

Development of a Training Curriculum to Enhance Classroom Assessment Competency of Student Teachers

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Abstract

This study aimed to 1) develop a training curriculum to enhance classroom assessment competency of student teachers and 2) study the effectiveness of the training curriculum. The sample group consisted of 24 student teachers majoring in primary education at Hubei University of Science and Technology. This study selected them through simple random sampling. The instruments used for collecting data were the research-related literature, the curriculum based on competency development, the lesson plans and instruction materials, the classroom assessment competency questionnaire, the student self-assessment form, and the student satisfaction questionnaire for the curriculum. Analyze data by descriptive statistics and content analysis. The research results were found as follows:

The components of the training curriculum include the principles of the curriculum, the objectives of the curriculum, the contents of the curriculum, teaching strategies, learning media and resources, and the assessment and evaluation. The results of the evaluation of the draft curriculum by experts showed that the mean scores of the curriculum appropriateness evaluation were from 4.4 to 5.00, which were higher than 3.51, which means that the curriculum was appropriate from the high level to the very high level. The Index of Item Objective Consistency (IOC) revealed scores ranging from 0.8 to 1.00, surpassing the criterion of 0.5. This indicates that all the curriculum components exhibit consistency with each other.

The classroom assessment competency of student teachers after implementing the training curriculum was higher than before at the statistical significance level of .05. Student teachers'

satisfaction with the curriculum was reflected in their mean scores, indicating high performance levels.

Keywords: Training Curriculum; Classroom Assessment Competency; Student Teachers

Introduction

In April 2022, the Ministry of Education of China issued the Plan for Strengthening Teachers in Basic Education in the New Era, which clearly proposed to improve the quality of student teachers and prepare students to adapt to the international stage in the future. Student teachers are the future teachers, and their teaching ability is an important factor in the implementation of education policies. Educational evaluation is an important part of teachers' teaching ability. Classroom assessment is an integral part of the teaching and learning process (Airasian, 1997). The function of classroom assessment to improve teaching and learning has been generally recognized by the academic community. To play the role of classroom assessment, teachers' classroom assessment ability is very important, because it directly determines the quality of classroom assessment (Zheng, 2014). Over a past decade of education reform, there were many related problems reported. Education Quality Assessment Agency of the Ministry of Education indicated that Chinese education had limitations and problems in classroom assessment competency. The major problems consist of 1) insufficient awareness and philosophy of assessment, 2) insufficient knowledge of assessment, and 3) lack of assessment skills. (Connelly et al, 1997; Wei, 2021) However, many teachers do not feel adequately prepared to assess their students' classroom performance (Mertler, 2003; Qin, 2017).

Teachers called for more training due to their perceived lack of preparedness to assess their students, and pointed out weaknesses in their teaching practice programs in undergraduate preparation programs (Stiggins, 1999; Zhong, 2012). Many researchers have mentioned that there are problems in the cultivation of students' teaching competencies in teacher education in universities (Xu, 2017). One major problem is that many colleges of education and local educational institutions do not require preservice teachers to complete specific coursework in classroom assessment. Most colleges simply embed assessment content into other teacher education coursework. Students then learn about assessment and measurement from instructors who typically do not have expertise in educational assessment (Wang, 2008; 2018).

The quality of assessment at the classroom level depends on the assessment ability of teachers (Wang, 2018). The improvement of classroom assessment competency should not only

include the richness of assessment content, but also help students improve their understanding of assessment concepts and the application of assessment skills (Wei, 2021). The development of training curriculum will help to improve the classroom assessment competency of student teachers, and will lead the future education work. Teachers in China educational context, especially primary and secondary school teachers need to develop the classroom assessment competency for promoting learners' learning. According to this problem, it is urgent to set up a sufficient number of educational practice curriculum in the training program of student teachers in order to develop the teaching ability of student teachers, especially the classroom assessment competency of student teachers. In this study, the researcher developed a training curriculum to improve the classroom assessment competency of student teachers.

Research Objectives

1. Develop a training curriculum to enhance classroom assessment competency of student teachers majoring in primary education.
2. Study the effectiveness of the training curriculum.

Literature Review

Documents of the Ministry of Education

The Professional Standards for Teachers clearly States that classroom assessment literacy is one of the professional standards for teachers. The Action Plan for the Revitalization of Teacher Education mentions the need to improve the teaching ability and pay attention to the training of basic teaching skills to train student teachers to adapt to the future international development. The Professional Competency Standards for Pre-service Teachers (Trial) makes it clear that pre-service teachers should have the ability of classroom evaluation.

Assessment competency training for pre-service teachers has been shown to be important for teachers (Zhong, 2012). As one of the teaching abilities of teachers, classroom assessment competency refers to the basic ability and ethical character shown by the comprehensive use of assessment concepts, knowledge and skills to promote learning to carry out student academic achievement assessment (Mertler, 2003). The ability of teachers to conduct classroom assessment is crucial to having a good quality assessment practice (Looney et al., 2017; Rural, 2021). In order for teachers to be highly competent in educational assessment, the classroom assessment

competency should be considered by student teachers as one of their professional competencies and should always be part of the teaching and learning program.

Constructivism theory

Constructivism is a learning theory, which holds that knowledge is constructed by learners when they try to understand the meaning of their experience (Liu, 2010). Constructivism learning theory holds that learning is that students actively connect new knowledge with existing experience, so as to construct new experience (Zhang, 2016), and emphasizes that teachers should pay attention to the creation of situations, adopt appropriate teaching methods to guide students to explore new knowledge, and cultivate students' independent inquiry ability.

In this study, the process of students' acquisition of new knowledge will be designed around three characteristics of constructivism: the first is active constructiveness; the second is social interaction, including student–student interaction and teacher–student interaction; the third is learning context, which enables students to find solutions quickly and actively when facing practical problems. The training curriculum emphasizes learning–centered teaching, pays attention to the subjective experience of learners, fully designs and arranges the curriculum content, organization form and teaching activities, so as to mobilize the learning interest and initiative of learners, and pays attention to the active construction of student teachers' attitude, knowledge and skills related to classroom assessment competency. It also emphasizes the importance of social negotiation and interaction in the process of constructive learning, including negotiation, discussion and participation in communication, accompanied by questioning and interpretation (Gredler, 2008). The learning objectives of constructivism are "reasoning thinking, critical thinking, understanding and application of knowledge, self–regulation and conscious reflection." This is also in line with the purpose of this course development.

Competency–based education

Competency–based education is an educational thought that regards the cultivation of students' professional competency as the fundamental purpose of education (Vogler, 1973). It aims at acquiring the competency of post operation, emphasizes the competency as the basis of teaching, and organizes the curriculum and teaching system around the knowledge, skills and abilities required by professional posts. According to Allen A. Schmieder (1973), competency–based education is a system of teacher education, which has its own specific objectives, and describes the knowledge, skills and behaviors in detail, so that teachers can meet the performance standards in curriculum teaching.

This study will use the competency-based education method to develop the curriculum, which defines the work content as a specific and definite behavior, making the teaching objectives more operable and very suitable for training operational skilled personnel.

Learning community

Learning community refers to a group composed of learners and their assistants (including teachers, experts, counselors, etc.), which takes the completion of common learning tasks as the carrier, the promotion of members' all-round growth as the purpose, and emphasizes the guidance of interactive learning concept in the learning process. A learning collective that influences and promotes each other through interpersonal communication, exchange and sharing of various learning resources.

The design of this training curriculum integrates the learning community, because the way of learning community can better promote the exchange and communication of learners, and then produce the collision of thinking, and also contribute to the construction and sharing of new knowledge.

Classroom assessment competency

Classroom assessment is a process of gathering information or evidence to support decision making and improvement. Classroom assessment has five components: purpose, learning objectives, measurement, interpretation, and use. Purpose is the reason for the assessment, why it is given. This includes obtaining diagnostic information, providing feedback to students, recording achievement levels, motivating students, grading, reporting to parents, mentoring, and most recently, preparing for taking accountability tests (McMillan, 2015).

Focusing on the classroom level, this study defines classroom assessment as an important part of classroom teaching, in which teachers combine curriculum objectives and learning objectives in classroom situations, use a variety of assessment tools, continuously collect information about students' learning performance, and promote students' learning through analysis, interpretation and feedback, and further improve teaching activities.

Through the analysis of teacher evaluation standards at home and abroad, we can see that the framework of teacher assessment competency focuses on teachers' assessment knowledge and skills, ignoring teachers' psychological factors in the implementation of evaluation activities. Based on the psychological and behavioral requirements of teachers in the implementation of classroom assessment activities, this study holds that classroom assessment competency is the assessment attitude and belief held by teachers in the implementation of

classroom assessment activities, the assessment knowledge reserved for the effective implementation of assessment, and the assessment skills used in the assessment practice.

Conceptual Framework

The researcher defines the research conceptual framework based on the concept of learning community together with constructivism theory and competency-based education theory. The details are as follows.

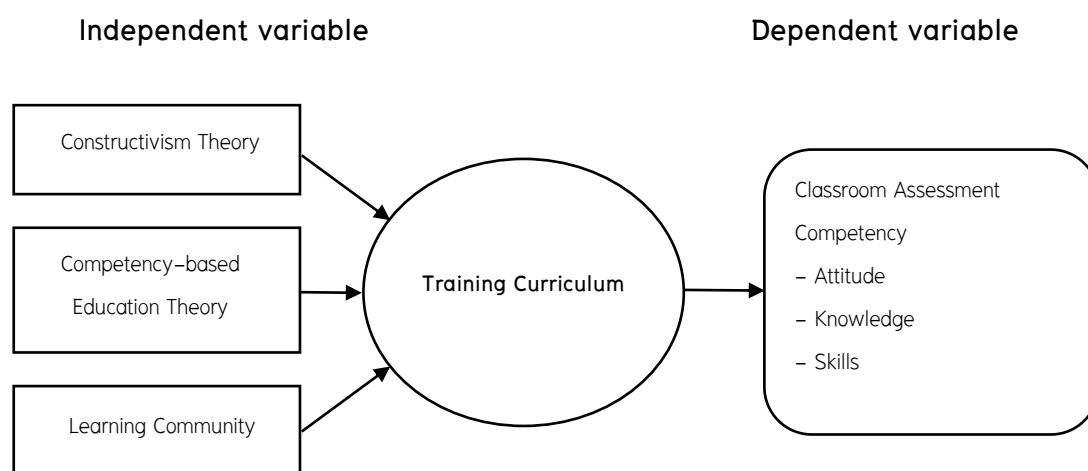


Fig.1 Conceptual Framework

Research Methodology

Phase 1: Studied of background information for training curriculum design.

The purpose of this phase was to investigate and study the relevant literature including the problem situations in order to bring the information for developing the curriculum. This phase was divided into three steps:

1. Studying related literature and National education policy.
2. Through focus group interviews, five educational experts were interviewed to reveal the attributes and indicators of classroom assessment ability.
3. Through structured interviews, 15 students were interviewed to study the needs and suggestions of learners.

Phase 2: Designed a training curriculum

The researcher conducted by 4 steps and the detail was following.

1. Designed a training curriculum. The training curriculum designed by the researcher consists of six parts: curriculum principles, curriculum objectives, curriculum content, teaching strategies, media and resources, and assessment and evaluation. There are three modules of training curriculum, each of which consists of several topics. Module 1 focuses on providing concepts of educational assessment to improve student teacher attitudes toward classroom assessment and knowledge of classroom assessment. Training activities include lectures, video learning and experience sharing among student teacher learning groups. Module 2 focuses on integrating assessment skills to improve student teacher classroom assessment skills, applied to the classroom through the principles of cooperative learning and group discussion. The training activities consist of lectures, comprehensive practice and experience sharing of student teacher learning groups. Module 3 focuses on practice, reflective thinking, and sharing experiences. Training activities include classroom observation and classroom assessment practice, reflective thinking and knowledge conclusions related to educational assessment, in order to improve the classroom assessment competency of student teachers.

2. Validated a training curriculum. The researcher validated a draft training curriculum through five experts' evaluation about the curriculum consistency, the curriculum suitability and possibility in implementation the curriculum by using a rating scale questionnaire. The suitability of the draft curriculum was a five-point subscale questionnaire ranging from very high level, high level, medium level, low level and very low level. The consistency of the components of the draft curriculum was a three-part subscale questionnaire, ranging from consistent, not sure, and inconsistent. After that, the researchers modified the training curriculum according to the expert's suggestions.

3. Constructed the research instruments. The instrument includes a classroom assessment competency questionnaire, a student self-assessment form, and a student satisfaction questionnaire.

4. Conducted the pilot study. The researchers selected 3 lesson plans with 15 student teachers for a pilot study of the training curriculum. After that, the researchers revised the training curriculum again.

Phase 3: Implemented a training curriculum

The researcher implemented the training curriculum to 24 fourth-year student teachers majoring in primary education. All participants in the sample group voluntarily participated in the study and obtained consent to participate in the study. The 24 student teachers were randomly divided into 4 groups of 6. The sample group was pretested using the Classroom Assessment Competency Questionnaire to discover levels of assessment attitudes, assessment knowledge, and assessment skills prior to beginning the implementation of the training curriculum. Then the training curriculum was implemented by adopting the teaching method based on competency development. Upon completion of the training curriculum, all participants were posttested with the Classroom Assessment Competency Questionnaire, which was the same as the pretest questionnaire. At the same time, the satisfaction questionnaire was used to test the satisfaction of student teachers to the training curriculum.

Research Results

The findings based on the objectives were as follows:

Objective 1: Develop a training curriculum to enhance classroom assessment competency of student teachers.

The results showed that through the research on the background information related to the development of training curriculum, the researcher obtains the principles, objectives, contents, teaching strategies, media and resources, as well as assessment and evaluation of the development of training curriculum. The curriculum contents include seven learning units: 1) basic theory of classroom assessment, 2) development of teachers' classroom assessment literacy, 3) relevant knowledge of classroom assessment and skill assessment techniques, 4) learner attitudes, values, and self-awareness assessment skills, 5) responsive assessment skills of learners' teaching contents, and 6) practice activity 1–team work to complete a classroom observation and report writing, 7) practice activity 2–implement a classroom assessment task. The teaching–learning processes were based on the competency development and learning community approach, using two instructional techniques: 1) cooperative learning, and 2) small group discussion.

The results of the appropriateness evaluation of the draft curriculum by the five experts show that the suitability of the training curriculum was high, with mean score of 4.4–5.0 and standard deviation of 0.00–0.55. The Index of Item Objective Consistency (IOC) scores of the components of the curriculum between 0.8 – 1.00, which were higher than the criteria (0.5),

which means that the components of the curriculum is consistent with one another. The appropriateness of the lesson plans showed that the mean score was between 4.4 and 5.0, and the standard deviation was between 0.00 and 0.55, which meant that the appropriateness level of each component of the lesson plans was at a high to very high level.

Objective 2: Study the effectiveness of the training curriculum.

The results showed that the students' classroom assessment competency after the implementation of the curriculum has a higher score than that before the implementation of the curriculum at the statistically significant .05 level as show in Table 1. The effect size was Cohen's $d = 4.491 > 1.3$. The very large effect size indicated that the statistical significance level was meaningful.

Table 1 The classroom assessment competency of student teachers before and after implementing the training curriculum

Data collection	N	Full score	$\bar{X}$	S.D.	t	df	Sig.	Cohen's d
After	24	185	152.38	10.034	46.455	23	.000	4.491
Before	24	185	109.79	9.127				

After implementing the curriculum, the students' satisfaction toward the curriculum were assessed by using the five-point scale Likert questionnaire. The results showed that among the 19 items of the satisfaction questionnaire, the lowest mean score was 3.83 (SD = 0.56) and the highest mean score was 4.75 (SD = 0.44). The results showed that students were more satisfied with the training curriculum. (M = 4.37, SD = 0.54)

Discussions

According to the research objectives, the researcher developed a training curriculum to enhance the classroom assessment competency of student teachers and solve the problems existing in the current curriculum. The researcher study of basic data such as curriculum development principles, objectives, content, teaching strategies, media and resources, assessment and evaluation before creating the curriculum, which is similar to Lewy (1991) and Ornstein and Hunkins (1998). Based on the guidance of competency development, assessment and evaluation, designing curriculum plans, creating teaching materials, analyzing National policies, consulting experts and interviewing students to understand the demand for curriculum, useful data for draft

curriculum design were obtained. At the same time, the researcher incorporated the concept of learning community into the training curriculum. Learning community is an auxiliary system of the training curriculum based on competency development, which originates from social negotiation and interaction emphasized by constructivism, even if students can participate in activities physically, intellectually, emotionally and socially, teachers act as facilitators or consultants (Gredler, 2008). Students could discuss and communicate with other students in cooperative groups and classes, and investigate and construct knowledge by themselves, and even draw conclusions about what they have learned. By communicating and expressing their ideas, they become more confident and expressive.

The results showed that the students' classroom assessment competency after the implementation of the curriculum has a higher score than that before the implementation of the curriculum at the statistically significant .05. This is consistent with the findings of Wang (2018), who found that students who used teaching activities based on competency development had better academic performance. Because compared with traditional teacher education, teaching based on competency development pays more attention to cultivating learners' ability to engage in a certain profession, pays more attention to the combination of theory and practice, and closes the distance between school education and industry needs (Hutinger, 1983). Teaching activities based on learning community do not consider students' learning ability, and let students participate in various learning activities in the form of mixed groups. They believe that competency-based education stems from the rapidly changing needs of society, is flexible and practical, is a disruptive innovation, allows students to learn at their own pace, can bring additional value to students and enterprises, and has a bright future. The results showed that students were satisfied with the training curriculum. This is consistent with the research results of Xu (2017). The students all agree on the teaching method of cooperative learning and group discussion learning based on competency development, which gives them the opportunity to work together and help each other to learn knowledge, communicate to discuss problems, exchange ideas and complete learning tasks together. Students believe that such learning helps them develop learning skills and apply knowledge to teaching practice. In addition, they participate in self-evaluation during each lesson plan and are able to improve their work, including their own learning. The data collected from the student self-assessment form and the curriculum satisfaction questionnaire indicated that the students held a positive attitude towards the training curriculum based on competency development.

Conclusion

The results of this research developed a training curriculum for enhancing student teachers' classroom assessment competency. Curriculum development mainly includes researching and investigating the basic information of curriculum design, determining the principles of curriculum, the objectives of curriculum, the content of curriculum, teaching strategies, learning media and resources, and assessment and evaluation. The results showed that the students' classroom assessment competency after the implementation of the curriculum has a higher score than that before the implementation of the curriculum at the statistically significant .05. At the same time, students are more satisfied with the training curriculum of improving classroom assessment competency.

Suggestions

1. The curriculum developed is more practical, and students need to have some experience of and educational practice in use. Therefore, before using the curriculum, students must be surveyed and their needs must be understood.

2. Before applying the curriculum to the classroom, teachers should study the curriculum and related documents, such as lesson plans and the teaching materials, in order to make the instruction more effective.

3. When implementing the curriculum, we must pay attention to students' knowledge construction and competency improvement through various learning activities. Teachers act as coaches, only provide help and guidance, and encourage students to actively participate in learning activities, dare to express their ideas, be good at drawing on the suggestions of other students, so that they can play a team cooperation skills, and ultimately complete the learning task well.

4. Teachers should study authentic assessment and how to assess student learning in order to assess student learning outcomes more effectively. The forms of assessment should be varied and practical, using a variety of tools, including worksheets, aptitude tests and interviews. Participation in assessment is encouraged, including student self-assessment, student peer assessment, teacher assessment, etc.

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