

The Development Of Internal Supervision Model For Teacher Competency Development In Secondary Level Mathematics Learning Management For Charitable Schools Of Buddhist Temples

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Abstract

This research aims to study current conditions and the desirable condition including, construct and examine of internal supervision, to develop teacher competencies in mathematics learning management at the secondary level for charitable schools of Buddhist temples, the experimental and evaluative model of internal supervision was used. This is the Research and Development which is operated in 3 phases as follows:

Phase 1) Studied the current and desirable conditions of internal supervision to develop teachers' competencies in mathematics learning management at the secondary level for charity schools of Buddhist temples. The sample group consisted of 7 qualified experts, school administrators and 132 mathematics teachers. Tools used were assessment forms and questionnaires. Phase 2) To create and examine an internal supervision model to develop teachers' competencies in mathematics learning management for Buddhist temples' charitable schools. The sample group consisted of 9 executives who interviewed with Best Practices, a group of expert critics and the draft reviewed experts 5 people and a group of 9 qualified experts for the model confirmation. The tools used were assessment forms. Phase 3) An experiment and evaluation of the internal supervision model to develop teachers' competencies in mathematics learning management for Buddhist temples' charitable schools. The sample group was school administrators and deputy administrators, academic teachers, the core learning subjects heads, 3 mathematics teachers and 120 students. The tools used were tests, assessments, and questionnaires. The statistic in data analysis is the mean and standard deviation. The results showed that:

1.The current state of internal supervision for teacher competency

development in mathematics learning management at the secondary level for charity schools of Buddhist temples was at a high level, and the desirable state overall practice was at the highest level, the study of components and indicators consisted of 5 components and 58 indicators.

2. The constructing and examining the model that passed the supervision model quality evaluated from the qualified experts have 5 components as Component 1. The principle of the model. Component 2. The purpose of the model. Component 3. Internal supervision process (PIDE2R model) which consists of 5 steps are: 1) Planning: P. 2) Providing knowledge before supervision (Informing: I). 3) Supervision Operations (Doing: D) with 4 sub-steps as: Pre-teaching observation meeting (Pre-Observation conference), Classroom Observation, analyzing data from teaching observation (Analyzing and Data collecting), Meeting after teaching observation (Post-Observation conference). 4) Supervision evaluation (Evaluating: E). 5) Reflecting & Reinforcing: 2R. Component 4. Model Evaluation, and component 5. Conditions for Successful Implementation of the Model.

3. The results of the trial and evaluation of the internal supervision model for teacher competency development in secondary mathematics learning management for charity schools of Buddhist temples were found that: 1) Knowledge test results and understanding of supervised teachers in mathematics learning management, supervised teachers have higher knowledge than before supervising. 2) The results of supervising teachers' ability to design learning management plans after being supervised have higher learning management abilities than before supervision and assessment results possibility and the usefulness of the supervision model overall, it was at the highest level.

Keywords: Internal supervision model, Teacher competency, Mathematics learning management

Derivation

Preparation of people for potential must be an analysis of the competencies necessary to live in a strong society, ready to face a variety of environments and problems. Developing people to have the ability to live creatively and happily in society, it is necessary to develop basic skills for the future including, critical thinking skills, thoughtfulness skills, social skills, creative thinking skills and problem solving skills (Treffinger.2008 : 1). Therefore, mathematics is useful for life, helping to improve the quality of life and being able to live happily with others (Ministry of

Education B.E. 2551: 50). Mathematics learning management under the National Education Plan B.E. 2560-2579, which aims to develop learners to have characteristics and learning skills in the 21st century, consisting of: Skills related to mathematics include Arithmetic skills, critical thinking skills, and Critical Thinking and Problem Solving Creativity and Innovation Skills. Mathematics is necessary for learners in the 21st century as a learning management that focuses on applying knowledge to solve problems in real life (Institute for the Promotion of Teaching Science and Technology, B.E. 2557). When considering the results of the Basic National Educational Test (O-NET) during the year 2560-2562 B.E., the core learning subjects at the secondary level found that, Mathematics is one of the subject that has the lowest averages in Thailand while the world is concentrating on mathematics and needs a population that knows mathematics. Thai students have consistently declined in learning outcomes which contrary to the demands of the labor market and the need for personal life in nowadays world. The state needs a modern math and science curriculum with new methods of teaching and learning, should have a textbook as well as suitable teaching equipment for students and teachers, including effective teacher training (Institute for the Promotion of Teaching Science and Technology, B.E. 2558). Mathematics teachers today, must have competency in their work, to develop oneself to have knowledge and ability to manage teaching and learning to meet the standards of education management policies that are progressive, comparable to other countries, in line with international standards. (Institute for the Promotion of Teaching Science and Technology, B.E. 2545). Teacher development still lacks an effective development system. Therefore, there is no clear quality and standard curriculum and content, it is inconsistent with the need for self-development of teachers, causing learning management to fail to achieve success (Watcharee Kankirati, B.E. 2554). The Internal Supervision process is very important in developing teachers into individuals who are full of potential in effective learning management, directly affects the quality of effective learners can be operated continuously and is a quality system, because those who perform supervision duties are those who are in educational institutions and are close to teachers, know and understand the advantages, strengths, and things that should be improved and further develop the teachers in that educational institution (Preeyaporn Wonganutaraj. B.E. 2546). Teaching supervision is very important to enhance the efficiency of teachers and schools, in order to make students have higher learning potential, teachers must be of higher quality first (Wichai Wongyai, B.E. 2554). Just like an Expert Teacher in managing learning, only able to create an expert learner effectively (Watchara Tuereandee, B.E. 2556). Educational supervision is a part of educational quality assurance that educational institutions regularly use to improve teaching. Supervisors responsible for an important role in

helping schools successful in the mission of improving the quality of education (Sittiphorn Niyomsrisomsak. B.E. 2547). School administrators responsible for an important role in pushing for internal supervision to be successful and beneficial to improving teaching and learning in schools to be effective (Chari Maneesri, 1999). From the above information the researcher was therefore interested in the development of the internal supervision model of the temple's charitable school in Buddhism, this is the starting point for measuring the results of education management that produces the nation's youth in today's highly competitive world.

The internal supervision model is an effective tool for developing teacher competencies in mathematics learning management. This approach involves using a supervisor who works closely with teachers to support and coach them on their professional development. The supervisor provides guidance and feedback that are specific, measurable, and actionable. An example of the success of this model is seen in a study conducted in Thailand, where internal supervision was used to support primary school teachers in improving their mathematics teaching. The study found that teachers who received the supervisor's support were more effective in teaching, and their students showed significant gains in their math performance. Another example of the effectiveness of internal supervision can be found in a case study in Indonesia. Internal supervision was used to support teachers in developing mathematical pedagogical content knowledge. The teachers received regular coaching sessions with their supervisors, who provided feedback on their teaching practices and helped them develop new teaching strategies. The intervention resulted in significant improvements in the teachers' competencies, and their students showed improved math performance.

The need for internal supervision models in mathematics learning management at the secondary level for charitable schools in Buddhist temples arises from the desire to ensure quality education among students. Mathematics is a critical subject, and its mastery is essential for the academic and professional success of students. However, the teaching of mathematics can be challenging, and there is a need for proper supervision to ensure that teachers adhere to approved curricula and use effective teaching methods, which provides an effective way to ensure that the quality of mathematics education is maintained. These models allow for regular monitoring and evaluation of the teaching and learning process, enabling teachers to identify areas that need improvement and to take appropriate action to improve instruction. Additionally, internal supervision models enable the identification of the strengths and weaknesses of teachers and provide the necessary support to overcome weaknesses and maximize strengths.

Therefore, the researcher is interested in studying the topic of “The development of internal supervision model for teacher competency development in secondary level mathematics learning management for charitable schools of Buddhist temples”. The results of the research will provide a model and a method for sustainably increasing the effectiveness of internal supervision of charitable schools in Buddhist temples. And it is a guideline for formulating plans and policies for teacher development in learning management to be suitable for charitable schools of Buddhist temples in order to achieve the objectives and goals of the school, able to raise the quality of education to be even higher, and is to build a foundation to strengthen the educational institution, be able to manage continue to study with quality and efficiency standards. And the questions for this research are: 1) What are the current and desirable conditions of internal supervision for teacher competency development in mathematics learning management at the secondary level for charity schools of Buddhist temples? 2) What should be an appropriate model of internal supervision for developing teacher competencies in mathematics learning management at the secondary level for charity schools of Buddhist temples? 3) What were the results of the trial and evaluation of the internal supervision model for teacher competency development in mathematics learning management at the secondary level for charity schools of Buddhist temples?

Objectives of the research

1. To study the current and desirable conditions of internal supervision to develop teacher competencies in mathematics learning management at the secondary level for charity schools of Buddhist temples.
2. To create and examine a model of internal supervision to develop teachers' competencies in mathematics learning management at the secondary level for charitable schools of Buddhist temples.
3. To evaluate the model of internal supervision to develop teachers' competency in mathematics learning management at the secondary level for charitable schools of Buddhist temples.

Research Methods

Research methodology uses Research and Development by conducted in 3 phases, to study the current and desirable conditions of internal supervision and to study the elements and indicators of internal supervision to develop teachers' competency in mathematics learning management at the secondary level for charitable schools of Buddhist temples. Establish and validate forms of internal supervision to develop teachers' competencies in mathematics learning management at the secondary level for charitable schools of Buddhist temples. Experimental

and evaluation model of internal supervision to develop teachers' competencies in mathematics learning management at the secondary level for charitable schools of Buddhist temples, the population and samples in the research are: **Group 1.** Educational Institution Administrators and teachers in model schools in internal supervision (Best Practice), 3 schools with 3 people from each school, totaling 9 people by interviewing and study visits. **Group 2.** School administrators, academic teachers and school teachers Charity of Buddhist temples across the country, 132 people from 35 schools by questioning. **Group 3.** Qualified experts with expertise in educational administration, educational supervision school administration and learning management to inspect the draft of 5 people and a group of qualified experts confirming the model of 9 people through group discussions and, **Group**

4. Director or the deputy director, supervisor, academic teacher, teacher from the Charity School of a Buddhist temple who volunteered to test with the model, totaling 3 people.

To Collection data in this research, The internal supervision model data were collected for the development of teacher competency in mathematics learning management at the secondary level for charity schools of Buddhist temples, using a questionnaire structured records from those involved including, school director, academic teacher and teacher who organizes secondary mathematics learning for the Buddhist temple's charitable school. Assessment and Confirmation of Internal Supervision Model for Teacher Competency Development in Secondary Mathematics Learning Management for Charity Schools of Buddhist Temples from qualified experts by focus groups, data were collected for experimental use of an internal supervision model to develop teacher competencies in mathematics learning management at the secondary level for charitable schools of Buddhist temples by the suitability assessment form possibility and the usefulness of the model. Analyze and synthesize information about components and indicators of internal supervision for teacher competency development in secondary mathematics learning management for charity schools of Buddhist temples by Content Analysis obtained from interviews, analyzing and synthesizing qualitative data from open-ended questions and interview form an analysis of internal supervision assessment data to develop teacher competencies in mathematics learning management at the secondary level for charitable schools of Buddhist temples and analyzing the experimental data using an internal supervision model to develop teacher competencies in mathematics learning management at the secondary level for charitable schools of Buddhist temples, used ready-made computer programs, Analyze the Mean and Standard Deviation.

Research Results

1. The current state and the desired state of internal supervision for teacher competency development in mathematics learning management at the secondary level for charity schools of Buddhist temples, it was found that, the current state of internal supervision for teacher competency development in mathematics learning management at the secondary level for charity schools of Buddhist temples was at a high level.

When considering in each aspect basis, it was found that, the aspect with the highest mean was supervision planning and data analysis. The desirable condition of internal supervision for teacher competency development in secondary mathematics learning management for charitable schools of Buddhist temples overall practiced was at the highest level. When Considering each aspect it was found that, the aspect with the highest mean value was teaching observation, meeting before teaching observation and supervision planning, the results are shown in Table 1.

Table 1. Mean and Standard Deviation Current and Desirable Conditions of Internal Supervision for Teacher Competency Development in Secondary School Mathematics Learning Management for Charity school of Buddhist temples.

Assessment Items	Currently State			Desirable Condition		
	$\bar{X}$	S.D.	Interpret	$\bar{X}$	S.D.	Interpret
1. Supervision Planning.	4.34	0.40	high	4.63	0.55	highest
2. Knowledge providing before the supervision (Informing).	4.27	0.44	high	4.63	0.55	highest
3. Supervision operating (Doing).						
3.1 Meetings before teaching observations.	4.24	0.48	high	4.59	0.57	highest
3.2 Teaching observation.	4.37	0.55	high	4.67	0.53	highest
3.3 Analysis of teaching observation data.	4.33	0.52	high	4.63	0.55	highest
3.4 Meeting to give feedback after observing the teaching.	4.31	0.50	high	4.60	0.57	highest
4. Supervision Evaluating.	4.18	0.55	high	4.63	0.55	highest
5. Reflecting & Reinforcing : 2R	4.27	0.82	high	4.60	0.57	highest
Total Average	4.29	0.37	high	4.62	0.18	highest

From Table 1, the mean and standard deviation of current and desirable conditions of internal supervision for teacher competency development in secondary mathematics learning management for charity schools of Buddhist temples, by analyzed with a ready-made program, it was found that, the current state of internal supervision for teacher competency development in mathematics learning management at the secondary level for charity schools of Buddhist temples was pat

a high level ($\bar{X} = 4.29$, S.D.= 0.37). When considering in each aspect basis, it was found that, the aspect of supervision operations that had the highest average was teaching observation ($\bar{X}=4.37$, S.D.= 0.55), supervision planning ($\bar{X} = 4.34$, S.D.= 0.40), Supervision Operations data analysis from teaching observation ($\bar{X} = 4.33$, S.D.= 0.52) and the desirable condition of internal supervision for teacher competency development in secondary mathematics learning management for charity schools of Buddhist temples was found that, the desirable state of internal supervision for teacher competency development in mathematics learning management at the secondary level for charity schools of Buddhist temples. Overall, there was practice at the highest level ($\bar{X} = 4.62$, S.D.= 0.18). When considering in each aspect basis, it was found that, the desirable condition of internal supervision for teacher competency development in secondary mathematics learning management for charitable schools of Buddhist temples with the highest average was the operational supervision. Supervision with the highest mean was instructional observation ($\bar{X} = 4.67$, SD.= 0.53). Supervision planning ($\bar{X} = 4.63$, SD.= 0.29) and Reflection and Reinforcement ($\bar{X} = 4.60$, SD.= 0.57).

Additional comments:

The present condition of supervision for teacher competency development in mathematics learning management at the secondary level found that,

- Supervisors still lack knowledge and understanding of methods and techniques of supervision, class observation and the supervision recipients still feel like they've been caught. Therefore, not being open to accepting supervision
- Personnel and educational institutions do not have clear goals and aims in supervision.
- Personnel are less involved in event planning have a problem with the condition analysis goal setting to success.

The results of a study of guidelines for the development of teacher competency in mathematics learning management at the secondary level for charitable schools of Buddhist temples. Guidelines for teacher competency development in secondary mathematics learning management for charitable schools of Buddhist temples by asking from a sample of 132 people, there are guidelines for learning mathematics at the secondary level in 4 aspects as follows:

1. Knowledge about mathematics learning management (Knowledge) has the following guidelines: There is a study about the nature of mathematics, nature of mathematics content

analysis of mathematics learning prior to learning management design. There is an analysis of mathematics learning content that is consistent with the core curriculum analyze the context of schools and learners. There is a collection, analysis of individual learners in order to use the results to plan and design a learning management that is suitable for the potential of the learners. Study and research techniques method of teaching mathematics, including the use of technology media to design innovations that emphasize knowledge and mathematical processes for students. There is a wide range of mathematics learning outcomes to be measured and evaluated covering knowledge, skills and behavior.

2. Personality in learning management (Personality). Teachers have verbal expressions with a tone of kindness, good intentions, softness, and speaking with an appropriate style. Have self-confidence, have a cheerful disposition, funny, have good condition physical health, have a clean and tidy dress, look good, respectable, energetic active all the time. Have good emotional control, eager to acknowledge or pass on various knowledge, have a cheerful mood, smiling, high responsibility to oneself, to others and to work, tolerance to learner behavior. Leadership in general, be discipline, humble, behave appropriately in society, cooperate with others, communities and society, behave as a good role model. Have good wit, knowledgeable on research, computer and various media and technologies, have teaching techniques developed to make learners eager to learn and keep pace with technology, overall with good appraisal measure.

3. Learning Management Skills (Skill) . Teachers have designed learning management for learners to have knowledge and abilities according to clearly defined goals, both the course structure and target specify evidence that the learning outcomes are based on the specified goals selection of teaching materials. Management a learning plan that contains the content/substance of learning, consistent with the learning objectives in terms of knowledge, skills, and desired attitudes or characteristics, learning activities, teaching is diverse, appropriate and in line with the abilities of the learners. Skills in using a variety of learning materials media that coherently with the content of teaching mathematics that helps learners to learn well, the media is suitable for the age and potential of the learners, including being modern. Creating a good atmosphere in the classroom so that the students do not become bored. The use of stimulus reinforcement setting up an atmosphere conducive to teaching and learning thorough attention.

Comprehensive measurement and evaluation of both observation and recording of the learning development of all learners, measurement and evaluation before, during and after learning, measure and assess the knowledge and abilities of learners according to real conditions, create and use measurement tools and evaluate exactly what to measure and research in the classroom and take advantage of research to develop teaching and learning.

4. Attitude towards learning management (Attitude). Teachers' satisfaction with the internal supervision process observing teaching supervision atmosphere those involved in teaching supervision, the results of using the instructional supervision model. Student opinions, students have knowledge and understanding of practice skills, interaction with friends, benefits derived from learning and teacher satisfaction with learning management.

Table 2. Shows the results of the analysis of the priority index of needs for internal supervision to develop competency in mathematics learning management (by aspect).

PNI each aspect	Mean desired condition (I)	Average Current Condition (D)	PNI	Number
1. Supervision Planning.	4.70	3.26	0.44	4
2. Knowledge providing before the supervision (Informing).	4.87	3.26	0.49	2
3. Supervision operating (Doing).				
3.1 Meetings before teaching observations.	4.89	3.32	0.47	3
3.2 Teaching observation.	4.88	3.20	0.53	1
3.3 Analysis of teaching observation data.	4.75	3.30	0.44	4
3.4 Meeting to give feedback after observing the teaching.	4.96	3.57	0.39	5
4. Supervision Evaluating.	4.93	3.60	0.37	6
5. Reflecting & Reinforcing : 2R	4.70	3.26	0.44	4

From Table 2, shows the analysis results of the current conditions and the need for internal supervision to develop teachers' competency in mathematics learning management, it was found that, mathematics teachers had the need for self-improvement respectively which are teaching observation, providing knowledge before supervision (Informing).

The issues that require knowledge before supervision include supervision operations and supervision styles. Basic Education

Core Curriculum B.E. 2551 and Learning standards and indicators (revised edition B.E. 2560).

The concept of teacher competency in mathematics learning management. and teacher development in the use of media innovation and a wide range of technologies suitable for students learning content and activities that the researchers brought these issues to educate teachers.

2. Evaluation results of internal supervision model for teacher competency development in secondary mathematics learning management for charity schools of Buddhist temples. Suitability, possibility and usefulness, evaluated by 9 qualified experts, after confirming the internal supervision model for developing teachers' competency in mathematics learning management at the secondary level for charity schools of Buddhist temples. Summarize and analyze evaluation results shown in Table 3.

Table 3. Presents the mean and standard deviation of the evaluation results of the model and the internal supervision model manual to develop teachers' competencies in mathematics learning management at the secondary level for the temple's charity schools in Buddhism.

Components	Appropriation			Possibilities			Beneficial		
	X	S.D.	Level	X	S.D.	Level	X	S.D.	Level
1. Principles of models.	4.75	0.46	highest	4.88	0.35	highest	4.75	0.46	highest
2. Purpose of the model.	4.63	0.74	highest	4.88	0.35	highest	4.88	0.35	highest
3. Supervision process.	4.90	0.19	highest	4.77	0.17	highest	4.80	0.21	highest
4. Assessment of the supervision model.	4.88	0.35	highest	4.75	0.46	highest	4.88	0.35	highest
5. Conditions for success.	4.75	0.46	highest	4.63	0.52	highest	4.88	0.35	highest
Total average.	4.83	0.17	highest	4.78	0.15	highest	4.82	0.18	highest

From Table 3, it was found that, evaluation results of internal supervision model for developing teachers' competency in mathematics learning management at the secondary level for charity schools of Buddhist temples,

suitability, possibility and usefulness, overall level of suitability, possibility and usefulness, the average level is the highest in all aspects which suitability aspect ($\bar{X} = 4.83$, S.D.= 0.17). Possibility aspect ($\bar{X} = 4.78$, S.D.= 0.15) and beneficial aspect ($\bar{X} = 4.82$, S.D.= 0.18). The researcher brought the results of the document study. A study of the current situation and the need for internal supervision to develop teachers' competencies in mathematics learning management at the secondary level for charitable schools of Buddhist temples, which structure elements of the model consists of 5 components which are: principle of model, purpose of the model, supervision process, model evaluation and conditions for success as follows:

1. Principles of the model, it is a supervision that emphasizes the participation of all personnel using democratic principles. Have the collaborative atmosphere, accept each other's opinions and encourage, support and assist teachers to be successful in the tasks, have professional advancement and work efficiency.
2. Purpose of the model are to develop administrators and supervising teachers to have knowledge, understanding of supervision models. For administrators and teachers to use the model in supervision to develop teachers' competency in mathematics learning management. For administrators and supervised teachers to apply the results from the implementation of the model, used in operational development and effective learning management.
3. Supervision process (PIDE2R model).

Step 1. Planning : P, Joint development planning by everyone collaborating in analyzing the conditions of mathematics learning management and joint development goals, joint development plan in order to achieve clear goals by raise awareness of the importance of the roles of mathematics and supervision for teacher competency development in providing learning in the 21st century also an analysis of current conditions, problems, and needs for supervision to develop teachers' competency in mathematics learning management by using administrator and teacher meetings. **Step 2.** Providing knowledge before supervision (Informing : I), Providing knowledge about the Basic Education Core Curriculum, B.E. 2551 Mathematics learning group learning management design

measurement and evaluation and internal supervision to develop the management of learning mathematics at the secondary level. **Step 3.** Supervision Operations (Doing : D) with 4 sub-steps to develop the management of learning mathematics at the secondary level are, Pre-teaching observation meeting (Pre-Observation conference). Classroom Observation. Analyzing data from teaching observation (Analyzing and Data collecting). Meeting after teaching observation (Post-Observation conference) with details of each step which are: Consultation meeting before teaching observation (Pre-Observation Conference) have an Objective as:

1) To know information about teachers' intentions and teaching objectives (course content, teaching process plans, teaching methods, teaching activities, equipment and teaching materials and measures for measurement and evaluation). 2) Create a preliminary agreement between teachers and supervisors (such as items or problems that teachers are interested in to allow supervisors to observe while teaching in order to obtain feedback). 3) A consensus on the use of equipment for observing the teaching (such as, will the moderator use a voice recorder to observe the teaching? teaching observation form, time spent observing teaching).

Classroom Observation have an objective which are: 1) To observe the teaching behavior of the teachers in the lessons and the teaching plans that the teachers have drawn through the revision meeting together with the supervisors in step one.

2) To review and collect events arising from observing the teaching during the teaching process. 3) To assess the teaching and learning management to explore what the following conditions are? Is it according to the intention of the instructor? How is the teaching method? (especially if planning to teach as a team) What is the teacher's characteristic teaching behavior and the history of teaching behavior in the past (as it actually appears in the classroom). 4) To consider the observations that indicate the implications of the supervision that will be used as a guideline for further improvement of teaching. 5) To formulate a plan (tactics) to assist teachers, including key issues, questions, ideas, and problems to be raised for consideration during the next inservice meeting and the role of the supervisor during the supervisory meeting.

Analyzing and Data collecting Analyzing and synthesizing the data from observation and preparing the data for use in the post-observation meeting, by giving teachers time to rest from

teaching and prepare to attend meetings after observing the teaching.

Post Observation Conference have an objective as: The main purpose of the operation in this step is to provide feedback and to provide guidelines for further improvement of teaching and learning, it would be appropriate to review the preliminary agreement (according to Step P.) would be extremely helpful, the purpose of this step are: 1) To encourage and satisfying teachers. 2) To limit concerns about key issues in teaching to provide feedback. 3) To offer help, advice (if the opportunity allows, possible and appropriate). 4) To train teachers to understand the ability and technique to supervise oneself (self-supervision). 5) To develop motivation to create a professional self-analysis (professional self-analysis). **Step 4.** Supervision evaluation (Evaluating : E) Before evaluation, follow-up is used to monitor operations by tracking through online social networks (Social online, Line group) and document-based assessment.

1. Follow up and assess knowledge about learning management, consisting of knowledge and understanding of the nature of mathematics, mathematics teaching curriculum, learners, techniques, methods of teaching mathematics development and use of learning materials and measuring and evaluating learning outcomes.
2. Follow up and assess learning management skills, consisting of learning design abilities, including the preparation of learning management plans, learning management use of mathematical thinking skills, skills in using media, technology, and assessment skills in learning management.
3. Monitoring and evaluating attitudes toward learning management such as, mathematics teachers' feelings and thoughts towards learning management reflecting their appreciation, importance, satisfaction, and behavioral trends in learning management, the students' feelings towards the learning management of the supervised teachers according to the competency-enhancing supervision model.
4. Follow up supervision during operation and assessment after operation with the variety of assessment methods that are consistent with the objectives and supervision activities.
5. Follow up and observe the work behavior of the supervision recipients.
6. Discuss or ask questions about the supervision recipients, colleagues or related persons.
7. Check the performance of the supervision recipients.

8. Use questionnaires to track performance.

9. Meeting to consider jointly between the supervisors and the supervisors to evaluate the results.

Objective: Aims on reflecting the school's educational management according to the scope of work set out in the supervision plan, as well as the suitability of the supervision process on strengths, weaknesses/how they should be developed? to be used as information for developing or solving problems in planning supervision in the future. **Step 5.** Reflection and Reinforcement : 2R

Reflecting & Reinforcing is a tool for the supervision recipients to exchange knowledge on the development of mathematics teaching and learning management, as well as to present academic works that improve the quality of learners and to promote the school as an organization of learning and innovation development.

4. Model evaluation, to apply the internal supervision model to develop teachers' competencies in mathematics learning management at the secondary level for charity schools of Buddhist temples, the schools should set guidelines for evaluating the implementation in the following sequence of steps: 1) Clarification meeting to create a clear understanding between school administrators and teachers about the implementation of internal supervision to develop teacher competency in mathematics learning management at the secondary level for charity schools of Buddhist temples. 2) Agreed to assign an assessment of the implementation of the internal supervision model to develop teacher competencies in mathematics learning management at the secondary level for charity schools of Buddhist temples. 3) Evaluate the implementation of the internal supervision model to develop teachers' competency in mathematics learning management whether it meets the objectives of the model or not as: Assess knowledge understanding of administrators and supervising teachers, recipients of the supervision on implementing internal supervision to develop teachers' competency in mathematics learning management by test or interview.

Assess the ability to design learning management plans of internal supervision recipients to develop teachers' competency in mathematics learning management by using the learning management plan assessment form or check performance operation tracking through Line Group.

Assess the learning management skills of internal supervision recipients to develop teachers' competency in mathematics learning management by using the mathematics learning

management skill assessment form.

Evaluate the satisfaction of supervised teachers and supervised students according to the internal supervision model to develop teacher competencies in mathematics learning management.

Assess suitability possibility and the usefulness of the internal supervision model for developing teacher competencies in mathematics learning management at the secondary level for charity schools of Buddhist temples.

Summarize and report the results of internal supervision assessment for teacher competency development in mathematics learning management at the secondary level for charitable schools of Buddhist temples.

5) Analyze, synthesize assessment results to get feedback for improvement or to develop an internal supervision model to further develop teacher competencies in mathematics learning management.

5. Success Conditions, conditions for success means factors, conditions, or important practices that will lead to the implementation of the internal supervision model to develop teacher competency in secondary school mathematics learning management the charity of Buddhist temples that used to achieve the specified objectives are as: 1) School administrators and supervising teachers were developed and were ready or confident in implementing supervision to develop teachers' competency in mathematics learning management. 2) There is media budget support, teaching equipment performance and sufficient teaching materials. 3) School administrators, supervised teachers and supervised teachers receiving morale boosting in various forms as appropriate. 4) Teamwork, unity or unity of personnel.



Figure 1. An Internal Supervision Model for Teacher Competency Development in Secondary Mathematics Learning Management for Charity Schools of Buddhist Temples.

3. Evaluation results of the experimental use of supervision model to develop teacher competency in secondary mathematics learning management for charity schools of Buddhist temples. The results of this evaluation of the experimental use of the supervision model to develop teacher competency in mathematics learning management at the secondary level for charity schools of Buddhist temples. The researcher used a strategy for developing a mathematics teacher workshop, according to the activities established to develop the competency of mathematics teachers to have knowledge understanding of mathematics learning management, the evaluation results and summary of the evaluation results are as follows:

1) Knowledge test results, the understanding of the teacher receiving supervision

Knowledge test, understanding of teachers who participated in internal supervision workshops to develop teacher competency in mathematics learning management at the secondary level for charity schools of Buddhist temples before and after the training to compare mathematics teachers' knowledge by using t-statistics. test The results are shown in Table 4.

Table 4. Knowledge test results, understanding of Mathematics Teachers in Supervision for Teacher Competency Development in Secondary Mathematics Learning Management for Charity Schools of Buddhist Temples Before and After Supervision.

Test	N	Total Scores	$\bar{X}$	S.D.	df	t
Before Training	11	20	11	2.098	10	-7.087**
After Training	11	20	17.27	2.240		

* There was a statistical significance at the .01 level (df = 10, the critical t value was -7.087).

From Table 4, it shows that teachers who supervised before internal supervision, have knowledge and understanding of mathematics learning management with the mean knowledge level at 11 and a standard deviation of 2.098. and after receiving internal supervision, the mean was 17.27 with a standard deviation of 2.240 and when comparing between the scores before and after the study, it was found that, test scores after receiving internal supervision to develop teachers' competency in learning management. Supervised teachers have higher knowledge than before the training, statistically significant at the .01 level.

2) Evaluation results of supervising teachers' ability to manage learning.

After the researcher conducts supervision work, follow up on the performance, reflect and summarize the results, by evaluating the ability to manage learning of the supervised teachers learning design preparation of learning management plans Mathematics Learning Management in the use of technology media and measurement and evaluation after conducting internal supervision activities to develop teachers' competency in mathematics learning management, the results are shown in Table 5.

Table 5. Shows the assessment results of learning management skills of mathematics teachers.

Items	Assessment Items	Person 1			Person 2			Person 3			Average Each Items	
		1 st Time	2 nd Time	3 rd Time	1 st Time	2 nd Time	3 rd Time	1 st Time	2 nd Time	3 rd Time	$\bar{X}$	S.D.
1	Instructors.											
Average each aspect												
$\bar{X}$		3.40	4.20	4.80	3.20	4.00	4.60	3.40	4.20	4.60	4.04	0.85
S.D.		0.55	0.45	0.45	0.84	1.00	0.55	0.89	0.84	0.55		
2	Teaching and learning activities.											
Average each		3.25	4.25	4.75	3.50	4.13	4.63	3.13	3.88	4.63	4.01	0.86

aspect												
$\bar{X}$												
S.D.	0.89	0.71	0.46	0.53	0.64	0.52	0.83	0.83	0.52			
3	Skills in using media for learning management.											
Average each aspect												
$\bar{X}$	3.25	4.25	4.75	3.50	3.75	4.75	3.00	4.25	4.75	4.03	0.88	
S.D.	0.50	0.50	0.50	1.29	0.96	0.50	0.00	0.50	0.50			
4	Assessment of learning management.											
Average each aspect												
$\bar{X}$	3.33	4.00	4.67	3.50	4.50	4.83	3.50	4.17	4.67	4.13	0.78	
S.D.	0.52	0.63	0.52	0.84	0.55	0.41	0.55	0.75	0.52			
5	Atmosphere and classroom environment conducive to learning.											
Average each aspect												
$\bar{X}$	4.25	4.50	4.75	4.50	4.50	4.75	4.25	4.50	4.75	4.17	0.74	
S.D.	0.50	0.58	0.50	0.58	0.58	0.50	0.50	0.58	0.50			
Totaling conclusion.	Average $\bar{X}$	4.15	4.41	4.93	4.15	4.37	4.85	4.26	4.44	4.93	4.50	
	S.D.	0.77	0.64	0.27	0.66	0.63	0.36	0.59	0.70	0.27	0.64	

From Table 5, it shows that, the 1st time on evaluation of the mathematics learning management skills of the supervised teachers with:

- The 1st teacher was at a high level ($\bar{X} = 4.15$, S.D.= 0.77), the 2nd time was at a high level ($\bar{X} = 4.41$, S.D.= 0.64), the 3rd time was at the highest level ($\bar{X} = 4.93$, S.D.= 0.27).
- The 2nd supervised teacher, the 1st time was at a high level ($\bar{X} = 4.15$, S.D.= 0.66), the 2nd time was at a high level ($\bar{X} = 4.37$, S.D.= 0.63), the 3rd time was at the highest level ($\bar{X} = 4.85$, S.D. = 0.36).
- The 3rd supervised teacher, the 1st time was at a high level ($\bar{X} = 4.26$, S.D.= 0.59), the 2nd time was at a high level ($\bar{X} = 4.44$, S.D.= 0.70), the 3rd time was at the highest level ($\bar{X} = 4.93$, S.D. = 0.27).

When comparing the 3 supervision sessions, it can be seen that, the average score of the receiving supervision of all participant teachers were higher, it showed that all teachers who received the supervision had higher learning management skills after receiving the learning management supervision.

Summary of the results of an experiment using an internal supervision model to develop teacher competencies in mathematics learning

management at the secondary level for charity schools of Buddhist temples.

The results of using the internal supervision model to develop teachers' competency in mathematics learning management at the secondary level for charity schools of Buddhist temples, the researcher can summarize the results from the use of the model as follows:

1. The development of mathematics learning quality through supervision, this will allow teachers to organize learning to equip students with mathematical skills that can be used in higher levels of study and work in everyday life and in the future.
2. Mathematics learning management supervision make teachers aware of the importance of learning management, which teachers must start from studying the core curriculum of basic education management course analysis indicators for each grade level learning management design, start by writing a lesson plan and coherent to the design of activities learning, choosing the right media, including effective measurement and evaluation, for students to learn and have quality math skills.
3. Enhancement of learning management competencies of mathematics teachers, will make mathematics teachers well-versed in the content to manage learning and techniques that will be used to develop and can be applied in accordance with the needs of students.
4. An internal supervision model for developing teacher competencies in mathematics learning management at the secondary level for charity schools of Buddhist temples. There is a working model that arises from cooperatives in every step of development and it is a form that allows everyone to participate and learn by themselves and from peers, including receiving knowledge and things that must be put into practice, raising awareness, pointing out the importance of development, development goals, the role of the developer and the knowledge that will put it into action.

Supervision is a process that helps teachers to gain knowledge, understanding of benefits and a clear supervision process, to help giving teachers an advice or use questions for teachers to find answers themselves to develop effective learning management, by developing knowledge, skills, abilities, work experience, teachers' commitment and personnel in order to develop learners to have learning skills and achieve higher learning outcomes. Supervision enables teachers to discover their own strengths and areas that should be developed in learning management and resulted in teachers being enthusiastic in their work initiate creativity and innovations that are beneficial to teaching and be able to develop the potential of teachers in performing their duties, creating love, commitment to work and teaching in the classroom. Internal supervision to develop teacher competency in learning management of mathematics teachers make the love more pride in the

organization, teachers have self-confidence, believe in the potential of colleagues and acceptance learn together and create a social dimension in a good school and result in teachers being happy and ready to develop their work and the organization increased.

Discussion and Conclusion

The current state of internal supervision for teacher competency development in secondary mathematics learning management for charity schools of Buddhist temples, was practiced at a high level that the aspect with the highest average value was observation of teaching, supervision planning, data analysis and the desirable condition of internal supervision for teacher competency development in secondary mathematics learning management for charity schools of Buddhist temples were at the highest level.

The aspect with the highest average value was teaching observation, meeting before teaching observation and supervision planning which is part of the implementation operated according to the Strategy National and National Policy Development Plans of Ministry of Education that, aims to promote education to develop the potential of learners, in line with Charan Nuammano (B.E.2562) that researched about the development of an internal supervision model to develop teachers' competency in English language learning management for secondary schools in the Northeastern region of Thailand. The aims of this research are as follows:

1.To study the present and desirable conditions of teacher competency in English language learning management for secondary schools in the Northeastern region of Thailand, it was found that, the current condition of teacher competency in English learning management for secondary schools overall, was at a moderate level and the desirable condition of teachers' competency in English language learning management for secondary schools overall, was at the highest level. Therefore, the internal supervision model for developing teachers' competency in mathematics learning management at the secondary level for charity schools of Buddhist temples has been developed through a continuous and systematic process of studying, analyzing, constructing and developing, as follows:

A study of principles, concepts, theories, questionnaires, interviews, and information from those involved, to be used as basic information for designing a draft improve including, consideration of inspection, give suggestions to improve accuracy and suitability, according to the conceptual framework of internal supervision to be able to develop effective quality of education, until the form is correct and suitable and can be used for real, passed the supervisory model examination and manuals for using patterns from experts in terms of utilization standards,

feasibility standard, suitability standard, the accuracy standard (Stufflebeam and Shinkfield, 2007) was at the highest level.

There are 5 elements as: the principle of the model, purpose of the model, the supervision process (PIDE2R Model) which consists of:

1) Planning layer (Planning : P). 2) Stage of providing knowledge before supervision (Informing : I). 3) The supervision operation (Doing : D) which has 4 sub-steps as:

1) Pre-teaching observation meeting (Pre-Observation conference). 2) Classroom Observation. 3) Analyzing data from teaching observation (Analyzing and Data collecting). 4) Meeting after teaching observation (Post-Observation conference).

5) Evaluating (E) and Reflecting & Reinforcing (2R), which integrates the System Approach with the Contingency Approach.

Generally model must contain important elements. The structure of the model must contain a Causal Relationship that can be used to explain the phenomenon. The model must be able to help the imagination, Concept and relationships (Interrelations), as well as help expand the scope of the quest for knowledge, the model should consist of, structural relationships (Thasana Khaemane, B.E.2552).

This research is the development research using the guidelines and procedures of ADDIE in developing the supervision model as follows:

An analysis of the design of an academic supervision model, Academic supervision model design, Academic supervision model development, Implementation of the Academic Supervision Model to Improve Teacher Performance and evaluating the implementation.

This is a relevant and effective practice to improve teacher performance, the supervision model developed according to the framework and designed on the basis of reliable principles, it is appropriate, possibility, correct and can be used to benefit.

It is a process that helps improve quality, improve teaching and student achievement, helps to change the teaching behavior of teachers to develop (Collin, 2003) affect the performance of teachers good relationship between teachers and administrators. This is consistent with supervision for developing teacher competency in learning management with internal supervision process, consisting of a study of basic data analysis (Analyzing), planning supervision (Planning), supervision operations (Doing), and evaluating the supervision results (Evaluating), consistent with Charan Nuammano (B.E.2562) that researched about the development of an internal supervision model to develop teacher competencies in English language learning management for secondary schools in the Northeastern region of Thailand, it was found that, there were 7 components which are: 1) The principle of the model. 2) The purpose of the model. 3) Implementation Mechanism. 4) Internal supervision content. 5) The internal supervision process consists of basic information analysis (Analyzing : A), supervision planning (Planning : P),

supervision operations (Doing : D) and evaluation of supervision results (Evaluating : E). 6) Assessment Model and, 7) conditions for success in implementing the model, accordance with (Ampha Pratumchai. B.E.2563), supervision process to improve teaching and learning management consists of, Planning, Supervision Organizing, consulting meetings before class observation (Pre Observation Conference), class observation (Observation), Meeting after class observation (Post Observation Conference), Reflection of self-learning management (Self-Reflecting) Supervision Evaluation (Evaluating), (Daensena. 2020).

The promotion of English learning management competency for teachers' communication consists of, data analysis, preparation educating, supervision operations and providing feedback (Maliwan Somsri. B.E.2563), Provide knowledge (Educate), Supervision Planning (Plan), Implement, Reflect and Evaluation (Pongsri. 2020).

The competency of teachers' learning management that affects the successful performance of the work consists of, Knowledge, Skill and personal attributes (Attributes) it is something that can be strengthened through training and development and can be used to manage learning for learners effectively (Chroywan Prasertphol. B.E.2556).

The trial and evaluation of the internal supervision model for teacher competency development in secondary mathematics learning management have yielded promising results. This model was designed to improve teacher competencies and enhance student learning outcomes through ongoing professional development and support. The trial results indicated that the model's implementation positively impacted teacher practices and student performance. The teachers who participated in the program demonstrated improved teaching strategies and were better equipped to meet the needs of their students. Additionally, the model enabled mentors to provide targeted and individualized support to teachers, further enhancing their teaching practices. Furthermore, the model fostered a culture of collaboration among teachers, which resulted in the sharing of best practices and increased opportunities for professional growth. The program also facilitated the exchange of ideas and strategies, leading to improved instructional delivery in the classroom.

As a result, the format is appropriate, have a possibility and is useful.

Overall, it was at a high level in all aspects.

The results of using an internal supervision model to develop teacher competency in mathematics learning management at the secondary level for charity schools of Buddhist temples, teachers had higher learning management competencies and internal supervision competencies. This was because the supervision model, derived from analyzing and synthesizing documents, concepts, theories, relevant research and field

trips to schools that have excellent practices in teacher competency development in secondary school mathematics learning management, according to strategies development plans, policies at the national level and at the Ministry of Education level

which aims to promote education to develop the potential of learners, there is a systematic operating procedure, can check continuously and consistently improve each step of the workflow.

Supervision preparation planning stage (Planning), Supervision operation stage, Supervising, Evaluating, and Reflecting, these are supervision processes within schools that are used to support teachers to aim for long-term professional growth, which will have the greatest effect on the development of students, consists of, a study of current conditions, problems and needs for supervision, supervision planning, Media Creation and Tools, and educational supervision practices (Office of the Basic Education Commission. B.E.2551), make learners have higher learning potential, teachers must also be of higher quality (Wichai Wongyai, B.E.2554). This is very important to increase efficiency for teachers and schools. Emphasis is placed on teaching supervision of teachers, which is to provide direct assistance to teachers, enhancement of professional experience, developing group work skills, curriculum development, action research in the classroom (Glickman. 2004). A process that will result in improvements of teaching and learning for teachers by working with relevant people to stimulate the progress of teachers and aims to help teachers, so that can help themselves (Spears. 1967). It is the development and improvement of teaching and learning to suit the situation and reflect on the development of students, consistent with the process of educational supervision "POLCA" including Planning processes (P) refer to the planning of operations. Organizing processes (O) refers to the organization of operations by creating rules for working, creating relationships between divisions of labor by specifying the duty of Leading processes (L) refer to the role as a leader performing diagnostics, consulting, motivating, controlling processes (C) refer to the Operational Control. Assessing processes (A) refer to the auditing performance by evaluating performance (Ben M. Harris. 1985) and the P-D-C-A quality cycle that can be used as an educational supervision process that consisting of, Plan (P) as planning for quality improvement, Do (D) as implementation of the plan, Check (C), Action (A), appropriate action (Deming, 1986). Internal supervision is an important process, this will greatly improve the quality of teaching and learning. and student achievement was improved as a result of providing teachers with information technology assistance. Therefore, internal supervision will help to change the teacher's teaching behavior to develop (Collin. 2003). Factors affecting successful supervision consisted of teachers' performance. good relationship between teachers and school administrators not looking for mistakes. School administrators must

demonstrate successful teaching experience. (Abdulkareem. 2011). The current concepts of educational supervision and follow-up found that, significant differences between the concepts of teachers and study supervisors on current supervisory work. Consistent comments are: Understanding the Care Area, Knowing the Current Conditions and School Differences, Being a smart and trustworthy advisor, Use a variety of supervisory relationships between teachers and supervisors teacher involvement. The results are different indicators of school diversity access supervision development. More frequent visits have made schools look at standards of conduct differently and look after the well-being of teachers as part of the supervision process (Risso. 2013). As a result, the model of internal supervision to develop teachers' competency in mathematics learning management at the secondary level for charity schools of Buddhist temples. Teachers can be developed to have higher competencies in learning management and internal supervision.

Developing an internal supervision model for teacher competency development in secondary-level mathematics learning management is crucial to ensure students' academic enhancement. Charitable schools of Buddhist temples play a vital role in education and instill values such as compassion, kindness, and equality in society. Therefore, it is essential to incorporate internal supervision training to enhance teacher competence, which will influence student performance and character development. The model should entail developing a robust curriculum to equip the teachers with all the necessary tools and background knowledge to encourage student participation, critical thinking, and innovation. Additionally, teachers should possess strong pedagogical practices and the ability to integrate technology into the learning process to make mathematics interesting and interactive. Furthermore, the internal supervision model should involve mentorship and personalized training, as each teacher's weaknesses and strengths vary. Teachers' performance can be evaluated through regular testing, assessments, and collaboration with other teachers to identify areas that require strengthening. Collaboration can also provide new insights into teaching methods, ensuring that teachers maintain high competence levels in math teaching.

References

- Acheson, K.A. and M.D. Gall. (2003). Clinical Supervision and Teacher Development: Preservice and Inservice Applications. USA : John Wiley and Sons.
- Ampha Prathumchai. (B.E. 2563). Model Development supervision for joint professional development to raise the quality of teach for English teachers, grade 4-6 of the Office of Educational Service. Area Doctoral Education Thesis Department of Educational Supervision Faculty of Education Mahasarakham University.

Bellon, M. and O. Huffman. (1976). *Method of Clinical Supervision*. New York : McGraw-Hill.

Charan Nuammano. (B.E. 2562) *Development of an internal supervision model to develop teachers' competency in learning management English for secondary schools in Northeast*, Ph.D. thesis Doctor of Education Department of Educational Supervision Faculty of Education Mahasarakham University.

Charee Maneesri. (B.E. 2542). *Educational Supervision*, Bangkok : Buraphasat

Thitana Khaemane. (B.E. 2552). *Didactical : Knowledge for Managing an Effective Learning Process*. 10th edition. Bangkok : Dan Sutthakan Co., Ltd. Print Co., Ltd.

Charoywan Prasertphol. (B.E. 2556). *Models of Development, Learning Management Competencies of New Teachers in Private Schools, type of general education, teacher's thesis*, Doctor of Science Education Administration Graduate School Naresuan University. "The performance development model management of new school teachers private general education type, learn" *Journal of Education Naresuan University*. 15 (Special issue) : 43-53, B.E. 255

Cogan, M. (1973). *Clinical Supervision*. Boston : Houghton Mifflin. Collin, J.J.

(2003). *Modern and Postmodern Teacher Supervision and Evaluation : Perception of Secondary School Principals and Teacher*. *Dissertation Abstracts International*, 64(1), 33-A, July.

Daensena, P. (2020). *Supervision Model for Enhancing English Language Learning Management Competency of Private School Teachers*. *International Journal of Innovation, Creativity and Change*, 12 (11), 322-343.

Deming, W. Edwards. (1986). *Out of the Crisi*, MIT Center for Advanced Engineering Study. San Francisco, California : Jossey-Bass. Glickman, C.D. (1990). *Supervision of Instruction*. New York : Allyn and Bacon. Glickman, C.D. (2004). *Educational Administration: Theory Research and Practice*. 6th ed. New York : McGraw-Hill Inc.

Glatthorn, Allan A. *Differentiated Supervision*. Washington D.C. : Association for Supervision and Curriculum Development, 1999.

Goldhammer, R., Anderson, R.H. and R.J. Krajewski. (1980). *Clinical Supervision: Special Methods for the Supervision of Teacher*. 2nd ed. New York : Holt, Rinehart and Winston.

Good, Carter V. *Dictionary of Education*. New York : McGraw – Hill. , 1973.

Harris, B. M. *Supervisory Behavior in Education*. Englewood Cliffs, New Jersey : Prentice – Hall. , 1963.

Harris, B.M. (1985). *Supervisory Behavior in Education*. 2d ed. Englewood Cliff, New. Jersey : Prentice-Hall.

Institute for the Promotion of Teaching Science and Technology Mathematics Teacher Standards, Bangkok : Teachers Council Ladprao. B.E. 2545.

Institute for the Promotion of Teaching Science and Technology (STEM Education) (2014). [Online]. Available from :

[http://www.stemedthailand.org/wpcontent/](http://www.stemedthailand.org/wpcontent/uploads/2015/03/Intro-to-STEM) uploads/2015/03/Intro-to-STEM. [Retrieved on 26 July B.E. 2563].

Institute for the Promotion of Teaching Science and Mathematics, *Learning Management Manual for subject groups learn math*. Bangkok : Freight and Parcel Organization. (B.E. 2558).

Keeves P. J. (1988). *Educational Research, Methodology and Measurement: An International Handbooks*. Oxford: Pergamon Press.

Krongthong Chiradechakon, School Supervision Handbook, Bangkok: Than Aksorn, 2007.

Maliwan Somsri. (2563). Enhancing the competency of English learning management for Communicate Of primary school teachers under the faculty office Director of Basic Education in the Northeast Region. Doctor of Education Thesis in

Educational Supervision Faculty of Education Mahasarakham University. Ministry of Education Basic Education Curriculum B.E.2551. Bangkok: Teachers Council Ladprao Printing House, B.E.2550..

Office of the Basic Education Commission. (B.E. 2551). Basic Education Core Curriculum, B.E. 2551. Bangkok : Kurursapa Printing House.

Pongsri, S. (2020). Effective Supervision Model for Thai Language Learning Activity

of Private Elementary Schools. International Journal of Psychological Rehabilitation, 24 (07), 8828-8834.

Preeyaporn Wonganutaraj, (B.E. 2546), Teaching Supervision. Bangkok : Creative Media Center.

Sangad Utranan. (B.E. 2530), Educational supervision, principles, theory and practice (2nd edition), Bangkok : Mitsiam Printing House.

Sittiporn Niyomsrisomsak (B.E. 2547). Principles of Educational Supervision, Bangkok : Teaching Documents for Academic Supervision Analytical.

Spears, H. (1967). Improving the Supervision of Instruction. New York : Prentice-Hall.

Stufflebeam, D.L. and A.J. Shinkfield. (2007). Evaluation Theory, Models, and Applications. San Francisco : Jossey-Bass.

Treffinger, D.J., Isaken, S.G., and K.B. Dorval. Creative problem solving CPS Version (6.1) a contemporary framework for managing change. Accessed February 28, 2008.

Treffinger, Donald J. Self-Directed Learning. In Maker, C. June and Nielson, Alleene

B.Teaching Models in Educations of the Gifted. (2nd edition) Texas : PRO-ED. 1995.

Wichai Wongyai (B.E.2554). Curriculum development in higher education. 2nd edition. Bangkok: R&Print.

Watchara Tuereandee. (B.E.2556). Teaching Supervision and Coaching: Professional Development Theoretical Strategies into Practice. Nakhon Pathom : Silpakorn University.

Watcharee Kankirati, Mathematics Learning Management. Phetchaburi : Mathematics and Computer Faculty of Science and Technology Phetchaburi Rajabhat University B.E. 2554.