

Development of Teachers' Potential and Educational Personnel in Term of Authentic Assessment

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Abstract

The objective of this research was to develop teachers' potential and educational personnel in term of authentic assessment under the Buriram Primary Educational Service Area Office 2 by using 2 cycles of action research. Each cycle included planning, action, observation and reflection. The research group consisted of 10 people, the target group was 36 people, and the group of additional information providers was 25 people. The research instruments were test, observation form, interview form, and record form (Triangulation) and presented the results of descriptive studies. The results showed that in the development of teachers and educational personnel in the first cycle used brainstorming strategies by a way of sharing opinions on the process of finding ideas and ways to solve the similar problem together, strategies for training workshops by using a lecture method to provide knowledge based on the content framework, practical training, consulting advice, questioning and participatory supervision strategies by observing teaching methods. This enabled personnel to have more knowledge and understanding of principles, procedures, and methods of measurement and evaluation based on authentic assessment. They were able to create authentic measurement and evaluation instruments and had the ability to measure and evaluate results based on authentic assessment by using a variety of measurement and evaluation methods. Most of the students cooperated in the activities but there were still some steps that the target group was unable to complete, that was the students had few activities and some target groups gave students less opportunity for self-report and self-assessment. Therefore, the development was carried out in the second cycle by using participatory supervision strategies by observing teaching methods. This enabled all personnel to have knowledge and understanding of the measurement and

evaluation process, determined methods for measuring and evaluating according to authentic assessment, selected the correct evaluation methods according to the content. Measurement and evaluation with emphasizing on practicality and being able to measure and evaluate according to authentic assessment for teaching and learning. Most of the students participated in more activities and the measurement and evaluation based on authentic assessment.

Keywords: Authentic assessment, Educational personnel, Teachers' potential

1. Introduction

Measurement and evaluation for learning must be based on two fundamental objectives. The first one is a measurement and evaluation to develop students by collecting data about learning outcomes and academic performance during the course continuously by recording, analyzing and interpreting. Then teachers use the data to promote or improve students' learning and teachers' teaching. Consequently, measurement and evaluation relate with teaching. If lacking one thing, teaching will be ineffective. Formative assessment is the measurement and evaluation to teach for learning development and happens in the classroom every day. That is an assessment which let get to know the strengths and points to improve. Therefore, that is information for use in development. Teachers must use a variety of assessment methods and tools to collect information, such as observation, questioning or brainstorming in order to conclude of the specified issues, portfolios for self-assessment, peer assessment, and rubric scores to know students' prior knowledge. The most essential one is to give feedback to students in their studies for guiding them to connect prior knowledge with new knowledge to enhance, correct thinking and previous misunderstanding as well as enabling students to set goals and develop themselves (Ministry of Education, 2010).

Educational institutions as a provider of measurement and evaluation of students' learning according to the Core Curriculum of Basic Education, B.E. 2551, measuring and evaluating students' learning is an indicator of effectiveness of the teaching process and learning activities in the school, which can be seen from the students' learning achievements. Especially students' development that begins to develop according to the readiness of each age or the development at different age of students' levels. If the teachers collect the student's learning results to use as information for the development of students' effectiveness. These will bring great benefits to students' development, because the measurements and evaluation are based on authentic assessment. There are a variety of teacher assessments, thus knowing the effect of knowledge, abilities, aptitudes and attitudes of each student in each subject (Department of Academic Affairs, 2008). In the past, both teachers and measurers were guided by the belief that "If anything couldn't be measured, it was not worth teaching", leading teachers to focus on teaching what is easy to measure skills and content knowledge (Hart, 1994). Measurement and evaluation that are inconsistent, these will affect the learning quality of learners who are unable to develop according to the determination.

There are several terms related to alternative assessment such as, authentic assessment, performance assessment, authentic performance assessment, direct assessment and holistic assessment. But every name has a meaning associated with the movement in regards to the purpose of appraisal and support all teaching and learning (Nitko, 1996). In some cases, even

the terminology used varies according to the desired focus. But the terminology used under the definition of the new conceptual assessment has two important characteristics in common (Worthen, 1993): 1) using a variety of methods and instruments to assess learners; it will not use only the optional answer test 2) meaning to examine the practice of learners directly. The tasks designed to be assessed are correlated and connected to what learner face in real life. Puckett and Black (1997) said of the authentic assessment that is an observation process. Recording and collecting information about learners' work in terms of working methods and outcomes. The information obtained from the assessment is used for educational decisions that affect the learner. Authentic assessments differ from testing in that the method prioritizes needs and outcomes. The achievements of each learner are greater than the comparison of other learners. These are also a measure of the practicality directly in a course or subject matter. Authentic assessments provide ongoing qualitative information that teachers can utilize for teaching and learning for individual learners.

The concept of authentic assessment is constructivism theory. That said, learning takes place when the learner is the creators or practice by themselves, use high-level cognitive (Shaklee et al., 1997). Authentic assessment is a measure of students' performance in a natural state. Therefore, that is the actual students' behavior that emphasizes the measurement of the affective domain rather than the measurement of the psycho motor domain that is a difficult and complex measurement method. Therefore, the authentic assessment is a cumulative measurement, then the assessment is done monthly, semester or year. The teachers and parents write their opinions in each student's report book. These ones are considered as a result of authentic assessment (Kim, 2017). The teachers' mission related to the school evaluation, teachers must modify the method of measurement and evaluation of learning to be in line with the child—centered by authentic assessment to measure and evaluate students' progress based on actual conditions, not focusing only on achievement. In addition, the results of the assessment are also an instrument to help learners develop self-improvement, encourage learners and also develop cognitive, affective and psychomotor domain. Teachers should practice designing behavioral observations, interview forms, reporting, and data collection for the maximum benefit of the students (National Council of Teachers of English, 2014).

In order for educational reforms in the 21st century to be successful as targeted by the Ministry of Education in the announcement of the emphasis and guidelines for improving quality according to the Basic Education Core Curriculum of 2008 on Measurement and Evaluation, teachers must measure and evaluate the students individually according to the emphatic points of students' quality development, skills and characteristics with a variety of methods and instruments by emphasizing on authentic assessment and using results of the assessment to develop students continuously. According to Gay (1996), authentic assessment is a measurement process that is directly linked to the process of educational activities of child centered. Therefore, the researcher is interested in developing teachers' potential and educational personnel in term of authentic assessment under the Buriram Primary Educational Service Area Office 2 for teachers and educational personnel to have a better understanding, be able to create measurement and evaluation instruments according to

authentic assessment, and use the results of the assessment to develop students' quality and manage learning and teaching effectively.

2. Method

In this research, the principles of action research were used, which consisted of planning, action, observation and reflection of the operation by performing 2 cycles.

2.1 Research Group, Target Group and Additional Information Providers

Table 1. Participants' information

Source	Number of People	%
Research Group		
Research Group	10	100.00
Total	10	100.00
Target Group		
Teachers of Krasang Kindergarten School	3	8.33
Teachers of PhiangLuang 2 School	5	13.89
Teachers of Nikhomsangtoneng 5 School	4	11.11
Teachers of Bankhokyang School	5	13.89
Teachers of Banchorakhemak School	5	13.89
Teachers of PrakhonChaiwittaya School	9	25.00
Teachers of Watbanmueangpho School	5	13.89
Total	36	100.00
Additional Information Providers		
School Principals/School Administrators	7	28.00
Educational Supervisors	2	8.00
Speakers	2	8.00
Students	14	56.00
Total	25	100.00

2.2 Conceptual Framework

(1) Conceptual framework for this research was a measure to evaluate the learning outcomes

according to authentic assessment. The components were as follows: Fundamentals of measurement and evaluation based on authentic assessment, instruments and techniques to measure learning behaviors, instrument quality inspection, portfolio assessment, and guidelines for measuring and evaluating and reporting on learning outcomes.

(2) Strategic framework for development, the research group surveyed the current state, problems concerning the evaluation of learning outcomes based on authentic assessment for teachers in the Buriram Primary Educational Service Area Office 2 by informal interviewing, brainstorming, meeting and reflecting. When the problems were found, they met together and formulated strategies for developing teachers and educational personnel, consisting of the following activities: 1) Brainstorming, 2) Workshop and 3) Participatory Supervision.

(3) Research period, Cycle 1: October to December, 2020 and Cycle 2: January to May, 2021

2.3 Instruments

(1) The instruments were used to develop the target group including 1 curriculum consisted of meanings, principles, method, rubric assessment and designing word for assessment to measure and evaluate learning outcomes based on authentic assessment.

(2) The instruments were used to collect data including: (1) Observation forms (3 issues): (a) behavior observation form for the target group in the workshop (b) observation form for the target group behavior in supervision and (c) observation form of the target group for the study of personnel development in measurement and evaluation according to authentic assessment. (2) Interview forms (4 issues) (a) interview form of research group' opinions regarding the current condition of the measurement and evaluation according to authentic assessment (b) interview form of research group's opinions on skills and ability to apply the authentic assessment for guidelines to practice in educational institutions (c) interview form of research group's opinions on skills and ability for authentic assessment and (d) interview form of research group's opinion on skills and ability to apply authentic assessment in a real situation.

2.4 Instrument Quality Inspection

(1) Curriculum for measuring and evaluating learning outcomes based on authentic assessment: (a) to study concepts, theories, documents and researches related to curriculum development. (b) to study books and documents for authentic assessment. (c) to create a curriculum for use in the development of measurement and evaluation for personnel according to authentic assessment. (d) to inspect and assess the suitability of curriculum by 3 experts. And (e) to improve the curriculum according to the advice of experts and then published for further use in personnel development.

(2) Observation form and interview form: (a) to study the documents, manuals and researches related to the construction of observation form and interview forms. (b) to create the observation form and interview form for observing and interviewing for personnel development in measurement and evaluation based on authentic assessment. (c) to inspect and assess the suitability by 3 experts. And (d) to improve the curriculum according to the advice of experts and then published for further use in data collection.

(3) Current condition questionnaire for measurement and evaluation based on authentic assessment (a) to study the documents, manuals and researches related to questionnaire construction. (b) to create a current condition questionnaire based on authentic assessment. (c) to inspect and assess the suitability by 3 experts. And (d) to improve the curriculum according to the advice of experts, approved by experts, and published for further use in data collection.

2.5 Data Collection

To develop teachers' potential and educational personnel in term of authentic assessment under the Buriram Primary Educational Service Area Office 2 was the development of personnel in measurement and evaluation according to authentic assessment by using action research with the plan of activities to develop the teachers' potential and educational personnel for measurement and evaluation according to authentic assessment that the researcher collected the data as follows:

(1) Processing period from October 1st, 2020 to May 31st, 2021. Cycle 1 between October 1st, 2020 to December 31st, 2020 and Cycle 2 between January 1st, 2021 to May 31st, 2021.

(2) Data collection before processing, the researcher conducted interviews and asked the teachers' opinions on the current condition of the measurement and evaluation based on authentic assessment with the interview form and the questionnaire on the current condition of the measurement and evaluation according to the authentic assessment, and analyzed the results.

(3) Data collection during operation, the researcher conducted data collection by observation and interviews in the 1st and 2nd cycles. The results were analyzed by the action research process.

(4) Data collection after the operation and then categorized the data according to the research scope, brought the research results together with the research group, analyzed, synthesized until reaching a conclusion and improve the information which was necessary for personnel development and the quality of education in schools, then summarized the results of the research and wrote a report.

2.6 Data Analysis

Data analysis on the development of teachers' potential and educational personnel in term of authentic assessment under the Buriram Primary Educational Service Area Office 2, the details were as follows:

(1) Quantitative data were analyzed by using basic statistics consisting of percentage (%), Mean (\bar{X}) and standard deviation (S.D.).

(2) Qualitative data were analyzed by grouping the data according to the objectives of the research framework by considering the multidimensional inspection and correlation between data groups.

3. Conclusion

The development of teachers' potential and educational personnel in term of authentic assessment under the Buriram Primary Educational Service Area Office 2, was an application of the principle of Action Research, the researcher has applied the principles and concepts of Kemmis and McTaggart (Kemmis & McTaggart, 1988), was the process of conducting studies that consisted of planning, action, observation, and reflection. Details of each step were as follows:

3.1 Planning

Planning was operational planning. The researcher analyzed the current condition of teaching and learning in terms of measuring and evaluating the authentic assessment of 130 teachers under Buriram Primary Educational Service Area Office 2 by using the current condition questionnaire, and 7 schools where voluntarily participated in research to find ways to develop teachers and educational personnel regarding measurement and evaluation based on authentic assessment, a total of 36 people from joint analysis of current conditions. The result in guidelines for developing the teachers' potential and educational personnel regarding measurement and evaluation according to authentic assessment in the following order of planning:

(1) Studying the problems of current situation, researcher and researcher group jointly studied and analyzed the current condition of measuring and evaluating learning outcomes according to authentic assessment under the Buriram Primary Educational Service Area Office 2 by using the questionnaire to ask 130 teachers in the area, revealed that overall of the current state of measuring and evaluating learning outcomes based on authentic assessment was at a high level ($\bar{X} = 3.64$, $SD = 0.73$) and from the interviews with 36 teachers who participated in the development from 7 schools, concluded that the current condition of the operations on measurement and evaluation of students' learning would be carried out in accordance with the Ministry of Education regulations on the measurement and evaluation of learning according to the Core Curriculum of Basic Education B.E. 2551. Teachers would emphasize on assessment by using 4 choices of multiple-choice test mostly, which was convenient and objective. As a result, students were not assessed covering all aspects, resulting in a lack of diversity in student measurement.

(2) Development strategy was the development of teachers' potential and educational personnel in term of authentic assessment under the Buriram Primary Educational Service Area Office 2. The researcher and researcher group jointly considered alternatives to develop the teachers' potential and educational personnel with authentic assessment including brainstorming, workshop and participatory supervision. Details were as follows: 1) Brainstorming was a meeting to discuss the implementation of the authentic assessment results, analyzed current conditions and problems, and proposed guidelines personnel for developing measurement and evaluation according to authentic assessment. 2) Using workshop, the target group who understood about authentic assessment, could apply the knowledge to perform measurements evaluation according to authentic assessment with students. And 3) Using participatory supervision for the target group to develop personnel

about authentic assessment could measure and assess according to actual conditions appropriate to the nature of the course at the level of their responsibility.

3.2 Action

Action was researcher and researcher group, who implemented an action plan to develop teachers and educational personnel regarding measurement and evaluation based on authentic assessment and operated on the scheduled date and time by using the following main activities:

(1) Brainstorming provided research group with knowledge and understanding of authentic assessment according to the following topics: background knowledge of measurement and evaluation according to authentic assessment, instruments and techniques for measuring learning behaviors, quality inspection of the instruments used for measurement and evaluation according to authentic assessment, authentic assessment and criteria creation, assessment by using a portfolio, and guidelines for measuring and evaluating and reporting on learning outcomes. That was conducted 1 day on November 9th, 2020 from 9:00 a.m. to 4:30 p.m. by allowing the research group to brainstorm, sharing the knowledge with each other about authentic assessment to find guidelines for implementation. The result of brainstorming led to the curriculum. “Measurement and evaluation based on actual conditions” in the development of teachers and educational personnel.

(2) Workshop provided the target group with knowledge and understanding of measurement and evaluation according to authentic assessment that could apply to perform measurement and evaluation. That conducted for 2 days at the meeting room on the 2nd floor of the Complex building, Buriram Rajabhat University between 19 – 20 December, 2020. Speakers provided knowledge were associate professor Dr. S. Thairuekham—lecturer of Faculty of Education, Chiang Mai University, and Dr. P. Rawanprakhon—educational supervisor, Buriram Primary Educational Service Area Office 2. They provided knowledge in the training sessions, which were trained in accordance with the content framework in the action plan of teacher development for measuring and evaluating according to authentic assessment. The researcher and researcher group developed a curriculum in order to develop for educational personnel to use effectively with students.

During the training, researcher collected various data from the target group by using cognitive test, interview form, and behavioral observation form of the target group. The results of the cognitive test of the research group by using 15 items of multiple-choice quiz, showed that before the workshop for knowledge of measurement and evaluation based on authentic assessment that the research group received an average score of 8.93 points. After the training, the target group scored an average of 12.03 points, which showed that after the workshop, the target group had more knowledge and understanding of authentic assessment.

As a result of observation and interview with the target group during the training, found that the target group was interested in the subject of training whether that was the types of instruments, instrument creation, instrument quality inspection and setting the rubric score that had intention to gain knowledge from the training and the enthusiasm in all activities

with speakers such as, grouping to create instruments and presenting in front of the training room, asking questions to the speakers on the suspected issues, noting the knowledge and techniques, as well as precautions for measuring and evaluating in authentic assessment. From the interviews, found that the target groups were aware of and saw the importance of the evaluation results due to the current situation with the coronavirus disease (COVID-19), which the authentic assessment was necessary and interesting. As a result, teachers had more understanding of measurement and evaluation according to authentic assessment. Each target group found a way and a method to apply authentic assessments to the subjects they taught.

(3) Participatory supervision was to enable the target group to be able to measure and evaluate the results according to the authentic assessment appropriately to the nature of the course at the level of their own responsibility. In the cycle 1, supervision was conducted 1 time between 21st to 30th December, 2020. Details of supervision could be summarized as follows: 1) Practicality; researcher and research group conducted to supervise and follow up with the target group, which found that the target group applied the knowledge from the training in the practice of authentic assessment, thus enabling them to be able to use the authentic assessment method. All 36 target groups possessed authentic assessment skills in their schools, whether by observing students or allowing students to do real practice and record points from the record form, etc. 2) to observe results of teaching observation activities supervision, the study of the supervision under Buriram Primary Educational Service Area Office 2 aimed to provide the target group with knowledge, understanding, improvement and finding faults in teaching and learning activities that authentic assessment was appropriate or not. The results of teaching observations showed that the target groups were able to organize learning activities at all stages and control the class. Most of the students cooperated in the activities. Most students were assessed with individual behavioral observations. In addition, some target groups use instruments in the form of practical assessments. There was a clear assessment criterion (Rubric Score).

Summary of the results of the interview with the target group and students after the participatory supervision found that the target group understood the authentic assessment and had more confidence in teaching activities. These made it possible to measure and evaluate students according to authentic assessment and know the development of each student. Students were more assertive and able to solve problems while studying well, recognized weaknesses and strengths to improve the methods of teaching and learning activities. As for the students, they liked and were interested in how to measure and evaluate the results according to authentic assessment, practiced working together, assessed themselves and their peers, and knew the results of the scores that need to improve themselves.

3.3 Observation

The researcher and research group collected data for each activity in order to use the data to report on the results of the research as follows: brainstorming; the researcher collected the data by observation and interview. Workshop; the researcher collected data through observations, interviews, quizzes, performance recordings and participatory supervision. Data were collected by observation, interviews, and performance recordings.

3.4 Reflection

The researcher used the data obtained from stage 3 (Observation). From observation, interview, testing and performance recording by recording of the researcher and research group to study, analyze and interpret the results together, reflecting the results of the planned operations, reflecting the results of the instruments and methods of data collection whether to achieve the goals of personnel development for measurement and evaluation according to authentic assessment or not. The weaknesses must be corrected and strengths must be continually strengthened and developed to be more quality. After the cycle 1 was completed, the researcher wrote a report and analyzed the results of the 4 stages in order to adjust a new plan or plan an action for the next cycle.

3.4.1 Reflection of the Development Results in the Cycle 1

Results from the implementation of the development teachers' potential and educational personnel in term of authentic assessment, the development strategy was to brainstorm, workshop and participatory supervision. These revealed that the 36 target groups had knowledge and understanding of the operation and had a good attitude towards measurement and evaluation based on authentic assessment, in terms of importance, principles, procedures, and methods of evaluating students, creating instruments and instrument quality inspection. These could be determined from the results of the knowledge test from the workshop which the target group had post-test scores were higher than pre-test scores. The target group had the ability to create and improve instruments for measurement and evaluation according to authentic assessment. This could see from the workshops where the target group interacted with each other, asking and answering questions from speakers. Problems that arose and found solutions together, passionate to create instruments, had plan to create criteria for creating instruments, and the trainees completed the creation of the instruments according to the amount and time specified, which is appropriate for the activities to assess students and the ability to measure and evaluate students according to actual conditions. According to the evaluation of the target group in participatory supervision, found that in measuring and evaluating students were correct, dared to decide to use instruments to measure and evaluate. Students had the ability to evaluate on active learning, had fun activities but there were still any steps that the target group was unable to complete. That was, the students had few activities, including some target group also gave students less opportunity for self-report and self-assessment which was considered to have not achieved the objectives of the research. Therefore, additional practices and close supervision were followed in the cycle 2 in order to achieve further objectives.

3.4.2 Implementation of Development in the Cycle 2

Implementation of development in the cycle 2, the researcher and research group brought the development problems in the cycle 1 to proceed in the cycle 2 with the goal of making the target group understood the method and criteria for authentic assessment by using strategy of participatory supervision which was divided into the 1st time, between 12th to 31st January, 2021 and the 2nd time between 15th to 28th February, 2021. The results of the 1st and 2nd supervision could be summarized as follows:

(1) The result of teaching observation from observing the teaching behavior both teacher and student interviews concluded that teachers were able to organize teaching activities and authentic assessments by using a variety of methods such as, observation, practical assessment and portfolios etc. They could organize learning activities in every step and were able to control the classroom. Most students cooperated in conducting assessment activities and used individual behavioral observations, activities of group performing, active learning and testing with the teacher providing guidance for students who operated on their own. They cooperated in carrying out activities and liked the way of evaluation. According to the student behavior observation, they were happy because they were participated. They expressed and presented in front of the classroom so that they were not bored in studying. As for participation in assessments, students also had less participation in the assessment.

(2) Teaching observation was to supervise the target group from the researcher, research group and educational supervisors to use information for teaching development that emphasized the process of measuring and evaluating according to authentic assessment. The supervision committee observed and supervised the teaching of the target group on the implementation of the plan, teaching techniques and evaluating, correctness and suitability of instrument usage and students' participation in activities in the classroom, assigning students to store their work in their portfolios. The results of teaching observation activities found that target group informed the students about the methods and criteria for assessment before teaching. A lesson plan was prepared before teaching which emphasized the process of measuring and evaluating according to authentic assessment. Students had opportunities to participate and express themselves. There were prepared equipment and pre-test and post-test, and fully organized teaching and learning activities including the implementation of measuring and evaluating instruments according to authentic assessment.

(3) Evaluation activities, the target group reflected the results of teaching and learning activities. The results of the evaluation activities showed that the target group determined the method of measurement and evaluation according to authentic assessment in the learning management plan for everyone. They used measurement and evaluation instruments in diverse situation, taught with the use of group processes, used instruments correctly and appropriately.

3.4.3 Reflection of the Development Results in the Cycle 2

Development of teachers' potential and educational personnel in term of authentic assessment, the results could be reflected as follows: according to the development in the cycle 2, was to develop to enable teachers to apply their knowledge of the principles, procedures, methods of measurement and evaluation according to authentic assessment in the classroom by using participatory supervision strategies. This found that all target groups were able to organize learning activities and be assessed through a variety of methods. Methods and assessment criteria were communicated to students before starting the class, had assessment skills, dared to decide to use instruments to measure and evaluate students according authentic assessment which was considered from observing of training knowledge management and participatory supervision. The target group was enthusiastic and interested in performing the specified

activities correctly, had skills in instrument creation and used them to measure and evaluate according to authentic assessment effectively. Moreover, students also liked authentic assessment methods that teachers used in the classroom, cooperated in the implementation of the activities, and participated in the authentic assessment.

4. Discussion

The results of the data analysis in the development teachers' potential and educational personnel in term of authentic assessment under the Buriram Primary Educational Service Area Office 2, the researcher conducted research according to the principles of action research for 2 cycles, which adapted the principles and procedures according to the concept of Kemmis and McTaggart (1988) including the use of strategies for teacher development, namely brainstorming, workshop, and participatory supervision which discussion results for development were as follows:

(1) Results of development teachers' potential and educational personnel in term of authentic assessment with brainstorming strategies, the goal was to let the research group have more understanding, be able to design contents for learning activities and assessments according to content, create measuring instruments, and try out instruments to assess students. These were found that all the research groups were interested and enthusiastic for brainstorming to exchange their own ideas, analyze problems that arose and find solutions together, be able to define methods, design evaluation criteria based on authentic assessment, and be able to create and improve instruments in order to measure and evaluate quality students. The results of the brainstorming that researcher and the research group led to develop a curriculum of authentic assessment to develop teachers and educational personnel in line with Tidsuk (2012) that has studied the development of personnel in terms of measurement and evaluation according to authentic assessment at Yang Luang Pittayakom School, Mueang Nong Bua Lamphu District, Nong Bua Lamphu Province and in accordance with the study of Wongsathit (2013), who has studied the development of teachers in terms of measurement and evaluation according to authentic assessment at Ubonrat Pittayakom School, Ubonrat District, Khon Kaen Province. These found that brainstorming meeting, all the research group knew and understood the process of measuring and evaluating the results according to authentic assessment.

(2) The results of the development of teachers and educational personnel regarding measurement and evaluation according to authentic assessment on the principles of authentic measurement with workshop strategies which the target group had knowledge and understanding in principles and methods of measuring and evaluating more realistically after training, it could be seen from higher post-test scores more than pretest scores. The target group was interested and enthusiastic in doing activities with speakers, asked questions on the issues, as well as had presentations to create the criteria and designed instruments with the principles of measuring and evaluating according to authentic assessment, which the operation of the workshop for both days was successful. The results of the test to measure the knowledge of the measurement and evaluation according to the authentic assessment, that the result after training was higher than before training. It was consistent with Jaiboon (2013)

who has studied the development of teachers in measuring and evaluating according to authentic assessment at Mueang Tao Wittayakhom School, Phayakkhaphum Phisai District, Maha Sarakham Province and in accordance with Noiwises (2013) has studied the development of personnel in measurement and evaluation according to authentic assessment at Nong Bua Daeng Wittaya School, Nong Bua Daeng District, Chaiyaphum Province. The training strategies were used to develop teachers and educational personnel. The results showed that after training, there was an increase in knowledge prior to training.

(3) The participatory supervision was a strategy to develop teachers and educational personnel in order that target group understood and had ability to measure and evaluate in the classroom based on authentic assessment that the researcher and research group coordinated with the area administrators school, administrator and educational supervision, head of academic department and head of measurement and evaluation in school to observe teacher teaching, interview students, and give advice to promote and assist in teaching and learning activities. These enabled the target group to perform measurements and evaluation according to authentic assessment in the course they taught. There were a variety of instruments and methods for measuring and evaluating, recognized and gave importance for students to develop and be able to use instruments to measure and evaluate students according to the indicators. The students were attentive to their learning and participated in authentic assessment which was consistent with Gascon (2007) that had teachers to prepare assessments and apply them to students in reading and mathematics. McCall (2002) found that the study of the transition to authentic assessment by using strategies to involve teachers in the research process in conducting authentic assessments helped to build accuracy in the development of assessment criteria in the classroom. In addition, this was consistent with Forsyth (1993) said that teaching supervision was working together with teachers to develop and improve the teaching and learning management of teachers. This was not only solving immediate problems, but aiming for long-term development. In the development of teaching and learning management, teachers must rely on social support through supervision. Teaching should therefore be carried out in the form of a collaborative process in the experimentation of teaching and learning management in real situation. This was also consistent Jaiboon (2013) who has studied the development of teachers in measuring and evaluating according to authentic assessment at Mueang Tao Wittayakhom School, Phayakkhaphum Phisai District, Maha Sarakham Province, and in accordance with Jantaisong (2013) who has developed teachers in authentic assessment at Ban Nong Kung Noi School, Samchai District, Kalasin Province. Wongsathit (2013) who has studied a developed teachers in measurement and evaluation according to authentic assessment at Ubonrat Pittayakom School, Ubolratana District, Khon Kaen Province. The participatory supervision strategy was applied to make personnel knowledgeable and able to apply the knowledge gained to students effectively.

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