They had a different level of language readiness. Most of them ignored the importance of learning the subject matter presented by the Core Curriculum of Basic Education. They also began to reject the strict learning system; (4) The fourth problem is about educational contexts. These are location and affiliation of educational institutions that hinder receiving support for learning innovations application, the expectations and goals of parents and students in schools, and the lack of suitable coordination mechanisms between educational institutions, communities and related agencies; and (5) The last problem is about the environment of educational institutions. Such included dust, smog, PM 2.5 problems, farming seasons, and planting or harvesting as well as beliefs, traditional ways of life along with some endemic characteristics that generate multicultural sensitivities.

2. The classroom assessment results in the education sandbox schools in Chiang Mai indicated the following issues: (1) the measurements and assessments based on the core curriculum were designed to support the same curriculum content across the country. The goals of measurement and evaluation mainly emphasized academic achievement in the classroom and did not cover all dimensions of competency that are truly demanded by society; (2) The goal-based measurement and evaluation system of schools in the education sandbox was imprecise; and (3) Teachers also had problems measuring and evaluating learning outcomes in terms of cognition, practical skills, and attributive skills.

3. The requirement for developing competencies in organizing learning activities and developing learning management innovations revealed that the administrators and the teachers needed to develop knowledge and skills in curriculum, instruction, and academic administration.

4. The requirements of competency development, assessment, and learning outcome evaluation indicated that the administrators and the teachers had a need for developing a holistic measurement and evaluation system focusing on quality evaluation for development that are consistent with authenticity and can develop students' positive feeling toward the lessons as well as serving school's goals in the educational sandbox at both school and teacher levels.

The investigation concerning the condition, needs, and assessment of teachers' competencies in learning management and classroom assessment from phase 1 has been involved in creating and developing a model of learning management and classroom assessment competency development for teachers in 2019 using education management for sustainability and area-based education based on the education sandbox concept policy.

The Results of Developing a Model of Learning Management and Classroom Assessment and Competency Development of Teachers According to the Education Sandbox Concept Policy

A model of learning management and classroom assessment competency development for teachers was developed, which was the result from phase 1, in order to develop the processes, topics and mechanism for refining teachers' competency, which followed the education sandbox policy. The concepts of the model were such as student-centered learning management, measurement and evaluation for developing while reflecting on various differences between individuals, computer and technological literacy, media literacy, morality, ethics, and analytic thinking literacy. There are seven components of this model which consist of: (1) Principles of the model, (2) Purposes of the model, (3) Process of the model, (4) Teacher competency development curriculum, (5) Roles of stakeholders, (6) Measuring and Assessing the effectiveness and efficiency of innovation, and (7) Conditions for success of the model that need to build "Ecosystem Promoting Innovation Development Enhancing." A recommendation from an expert has pointed out that the model was accurate, appropriate, feasible, and worthwhile, and was rated at excellent level, and could be applied in the development of targeted schools in the education sandbox.

According to models of learning management and classroom assessment, competency development, the processes of such models consist of six steps: Step 1: Collecting the lessons learned friendlily; Step 2: Sharing ideas and doing it; Step 3: Supporting implementation, Step 4: Attending to follow-up, Step 5 Looking at success, and Step 6 Revealing the secret to the public. The details are described in the following Figure 1.

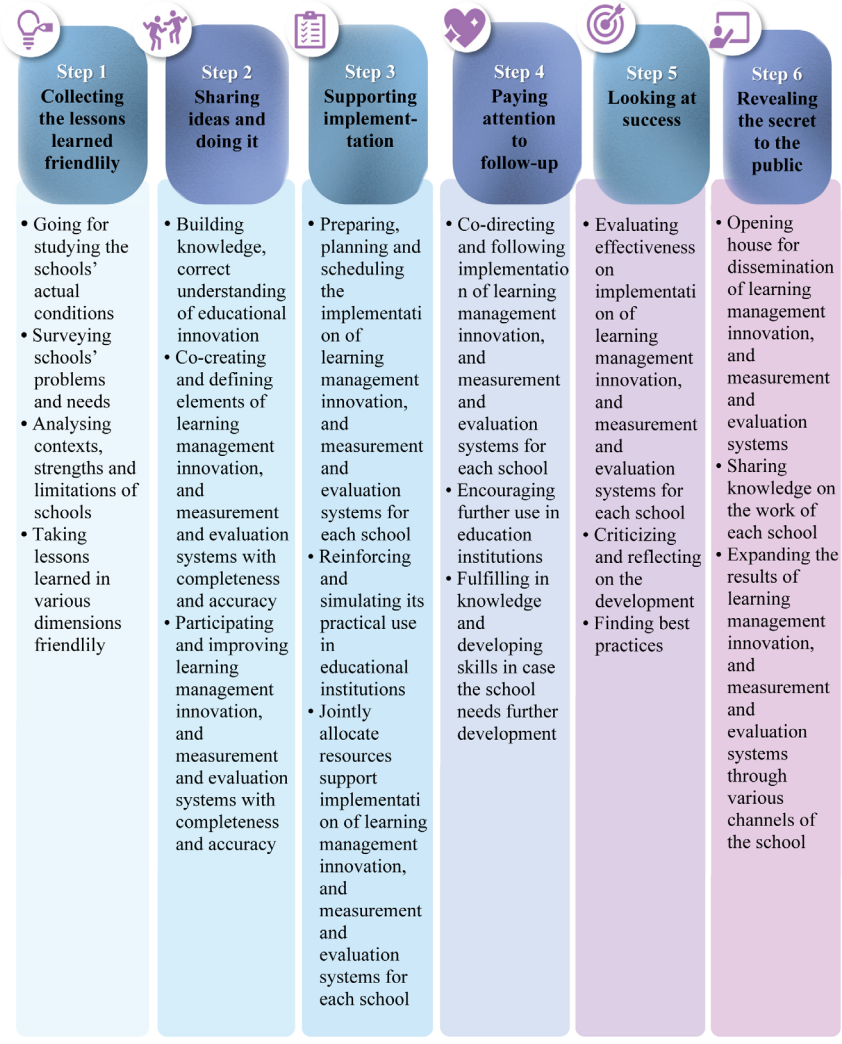

Figure 1 The process of developing appropriate learning management innovation and measurement and evaluation to the school context

From Step 2 of the model processes, the researcher designed Teacher Competency Development Curriculum consisting of three modules: Module (1) Synthesis of Student Competency and Design of Learning Management Innovation; Module (2) Student Competency Analysis and Competency Assessment Guidelines; and Module (3) Compliance Framework for Assessment with Innovation in Learning Management comprising the teacher competency development curriculum. Sharing step 1 and step 2 solves the lack of designing new innovative curriculums by going to study the schools' actual conditions to see the current conditions. The teachers also know how to design frameworks and curriculums that link to the current conditions in their communities. Participating will develop teachers' innovative curriculum design, that will solve the mentioned problem. This is influenced from the concept of teachers sharing their ideas and problems together to find the better solutions. It can be linked into the three modules of the teacher competency development curriculum, which will be discussed in Figure 2.

Ecosystem Promoting Innovation Development consists of five dimensions: (1) Dimensions of the Stakeholders Network; (2) Dimension of Integrated Science; (3) Dimension of The Process of Creating and Developing Learning Management Innovation; (4) Dimension of Communication Mechanisms in the New Normal; and (5) Dimension of Supporting and Fulfilling Learning Management Innovation Competency Development and Measurement and Evaluation Systems; the details are explained as shown in Figure 3.

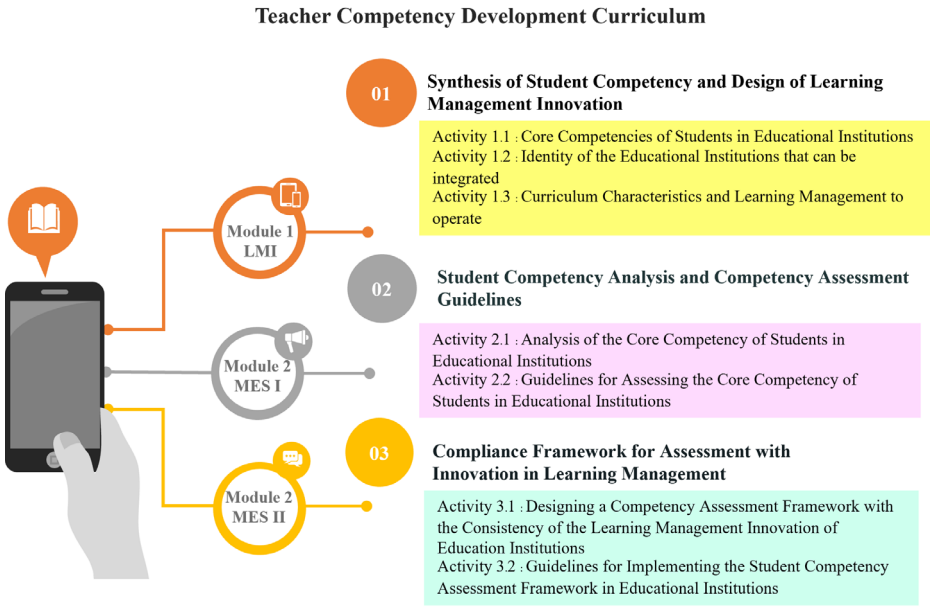

Figure 2 Three modules of the teacher competency development curriculum

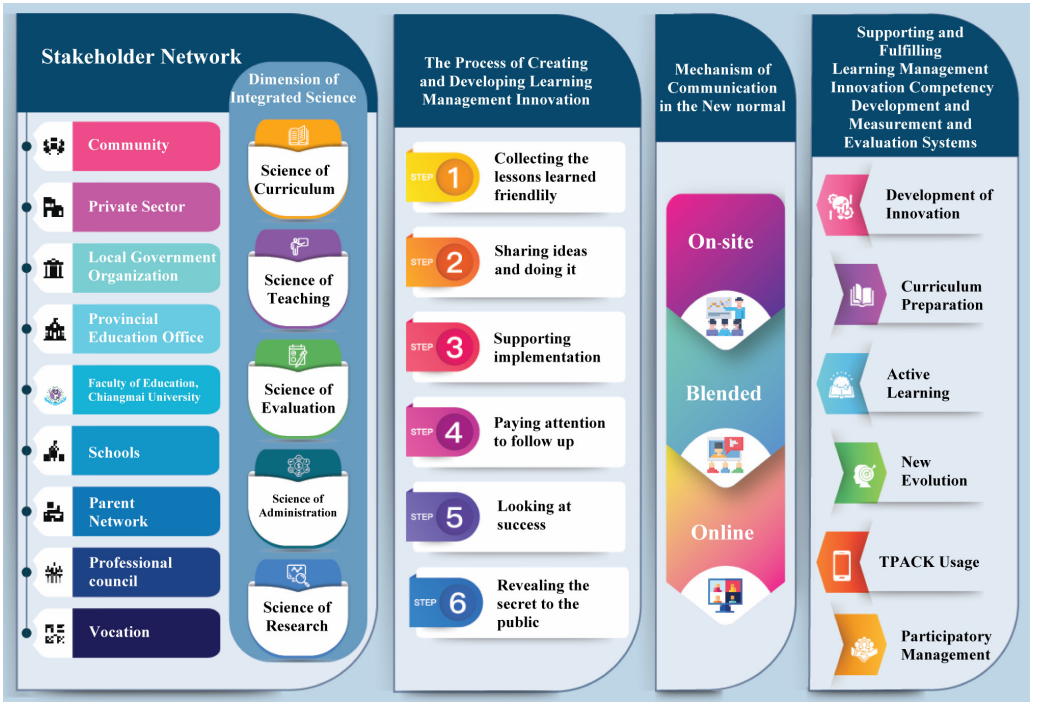

Figure 3 Ecosystem promoting innovation development consists of five dimensions

The results used a model of learning management and classroom assessment competency development of teachers according to the education sandbox concept policy as found in Table 1 and Table 2.

Table 1 The teachers' competency in organizing learning with four sub-areas.

The teachers' competency in organizing learning	Percentage
1. Context analysis, identity, and future competency for students. The overall view before development was at a moderate level. However, after developing it, the level was increased to a high level, which was a development.	54.08
2. Innovative design of learning management/media and technology that is suitable for student development goals competency. The overall picture before development was at a moderate level while after developing it, it was growth to a high level, which was a development.	58.78
3. Process of implementing learning management innovations based on the context of the community competency. The overall perspective before development was at a moderate level, and after the developing it, it was at a high level. There was a percentage of improvement.	58.46
4. Competency assessment arises from the use of learning management innovations. Overall, before development, it was at a moderate level while after the development, growth was up to a high level. There was a percentage of development.	54.73

Table 2 Teachers' classroom assessment competency according to the education sandbox concept containing four sub-areas.

Teachers' classroom assessment competency according to the education sandbox concept.	Percentage
1. Gaining and understanding concept of the evaluation processes that are related to students' competencies. The overall view before development was at a moderate level. After the development, it was increased to a high level. There was a percentage of improvement.	54.10
2. Pre-designing the measurement and assessment process of students' competencies competency. The overall view was at a moderate level, and after the development, it rose to a high level. There was a percentage of improvement.	55.57
3. Pre-measurement and evaluation of the students' overall development competency. The overall view was at a moderate level. After the development, the overall picture rose to a high level. There was a percentage of development.	55.17
4. Summarizing and reporting the results of assessment and applying it competency. The overall view before development was at a moderate level. After the development, it was increased to a high level. There was a percentage of development.	53.24

Each study was given recommendation by the experts for developing the model; extending the outcomes of the competency development model, learning management, and classroom assessment according to the education sandbox concept policy. There are four focus points in order to be successful as follows: (1) The systematic participation of personnel especially the collaboration of the school directors and teachers, will help improve the design of learning management innovation, as well as measurement and evaluation systems related to the education sandbox schools in Chiang Mai's context; (2) The network partners' readiness to reinforce the connection, coordination, and cooperation help improve school teachers' competencies; (3) Differences in context and design that schools rely on analyzing contexts, identities, and future students' competencies in each school; and (4) Consistency of the direction of school actions. Joining as a pilot school in Chiang Mai education sandbox influenced the administration to improve teacher competencies' development. This leads to rapid design of learning management innovations, measurement and evaluation systems. In addition, the budget has supported in the preparation/ordering of learning materials suitable for the educational institutes' curriculum and the university instructors to be mentors for operating schools to be more systematic.

Discussion

1. The model of learning management and classroom assessment competency development for teachers according to the education sandbox concept policy consisted of seven components, which are (1) Principles of the model, (2) Purposes of the model, (3) Processes of the model with six main steps: Step 1 Collecting the lessons learned with friendliness, Step 2 Sharing ideas and doing it together, Step 3 Implementing processes, Step 4 Making a follow-up process, Step 5 Focusing on possible success, and Step 6 Revealing methods to the public, (4) Roles of stakeholders, (5) Evaluation and Assessment of the efficiency and effectiveness of innovations, (6) Required conditions for success that bring "Ecosystem Promoting Innovation Development," and (7) Required concept for success that bring "Ecosystem Promoting Innovation Development." It can be seen that all of the seven components have mainly focus on the involvement of stakeholders. The goal setting is based on local needs and characteristics. The concept of the education sandbox policy is based on the application of spatial education principles as a management principle. The local stakeholders play a crucial role in setting goals, methods, and capacities

as well as providing the opportunity for society to be in a more supportive role. Decentralization process provides freedom to schools, teachers, students, and related parties to have freedom to set goals. Moreover, the education management that gives local residents who understand the context of the area to manage both the budget, setting goals, and have a sense of belonging and control over it will make them have a sense of responsibility, that leads to success in the future (Nakornthap, 2008). Moreover, considering the model's components, it was found that the new ideas of innovations must be created: a concept of creating sustainability for community to produce resources that meet market demand, labor, and volatility of the current situation. There are three Modules from the curriculum: Module 1, Synthesis of student competency and design of innovations in learning management, Module 2, Student competency analysis and competency assessment guidelines, and Module 3, Comprehensive competency assessment frameworks. It can be seen that this deals with the creation of higher-order thinking competency, which is an important future capability to teachers. It can be a human resource that can adjust to the environment and understand other societies and cultures. Additionally, it aims to improve the quality of education, drawing upon the community's context and aligning it with international standards to create lifelong learning skills. (Fiksel et al., 1999; Kalyanamitra , 2015)

2. The results of the mechanism management system to enhance teachers' competencies in Chiang Mai education sandbox schools by the experts and those involved in the process of improving educational innovation indicated that the consensus from the meeting and additional suggestions be adjusted, and more significant points were added and included as a mechanism. This mechanism drives the management system to enhance teachers' competencies in Chiang Mai education sandbox schools. The main five components and processes are: (1) The components of the mechanism driving the management system to enhance teacher competency; (2) The process used to improve the management system to enhance teacher competency; (3) The proposals to enhance the management system in teachers' competencies; (4) The conditions for the mechanism motivating success to enhance teachers' competencies, divided into two levels: the educational institution level and education sandbox level; and (5) The new challenges to improving Chiang Mai education sandbox schools. The process of drafting and presenting the mechanism occurred from all organizations that were involved in acknowledging the problems collaboratively. Therefore, it is suitable to put the mechanism into practicing term to enhance Chiang Mai education sandbox schools. The presented concepts are based on these research findings on space-based education management. The components of spatial education management will be successful if they use decentralization, to decide without centralized diagnostics. Such can allow local people to determine directions and goals on their own: adjusting the management structure to cope with changes.

The mechanism of this finding related to Area-based Education by Conner et al. (2003); Posner and Strike (1992). The success towards local education requires the awareness of ownership and understanding benefits of participates. Then, educate or do activities according to the cycle and engage experts to give advice, consult, and guidance.

Conflict of Interest

The author declares that there is no conflict of interest.

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