Research and development teacher education: authentic competency-based assessment

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Article Info

ABSTRACT

This research aims to develop the development process of teachers and educational personnel for Competency-based assessment. The assessment based on the competency data collection used surveys, interviews, inquiries, observations, and quantitative data analysis by distributing frequencies, percentages, and averages. Results found that the current condition of teachers and educational personnel for the actual assessment was based on competencies. Overall, there was a high level. Moreover, the interview found that the management had promoted, supported, and advised teachers in applying concepts and techniques about actual assessment to evaluate learners. There were four processes in the research, and the results of the development process experiment found that the overall average of knowledge after use was higher than before using the process, and evaluating the process showed that the development of teachers was applicable, possible, accurate, and appropriate at a high level.

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1. INTRODUCTION

From the results of the Program for International Student Assessment (PISA), it was found that in 2018, Thailand was ranked 66th out of 78 countries and the primary national educational test results (O-NET) in 2019-2020. All subjects have an average score of less than 50% from a total score of 100 points [1]. The results of such assessment there may be many factors that are the cause of the Thai education system, such as courses, which are often a combination of sub-contents. That is separated without the integration of teaching and learning management patterns, and evaluation measures that focus on tests are still used [2], [3]. Although the ministry of education will encourage teachers to use various teaching methods and focus on a variety of assessments, but teachers continue to manage traditional teaching and assessment. Therefore, stakeholders are aware of the importance and together to find ways to reform education to solve such problems.

The assessment that corresponds to the previous study reform concept is authentic assessment, which is an assessment by the observation process, taking notes and collecting information from the work, and the process of continuous learning. Focus on evaluating complex thinking skills at work, cooperation in solving problems, self-assessment, and acting out of practice in actual conditions [4]. Therefore, real-world assessment can be used as an effective tool to assess students' 21st-century ability in the context of global education reform [5]. However, the assessment of new options that are consistent with the nature of learning focuses on learners and causes true learner development. An assessment process that is intertwined with the

teaching process to assess the progress of learners in a variety of methods through operations that are consistent with real-world experience [6] and can improve the student's learning [7]. Therefore, measurement and evaluation according to the actual condition It is necessary to use a variety of tools. Reduce the role of assessment using the test. Use more observation and interviews [8], [9]. Teacher development is essential to remember, which is self-learning from the teacher's teaching experience and allowing teachers to participate in determining self-development activities and self-evaluation [10]. Developing teacher competency is essential so teachers have the skills to manage learning for learners. Competence is a characteristic that everyone has and can be used appropriately [11]. Encouragement to achieve the goal must have characteristics, including knowledge, skills, personality, social motivation, characteristics, personal habits, As well as the thought process, feelings, and actions. Competency is a hidden feature within the person. These characteristics will support individuals to create competency in the work that they are responsible for to be higher or higher than the specified criteria [12], which is the learning development process of teachers that focuses on the practice that is brought into the classroom. There is a common idea together. Plan the preparation of the course and join the consultation exchange of learning between the trainees and the trainees regularly. An operational process consists of planning, implementation, inspection, and continuous updates regularly [13].

According to the problems, the researcher recognizes the importance of conducting research on the development of teachers and educational personnel for assessment according to the actual condition based on competencies. There is a volunteer school where the results of the external quality assessment of the school have suggestions for the development of the learning assessment of learners through teachers using a variety of evaluation methods, focusing on actual assessment, then comparing the development of learners and applying the assessment results to develop learning management plans and learner development. Consequently, the development of teachers and educational personnel becomes instrumental, serving as an avenue to examine case studies of school's teachers. Through such development, these professionals can skillfully design learning assessments that align with actual conditions and effectively evaluate learner performance.

2.   METHOD

Research and development teacher education in field of authentic competency-based assessment due to unsuccessful educational achievement. Therefore, this study aims to enhance the development process of teachers and educational personnel for competency-based assessment, which used research and development method with four phases.

- Phase 1: the study of the competency level needs of teachers in the assessment according to the actual condition based on the competency was a survey of the assessment condition according to the actual condition, concept of assessment according to actual conditions based on competency, and the need for actual assessment based on competency by surveyed 331 teachers under the Buriram Primary Educational Service Area Office which were selected by multi-stage sampling [14], and seven educational supervisors which were selected by purposive sampling [15]. Statistics were used as averages, standard deviations, and content analysis.
- Phase 2: develop the assessment process according to the actual condition based on the competency that was effective from the analysis from the 1st phase about the assessment according to the actual condition, competency of the teacher to develop the assessment process according to the actual condition based on the competency. The process was designed by drafting the assessment process according to the actual condition based on the competency from the synthesis of past concepts and checked the process quality by experts in educational research and teaching innovation, a total of 15 people, were selected by purposive sampling [15]. Consider the appropriateness of the process before trial.
- Phase 3: experimenting with the actual assessment process based on the competency of the developed process to experiment with 46 volunteer teachers to participate in the development for 4 months. Evaluated the teaching and learning management before and after the experiment by interviewed volunteer teachers to assess the effectiveness of the process in two quantitative and qualitative parts, including: i) part 1: quantitative effectiveness from development before and after participation in the development of 46 people; and ii) part 2: qualitative effectiveness was considered from the opinions of development participants, consisting of four executives, and four supervisors.
- Phase 4: process assessment was an evaluation of the satisfaction of teachers towards the process and efficiency according to the process assessment standards, which covers four dimensions, including: utility standard, feasibility standard, propriety standard, and accuracy standard in the target group of 46 people.

3. RESULTS

Figure 1 shows the level of knowledge and understanding of teachers in the design of the actual assessment based on competency was found that before the overall development operation, the average was 3.54. After the teachers were developed, the overall average score was 4.25. Considering each aspect of development, it was found that after the process of developing teachers and educational personnel for authentic competency-based assessment, all aspects of development were higher than before.
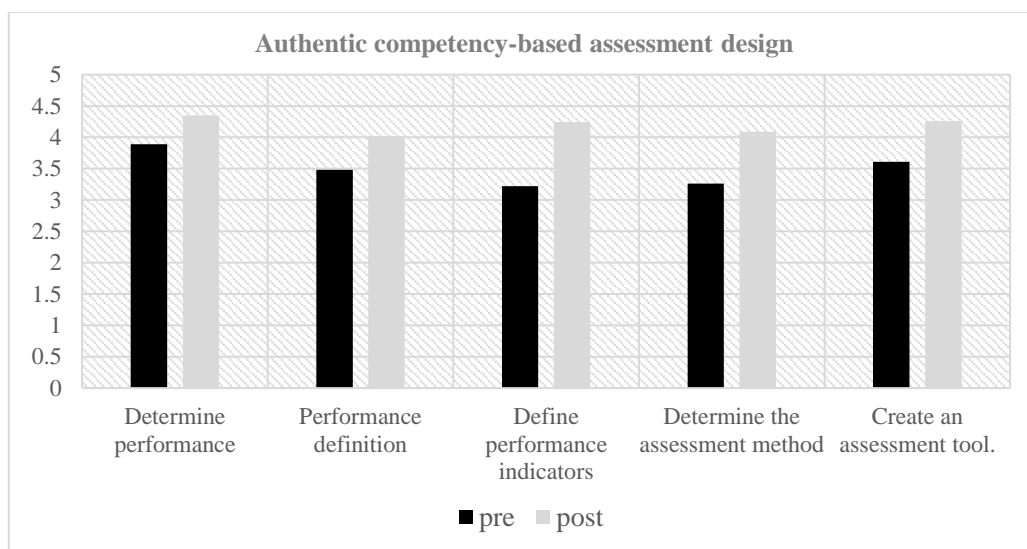

Figure 1. Comparison of authentic competency-based assessment design between pre and post learning design and assessment practice for students

4. DISCUSSION

Research and development teacher education in field of authentic competency-based assessment. This study had been learning design and assessment practice for students in teacher for 4 months. Based on the results of teacher development and educational personnel for actual assessment based on competency, the researcher summarizes and discuss the results.

4.1. Need assessment

Due to the acquisition of information from the relevant authorities, such as the office of basic education commission and the educational service area office, which specifically caters to teachers and educational personnel, there has been a need to assess the educational landscape over the past 2-3 years, particularly in light of the ongoing COVID-19 pandemic that had rapidly spread and disrupted classroom teaching activities [16]. Consequently, adjustments must be made to the teaching process to accommodate these circumstances. This includes incorporating various modes of instruction such as on-air study through DLTV online, as well as on-hand and on-demand approaches [17]. Traditionally, academic achievement has been evaluated through exams, serving as a means of measurement. However, given the evolving teaching methods, the assessment of achievement needs to be adapted to suit the current context. This entails utilizing measurement techniques that align with the actual conditions in order to effectively support teaching and learning amidst the changing educational landscape [18]–[20]. Despite acknowledging the concepts and principles of authentic assessment in schools, interviews with administrators and teachers have revealed a lack of knowledge and understanding regarding its proper implementation for accurate evaluation of students' learning progress.

4.2. Process development

The process of cultivating teachers and educational personnel for competency-based assessments involves four distinct steps as presented in Figure 2, namely i) pre-development study: this stage entails a comprehensive examination of problems and necessary requirements; ii) development planning: during this phase, goals are established, and planning and consultation activities take place, alongside facilitation planning; iii) development operations: this step encompasses the implementation of training and consulting, as well as facilitation activities; and iv) development evaluation: this final step involves the collection,

analysis, and summarization of data. The particular importance is the teacher development process, which comprises training aimed at equipping educators with the knowledge of relevant concepts and assessment procedures that align with actual conditions and competencies [21]. This process facilitates active participation of stakeholders in problem-solving, enabling thorough reflection on the outcomes and continuous improvement of the solutions [19], [20]. Moreover, by involving those affected by the problem in the solution's implementation, a sense of ownership and commitment to the process is fostered [22], [23], which represents the ultimate output of this research.

Furthermore, within the framework of actual assessment, the teacher development process is competency-based. Teachers not only learn to evaluate their own development and reflect on the results but also acquire the skills to assess based on practical learning assessment experiences, considering the prevailing conditions and competencies throughout the development process, the researchers assume the roles of guides and facilitators, supporting the participants in their journey [24]–[26]. The development of the process of developing teachers and educational personnel starts from studying the current condition before developing. After that, planning the development in the development, then developing and evaluating the development. The result will make teachers and educational personnel competent in measuring and evaluating learning results. Moreover, teachers can effectively evaluate and design assessments according to the actual condition based on performance [27]–[31].
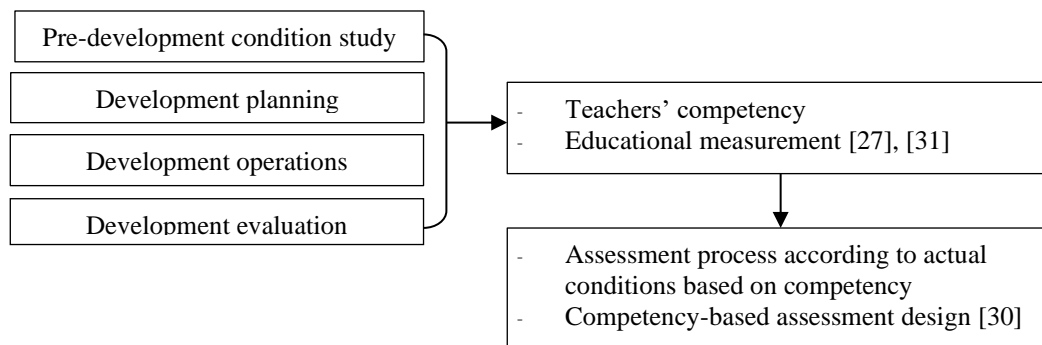

Figure 2. The process of developing teachers and educational personnel for authentic competency-based assessment [27]–[31]

4.3. Result of development

The findings from employing the teacher development process and educational personnel for authentic-based assessments indicate significant improvements in various aspects. Post-development assessments demonstrate that teachers possess a higher level of understanding regarding authentic assessment compared to their pre-development state. Moreover, teachers exhibit a more positive attitude towards authentic assessment and demonstrate enhanced abilities to assess according to actual conditions following the implementation of improvements. These outcomes are evident through supervisory observations and interviews, which directly impact student outcomes [32], [33]. The teacher development process, rooted in the concept of authentic assessment, plays a pivotal role in building knowledge and understanding of assessment, thereby empowering stakeholders to make informed decisions and fostering awareness of the value and necessity of assessment [23], [25], [34]–[38]. Furthermore, the collaborative nature of the assessment process contributes to stakeholders' sense of ownership which in turn cultivates a positive attitude among teachers who are responsible for the assessment process, ultimately influencing their intentions and capacity to evaluate according to actual conditions [39]–[41]. It is crucial to note that effective teaching and learning management must be synchronized with the assessment process, wherein authentic assessment takes place. Teachers must first adapt their teaching methods to suit actual conditions, allowing learners to maximize their potential and achieve higher levels of learning efficiency [42]–[44].

4.4. Result of evaluation

The development of teachers and educational personnel for authentic-based assessment, based on the competencies formulated by the researcher, has yielded a high-quality process characterized by accuracy, appropriateness, feasibility, and substantial benefits. This process has undergone extensive study and research to identify effective ways of applying principles, concepts, and theories related to teaching and learning management in real-world contexts. Authentic assessment serves as the foundation for constructing

the process in a meticulous manner, adhering to principles, and encompassing thorough analysis of relevant literature and research findings. Insights gained from expert interviews regarding competency-based authentic assessment further contribute to the process's favorable qualitative and quantitative characteristics [45]–[47]. The researcher's developed process aligns with the principles espoused on assessment should reflect actual conditions and involve comprehensive evaluations that provide meaningful and valuable insights to learners by tapping into their cognitive abilities [48]. Additionally, the assessment concept proposed asserts that assessments should elicit desired behaviors or expressions from learners, ensuring that learners demonstrate what the assessor expects. In the context of authentic assessment, learners not only exhibit the desired behaviors but also apply them in real-life situations. Thus, the developed process for authentic-based assessment, grounded in competencies, exhibits a strong alignment with established theoretical frameworks and research findings, contributing to its overall quality and efficacy [49], [50].

5.   CONCLUSION

Competency-based assessment is an assessment of the skills and abilities of learners who bring knowledge, understanding, including attitudes to express or perform one of the standard levels set by using assessment methods and resources for evaluating in a variety of ways following learning management conditions to develop competencies that are evaluated, focused on assessment to develop. Assessment according to the actual condition based on competencies helps teachers, executives, and those involved in educational management have information to improve and develop learners to have competencies according to the curriculum standards. In addition to lesson learned, the competency-based assessment can help the teacher to understand the factors that encourage learners to higher development.

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