

The Development of Professional Development Model on Constructionism with Local Wisdom-based Learning Management for Pre-service Teachers*

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Abstract

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The purpose of this research was to develop the professional development model on Constructionism with local wisdom-based learning management for pre-service teachers in Phranakhon Rajabhat University. The samples were 145 samples selected by purposive sampling in following; 24 local wisdom elites, 6 administrators, 115 teachers. The research methodology was research and development. The data collecting tools were the questionnaire surveying the condition of using Thai local wisdom in learning management and the evaluation forms for the professional development model. The basic statistics, percentage and average, were used to analyze the quantitative data and the content analysis was used to analyze the qualitative data.

The research results showed that the professional development model was designed on the conceptual frameworks of (1) the basic knowledge of the model, (2) the objectives of the model, (3) the learning activities, and 4) the learning outcomes and evaluation. There were 5 modules designed as the learning modules in this professional development model, that were; Module 1: Spirituality as Teacher, Module 2: Integrating Local Wisdom and Sufficiency Economy to Learning Activities in Classroom, Module 3: Techniques for Transferring of Knowledge into Classroom, Module 4: Designing the Activities by using Local Wisdom and Sufficiency Economy into Classroom, and Module 5: Developing of Teacher Learning Community. The results of evaluation for the model showed that the average scores were in “agree” in following aspects; 1) the accuracy of principles and rationales of the model was in “agree” levels ($\bar{X} = 4.40$), 2) the appropriateness for the context and areas of the model was in “agree” levels ($\bar{X} = 4.41$), 3) the possibility to apply the model was in “agree” levels ($\bar{X} = 4.22$), and the benefit of the model was in “strongly agree” levels ($\bar{X} = 4.58$).

Keywords: Professional Development Model, Pre-service Teachers, Constructionism, Local Wisdom

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Introduction

According to the Twelfth National Economic and Social Development Plan, the enhancement of potential in foundation communities for sustainable development is important to create the immunity for Thai citizen among the development of modern technology such as holding the middle way and sufficiency living as the way of life, incubating youth to have conscience and identity in values and culture, promoting the agricultural sector as a base for food security in the country, and developing the local wisdom to improve the quality of life (Office of the National Economic and Social Development Board, 2017). Therefore, teacher preparation programs should focus on experience as a specialist in the subject matter, pedagogical content knowledge, teaching methods promoting learning in the 21st century skills, and also including the ability to integrate local wisdom in the classroom. However, some of researchers found that the most of pre-service teachers experienced problems in limited ability in learning activity design. Due to the formulas of teaching and learning in every class, the learning activity designs were not appropriate and consistent with the context of different and diverse classrooms (Calderhead, 1989; Richert, 1990). In addition, pre-service teachers also had problems with teaching planning since the determination of learning activities was not consistent with the learning objectives, lacking of self-confidence, and designing the needed skills and processes for the learners in lesson plans (Jermtaisong & Thongthaw, 2013).

Changes in pre-service teachers must change the learning paradigm both teaching methods and teachers and learners roles through Constructionism and Professional Learning Community (PLC) with the real-life situation and context that is changing rapidly (Panich, 2012; DuFour, 2010; Bulkley and Hick, 2005). The Constructionism approach focuses on classroom management in which learners create knowledge by creating the tasks and exchange their knowledge to get meaning together. As for the Professional Learning Community (PLC) will help create the learning management innovation in which the pre-service teachers can apply their knowledge and ability earnings from using local wisdom in their classrooms to exchange through discussions and sharing in form of thoughtful thinking through reflection. These approaches will lead to the learning process by seeing each other and bringing new knowledge shared throughout the professional experience training. Learning through the Professional Learning Community (PLC) will enable the pre-service teachers to interact with their supervisors, mentors, and other pre-service teachers to learn from real situations and apply it effectively.

Objective

The objective of this research was to develop the professional development model on Constructionism with local wisdom-based learning management for pre-service teachers in Phranakhon Rajabhat University

Scope of research

Population and Samples

The population unit of this research was local wisdom elites, school administrators, and teachers in the academic service areas of Phranakhon Rajabhat University from 81 schools in locations covering upper Bangkok area and Nonthaburi. The samples were 145 samples selected by purposive sampling in following; 24 local wisdom

elites, 6 administrators, and 115 teachers. The 24 local wisdom elites were selected from name lists suggestion from Phranakhon Rajabhat University and school administrators. The 115 teachers which were 37 teacher leaders of learning strand in schools and 78 general teachers from every learning strand in schools in order to get the basic information about local wisdom presented in school curriculum or activities.

Conceptual framework of research

The professional development model on Constructionism with local wisdom – based learning management for pre-service teachers was developed by research and development process using the data collection both in quantitative and qualitative data which showed in following;

1. The data of local wisdom was about knowledge from person and resources which surveyed from local wisdom elites and document analysis.
2. The data of situations and problems in integrated local wisdom in learning management in schools was surveyed by questionnaire.
3. The professional development model was researched by review of the literatures on learning in the 21st century, constructionism, local wisdom in schools, and teacher professional development. Moreover, the survey results about local wisdom and situations and problems in integrated local wisdom were considered and analyzed to develop the model.

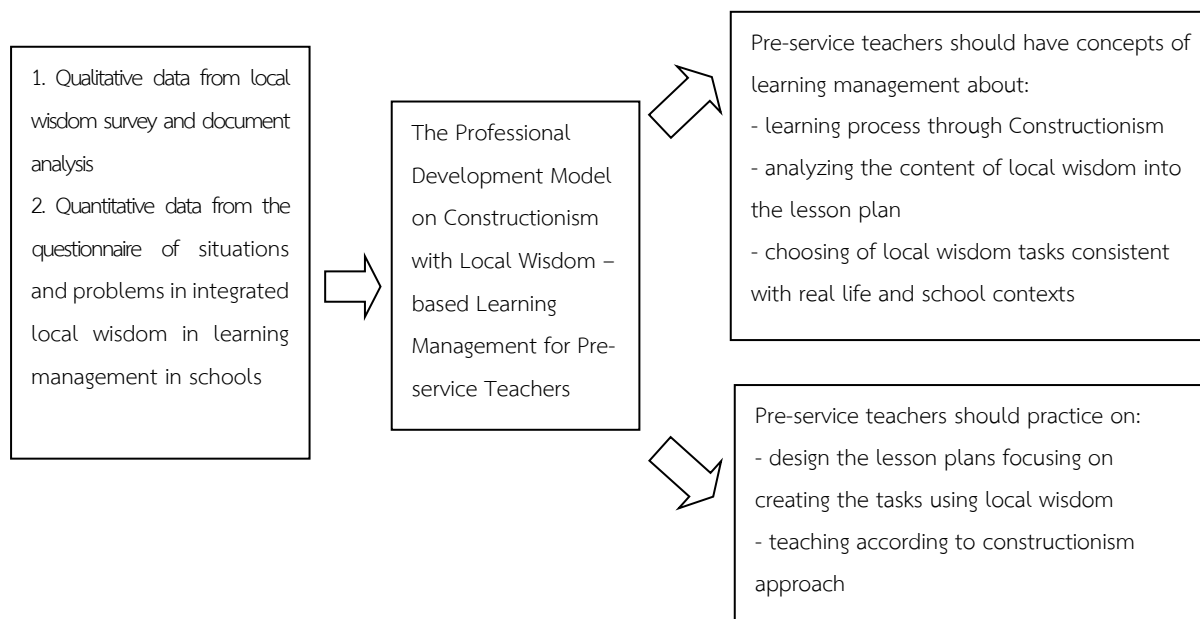


Figure 1 the conceptual framework of research

Methodology

The research methodology was Research and Development (R and D) in order to develop the professional development model designed by 4 steps in following;

Step 1 (R1) : Defining the conceptual framework for local wisdom and the guidelines for designing the Constructionism learning management from reviewing the literatures from various information sources, analyzing the document to get the essence of knowledge

Step 2 (D1) : Developing the research tools and checking their quality by experts for content validity and suitability.

Step 3 (R2) : Surveying the situations and problems about integrated local wisdom in learning management in schools by questionnaire.

Step 4 (D2) : Developing the professional development model on Constructionism with local wisdom – based learning management for pre–service teachers which consistent to the situations and problems in integrated local wisdom in learning management in schools and checking the quality by experts for content validity and suitability. Then adjusting and correcting according to the recommendations.

Research tools

The research tools were designed by using 5 points Likert Scale and checked by experts. The quality of research tools examined by using the index of item objective congruence (IOC) for content validity and the rating scale 5 levels for suitability. The results of research tools quality showed that;

1. the questionnaire of situations and problems in integrated local wisdom in learning management in schools presented the good level (IOC = 0.80 and suitability = 4.32)

2. the evaluation forms for the professional development model presented the good level (IOC = 0.78 and suitability = 4.24)

Data collection

The research tools were adjusted and corrected for objective congruence and suitability to collect the data. There were 4 steps (Semprevivo, 1976; Whitten & Bentley, 2007) for data collection in following;

Step 1 : Needs analysis was considered by using data from the questionnaire of the situations and problems in integrated local wisdom in learning management in schools. The questionnaires were distributed to 50 schools. There were 21 schools responded back. After that the 6 administrators and 20 teachers were selected by volunteer to be interviewed for deeper information and name list of the local wisdom elites connecting to schools. Then the researcher interviewed the 24 local wisdom elites to get deeper information about local wisdom taught in schools.

Step 2 : The data of needs analysis from step 1 and the review of the literatures were used as guideline to design the professional development model on Constructionism with local wisdom – based learning management for pre–service teachers.

Step 3 : The professional development model was developed by defined the components according to the Constructionism and local wisdom to create the learning modules.

Step 4 : The evaluation of model was conducted by experts review using the evaluation forms of the professional development model.

Data analysis

The data from questionnaires were analyzed by percentage, average and standard deviation, and the content analysis to identify the situation and needs of Constructionism with local wisdom – based learning management in schools. The data from the evaluation forms of the professional development model examined by experts were

analyzed by average and standard deviation. The average scores were compared with criteria in order to interpretation for the quality of the model (Boonchom Srisa-ard, 2002).

Research results

The results of this research could be presented in 2 topics

1. The components of the professional development model

According to the needs analysis for pre-service teachers' development from the situations and problems in integrated local wisdom in learning management in schools, the research found that the pre-service teachers should have knowledge on local wisdom and transmitted to the learners during their teaching practice. Moreover, the teacher preparation course should integrate the local wisdom to prepare the pre-service teachers to have idea of how to integrate the local wisdom in their lesson plans. In order to prepare the pre-service teachers to serve the needs of integrating local wisdom in classroom, the design of professional development model showed in figure 2

The components of the professional development model in figure 2 showed that it was designed on the conceptual frameworks in following;

1.1 The principles are the basic knowledge of the model

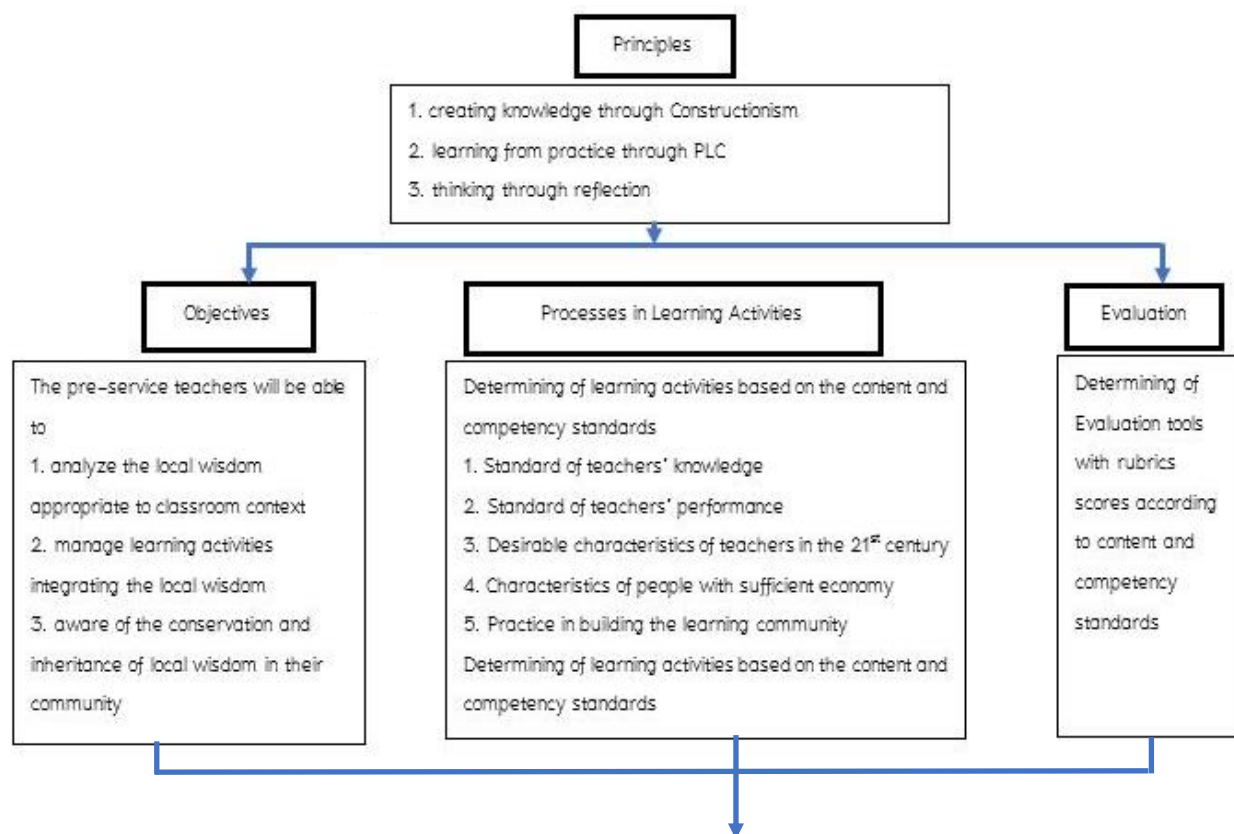
1.2 The objectives of the model cover 3 main aspects of learning objectives; knowledge of what is local wisdom and how to use in real life; skills of how to integrate local wisdom in classroom practice; and attitude of awareness and conservation for local wisdom in long-term.

1.3 The learning activities use content and competency standards those are;

(1) Standards of teachers' knowledge according to teaching professional (B.E. 2556) of Teachers' Council of Thailand which this research focused on 3 standards; teachership, learning and classroom management, and ethics of teaching profession.

(2) Standards of teachers' performance according to teaching professional (B.E. 2556) of Teachers' Council of Thailand.

(3) Desirable characteristics of teachers in the 21st century consist of critical thinking, problem solving, creativity and innovation, communication, teamwork, ICT literacy, flexibility and adaptation, and being a reliable producer and responsible.



Learning Modules	Activities in Learning Modules	
1. The spirit of being PNRU Teachers	1. Model of being a teacher	2. Knowledge of PNRU of freedom
2. Integrating local wisdom with philosophy of sufficiency economy into classroom	1. Crafted by hand (Ceramic work) 2. Crafts from local wasted materials 3. Dyeing batik	4. Process food according to the material context in the school 5. We can do herbal medicine
3. Strengthen techniques for transferring local wisdom to learners	1. Sufficiency economy and projects due to the royal initiative	2. Tips for bringing knowledge and local wisdom integrating into classroom
4. Designing the learning activities using local wisdom and sufficient economy	1. Practice writing lesson plan integrating local wisdom	2. Teaching practicing in accordance with the school context
5. Development of the professional learning community	1. Defining the components of a professional learning community	2. Community Meeting 3. The lesson learned of the teachers as practitioners

Figure 2 the components of the professional development model on Constructionism with local wisdom – based learning management for pre-service teachers

(4) Characteristics of people with sufficient economy philosophy consist of moderation, reasonableness, and risk management (self-immunity) those relied on knowledge and virtue or moral condition.

(5) Practice in building the learning community focuses on building the teacher team for integrated local wisdom lesson plans, reflecting the classroom teaching practice, and evaluating on their practice to improve.

1.4. Evaluation focuses on learning outcomes evaluation

(1) Competency of integrating local wisdom into the classroom focusing on two topics of 1) knowledge of integrating local wisdom by designing lesson plans and 2) teaching practice of implementing their lesson plan into practice

(2) Ethics of teaching profession

(3) Integrating the 21st century into classroom

(4) Integrating the sufficient economy philosophy into classroom

(5) Developing and solving problems with teachers, supervisors, mentors, and fellow teachers in preserving and inheriting local wisdom by integrating with learning management

The implementation of the professional development model is divided into 2 phases, which are;

Phase 1: Learning module 1–4 is the long-term workshop which occurred before the experience training in school. It takes 5 days, 6 hours per day in the workshop totally of 30 hours.

Phase 2: Learning module 5 is the professional learning community (PLC) which occurred during the experience training in school. It takes 1 semester, as shown in Table 1

Table 1 The activities and related parties in module 5 the professional learning community (PLC)

Topics	Duration	Activities	Related Parties
1 Defining the components of PLC	1 day	Before the experience training in school 1. Meet the school administrators, teacher mentors, and supervisors to clarify the goals of the development of learners by integrating local wisdom in their learning activities 2. Brainstorm and defining the topics, issues, or problems about how to develop learners by integrating local wisdom in school	– administrators – mentors – supervisors – pre-service teachers
2 Small group meeting	1 day	The small group meeting 1 day occurs during the experience training in school. The pre-service teachers exchange their own experience their supervisors, and other fellow teachers by 1. Explore and observe the situations of how school integrating the local wisdom in order to analyze the problems, strength, weakness to get important data 2. Outline of the lesson plans or project proposal on the development of learners by integrating local wisdom in their learning activities	– pre-service teachers – supervisors – informants such as mentors, students, parents, the traditional villagers

Table 1 (Continue)

Topics	Duration	Activities	Related Parties
2 Small group meeting (continued)		3. Work together with supervisor, mentors, and other fellow teachers to design lesson plans and try out according to PLC process 4. Undergo supervision through coaching and mentoring process at least 3 times and use additional online tools	
3 Lesson learned	1 day	After the experience training in school, there will be a meeting with all schools in the partnership. The school administrators, mentors, supervisors, and all pre-service teachers will share their experience in Constructionism learning management integrating the local wisdom.	– administrators – mentors – supervisors – pre-service teachers

2. The results of professional development model evaluation

The professional development model on the Constructionism with local wisdom – based learning management for pre-service teachers was examined by experts. The results from evaluation form with 5 Likert scales to check for quality of the professional development model presented in Table 2.

Table 2 The results of evaluation for the Constructionism with local wisdom – based learning management for pre-service teachers

Category of quality	\bar{x}	S.D.	Interpretation
The accuracy of principles and rationales	4.40	0.51	Agree
The appropriateness for the context and areas of the model	4.41	0.53	Agree
The possibility to apply the professional development model	4.22	0.51	Agree
The usefulness of the professional development model	4.58	0.46	Strongly Agree
The average scores	4.33	0.50	Agree

Table 2 shows that the total of quality of the professional development model on the Constructionism with local wisdom – based learning management for pre-service teachers was in “agree” levels ($\bar{x} = 4.33$), in following aspects; 1) the accuracy of principles and rationales of the model was in “agree” levels ($\bar{x} = 4.40$), 2) the appropriateness for the context and areas of the model was in “agree” levels ($\bar{x} = 4.41$), 3) the possibility to apply the model was in “agree” levels ($\bar{x} = 4.22$), and the usefulness of the model was in “strongly agree” levels ($\bar{x} = 4.58$).

Discussion

The results of the professional development model showed the good quality for implementing to develop the pre-service teachers on the Constructionism with local wisdom – based learning management. Moreover, it was appropriate and useful in the context of PNRU and the schools in the academic service area. The factors that promoted the professional development model in this research to be quality including the use of three basic principles; 1) building knowledge through Constructionism, 2) learning through the professional learning community, and 3) thinking through reflection. The long-term workshop and modeling promoted pre-service teachers learning by stimulating the real context and the desire to change teachers' teaching ability to apply local wisdom into classroom. The topics of local wisdom of PNRU and the community surrounded from research survey were 1) ceramic work, 2) crafts from local wasted materials, 3) dyeing batik, 4) process food and preservatives, 5) herbal medicine those are found as subjects of PNRU and some schools. In addition, coaching conducted through the professional learning community which involved the pre-service teachers, mentors, and supervisors is the process to building understanding and mutual agreement between those related parties about the scope of the role and responsibilities in this professional development model (Boonapai, Niyomsrisomsak, & Anaksuk, 2014). The collaboration learning found in process of providing basic knowledge through hands-on workshop and reflection before school experience training and exchanging teaching practice experience through seminar during the semester and the end of the semester of school experience training. By implementing the model could lead to new things and solve problems under specific problems found in each school. The pre-service teachers have confidence in expanding what they have learned in order to integrate local wisdom in their teaching practice more efficiently. (Jewchareonsakul, et al., 2013; Chatmaneerungcharoen, 2020; Netwong, 2020).

Recommendations

1. There is necessary to create mutual understanding between the related parties, supervisors, mentors, and school administrators. They play an important role to provide advice on integrating local wisdom in teaching practice.
2. The teacher mentors should have chance to develop themselves on integrating the local wisdom in teaching practice with this model in parallel with the pre-service teachers. So that teacher mentors can apply a guideline and advice more effectively.
3. The professional development model on the Constructionism with local wisdom – based learning management for pre-service teachers could be adopted to other areas. Teachers can apply in various local contexts, because the local wisdom in each area are unique. Teachers can study and take action using the local-wisdom by corresponding to the condition and problems of the areas.

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