Development of Microteaching Module Based on PjBL Model (Project Based Learning) on Materials Basic Teaching Skills

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Abstract. The study aimed to develop a microteaching module based on the PjBL (Project Based Learning) learning model that is valid and practical as a learning resource for anthropology students in microteaching courses with basic teaching skills material. The R&D (Research and Development) research method was chosen to conduct this study. Thiagarajan's stages of R&D were applied: Define, Design, Develop. The instrument is a validity questionnaire and a practicality questionnaire whose results are analyzed using the kappa moment formula. The selected validators are two lecturers with a background in social studies education. In addition, the practicality was tested through a questionnaire administered to 30 students. This study produced a microteaching module based on the PjBL (Project Based Learning) learning model on the material of basic teaching skills. The average kappa moment of 0.76 with the module validity category is high. While the results of the practicality test of users or students got an average kappa moment of 0.90 with a very practical category.

Keywords: Validity, Practicality, module, PjBL (Project-based learning)

1   Introduction

Law No. 20 of 2003 [1] Education in Indonesia is a planned teaching and learning process that aims to develop the potential of students who are religiously strong, self-control, manners and ethics, not only intelligent but also good and equipped with all skills that will be useful for society, nation and state. This is in line with the advice that is often heard: first manners, then knowledge, in order to humanize people without being picky. What's needed today is a student who is skilled in science, but who also has a good attitude toward others. In addition, he or she must have many skills that are needed in this era of globalization. Students need to be critical, but also civilized. The OBE (Outcome Based Education) curriculum, which has been implemented recently, is a support for this, in order to produce students who are critical, have empathy and high tolerance, and are creative. The quality of prospective teachers is still a critical conversation because the successor of this nation is very dependent on the teachers' performance where they study. The government has done many things to improve teacher competence, starting from holding national seminars, workshops, discussions of science clumps, PPG, and even the latest teacher mobilizer program in the school environment. This is in line with the thoughts of Zunaidah [2] who states that to improve student competence,

capable and skilled teachers are needed, to be able to form highly competent prospective teachers, it can be pursued through microteaching courses by providing the widest possible opportunity for students to explore knowledge and explore their teaching abilities in peer groups in the classroom.

Based on the results of observations that have been made, the data found that students in the anthropology education program Faculty of Social Sciences, Universitas Negeri Medan use no microteaching teaching module. The microteaching class should be a course where skills are demonstrated in terms of teaching, which is a place to apply the knowledge that students have learned over the past few semesters, but in reality, it feels bland or ordinary. Because they only focus on the important thing, which is to be able to stand in front of the class and then deliver the material that has been prepared without innovation. Without thinking about how the teaching and learning process is now relevant in schools as their laboratory. Not to mention, they sometimes get the facts in the field: teachers who teach just for the sake of obligation not concerned with creativity and innovation in the teaching and learning process. Many students also feel that teaching practice is enough to be able to stand in front of the class. With the development of a microteaching module based on the project-based learning (PjBL) model, it is hoped that students can explore and develop their competencies to become prospective professional teachers. Through this model, students are also invited to be sensitive to the problems that have occurred in the world of education lately for the sake of joint progress by painstakingly processing information and providing resolution efforts for cases around learning and these problems will be solved in the form of a project.

Thus, the results of understanding the concept as the lecture process progresses will increase along with individual teaching practice. In line with that, the results of Suryana's research [3] also found that the performance of microteaching students is categorized as good if most of the students can prepare lesson plans and understand the teaching and learning process starting from opening lessons to closing them according to applicable rules.

In the repertoire of development research, the development of teaching modules for students is not new. Among them is the research of Ismail et al [4] on "Development of thematic teaching materials based on the PJBL model in elementary schools".The results of his research show that (1) the production of integrated thematic teaching books based on the PjBL model with an average value of 4. 6 means very valid, (2) the practicality of using these teaching materials reaches 3.2 and is indicated by a student response questionnaire which obtained a practicality level of 3.57 in the very practical category, and (3) while the effectiveness of teaching materials is in the very good category.

A module is one of the teaching materials that contains information about a subject that is systematized, directed and can be used by students for self-study, according to Majid [5]. Lecturers have their own rules and standards in determining what teaching materials will be used to achieve the learning objectives set at the beginning of the lecture. There are many types of instructional materials in the form of videos, books, PPTs, images, and others. Teachers can design the best possible teaching materials that they will use according to the needs of the courses they are teaching. There is no intervention from any party especially for the progress of the students. Each course will certainly have a unique and different topic of discussion so that it becomes the hallmark of the course. Creative instructors combine many learning resources with a variety of models, media, and methods that they use during the 16 sessions. Both face-to-face, online (zoom, google meets or campus e-learning) or what is called the blended learning method that has been famous since the covid 19 hit. However, this has a positive impact on the world of education, although it also reaps a variety of negative

comments. It is a question of how to combine and coordinate students in such a way that learning objectives are met in a perfect way.

Of the many learning models, the project-based learning model requires investigation, collaboration, and experimentation in doing a project and integrating various subjects (materials) into the curriculum. The steps of Project Learning, according to Syaharuddin & Mutiani [6], are:

    a.   In preparing project assignments, students carefully observe the questions arising from the presented phenomena.

    b.   Design a task to provide an answer to what is observed in an experiment.

    c.   Plan a schedule for the task, so that the goal can be on target, the preparation of a schedule is very necessary.Monitoring project activities and progress: after being monitored by the teacher, students will evaluate the project being worked on

    d.   Testing the results, facts, and experimental data will be studied by students by associating other data from various sources.

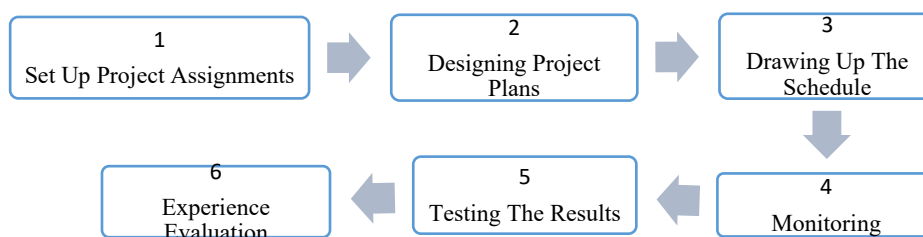   e.   Evaluate the activity or experience as a reference for improvement for the project task.

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│          1            │      │        2          │      │        3          │
│ Set Up Project        │ ──▶  │ Designing Project │ ──▶  │ Drawing Up The    │
│ Assignments           │      │ Plans             │      │ Schedule          │
└───────────────────────┘      └───────────────────┘      └───────────────────┘
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│          6            │      │        5          │      │        4          │
│ Experience            │ ◀──  │ Testing The       │ ◀──  │ Monitoring        │
│ Evaluation            │      │ Results           │      │                   │
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Fig 1: PjBL Steps

Hidayat DKK [7] stated that three crucial points to consider in the process of assessing the project task are:

    a.   Management skills, in this case, the ability of students to determine topics, collect information, manage data collection time and report writing

    b.   Relevance, suitability to the subject in terms of cognitive skills in the lesson

    c.   Authenticity: the work must belong to students even though there is a contribution from the teacher.

This assessment starts from the early stages of planning, the process, to the project's outcome. The task report can also be presented in various forms as agreed. Implementing the assessment makes it easier for teachers to use checks or rating scales. Because this learning model is project-based, teamwork is needed; in this case, a practical assessment still takes place, for example, how the team completes this task by involving all members and appreciating each member's thoughts to finish the project.

The microteaching course means a limitation or reduction in the complexity of regular classroom learning. So, microteaching lectures focus on practising skills in opening learning, closing, asking questions, giving reinforcement, variations in teaching, explaining the material, being skilled in guiding small group discussions, and managing the class. The learning subjects are few because the purpose of micro-courses is to complete the skills that

are the outcomes or targets that must be achieved in this course. Students will feel more cared for and guided in more depth to realize professional prospective teachers ready to enter the field, meaning schools.

This essential teaching skills module is one of the teaching materials systematically arranged by the competencies to be achieved, equipped with examples of project-based tasks and practice questions to test students' understanding of the material presented in the module. Materials and tasks are designed with three domains of assessment in mind: mastery of the material, attitudes that develop as tasks are completed, and skills in the application of competencies that are improving. Projects are given directly to analyze problems around basic teaching skills in a school and find solutions that can overcome these problems. In this case, the project is carried out in groups. Values such as cooperation, responsibility, and solidarity between group members will be seen in the tasks presented and in group members' communication when showing the case study results.

Here, students must first understand the theory by reading and appreciating each skill. After students understand, they and their instructors will design many questions related to teaching and learning problems in a real classroom. The design questions are ready to be submitted, then the students will observe directly into the field of teaching and learning process. With the help of the school, they can make observations to deepen their knowledge. Cases are created from real stories in the schools they visit. From the case, students return to campus and together with their teachers will design what is the best solution to solve it. Students in the current curriculum, especially OBE, demand that students be able to become problem solvers. Able to contribute ideas as a form of solution to the problems that arise. Through individual performances they try to simulate an interesting teaching and learning process to minimize teaching and learning problems. In this case, other students act as students in the high school class. The cooperation among the students is necessary in order for the design of this task to be fruitful. And they will use the principle of symbiotic mutualism for teaching practice. From here, the teacher will be able to assess which students have really read and lived the module well and are able to become problem solvers for the world of education from the real stories they summarize in the field.

The process that students go through is not easy, in the RPS (Semester Learning Plan) based on outcome-based education that has been implemented by the campus, in addition to studying theory, students will also go through the case method stage. This case method can be obtained from multimedia or social media, which is close to social and educational phenomena. However, in the PPA-based microteaching course, problems need to be explored through the real world. This means that the problems surrounding the teaching and learning process, especially the teaching skills, must be based on real stories in a school. In this way, the solutions that the students will later offer are truly the result of exceptional thinking with a clear and reliable theoretical basis. Before being implemented in the school, the solution is first tested in front of the lecturer who teaches his microteaching course on campus. Students will finally receive the appropriate grade for this teaching practice course through various revisions and re-simulations.

Thus, the microteaching module on essential teaching skills material that has been designed can assist students in understanding the material more deeply with examples of student project applications based on the solutions given to the problem of lack of innovation in making variations in the classroom for example, both in terms of learning models and media used in a school to increase the attractiveness or interest in learning students so that the mastery of theory is balanced with teaching practices that should be by the basic teaching skills that every prospective teacher must have. To be even more convincing, students must do

several objective questions to obtain valid results on the extent of students' conceptual understanding of the primary teaching skills material. The prepared questions do not come out of the substance of the material presented in this module.

2 Research Method

This study employs what is commonly referred to as "research and development" approaches (R&D). Sugiyono [8] claims that R&D is a research technique used to create certain items and evaluate their efficacy. It is anticipated that this research and development (R&D) technique will yield a module that is both valid and practical, making it useful for students to discuss fundamental teaching abilities.

The participants in this study were all students enrolled in the Anthropology Education Study Program's microteaching courses during the even semester of 2022–2023. Simultaneously, the sample comprised 30 (thirty) randomly selected individuals for field assessments and 3 (three) students for individual evaluation (one-on-one) (random sampling). Reviews from two material and media specialists are required in addition to the input from students.

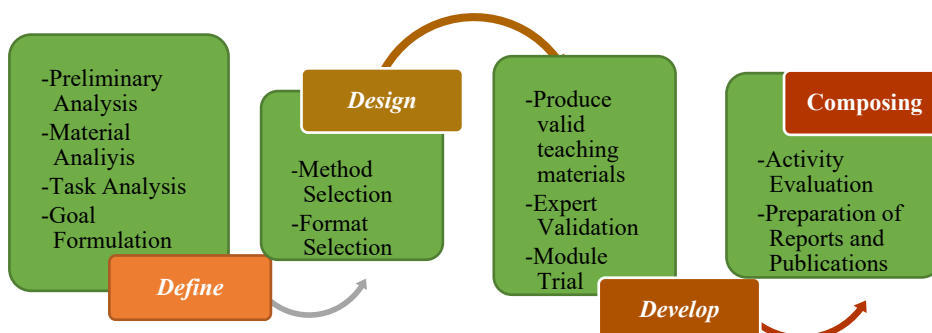The stages of this research refer to Thiagarajan's R&D stages [9], which are as follow:

Define
-Preliminary Analysis
-Material Analiyis
-Task Analysis
-Goal Formulation

Design
-Method Selection
-Format Selection

Develop
-Produce valid teaching materials
-Expert Validation
-Module Trial

Composing
-Activity Evaluation
-Preparation of Reports and Publications

Fig 2. Research Design Scheme

Techniques for analyzing content, design, and practicality validity make use of modified categorical judgments from Boslaugh [10]. The provided sheet takes the form of a questionnaire, and at the conclusion, the validator is free to determine the outcome of the evaluation he provided. Cohen's Kappa formula was used to analyze the validators' and respondents' evaluations of each statement, and at the conclusion of the processing, a kappa moment was obtained (Boslaugh, 2008). The microteaching module on fundamental teaching skills based on the PjBL (Project Based Learning) learning paradigm can be assessed for lectures in that semester once the module has been deemed legitimate. Students can begin utilizing the module after lecturers have gone over the usage instructions. When the course is done, students complete the questionnaire, which requests an honest assessment of the module's usefulness. The validity questionnaire for subject matter experts is constructed using

a number of criteria, including the appropriateness of the competencies, the appropriateness of the content, the correctness of the material's presentation, adherence to linguistic conventions, the development of critical thinking abilities, and the module's evaluation's clarity. In the meantime, the media validity questionnaire is created using the cover design, layout, color schemes, and photos and drawings as criteria. Students' practicality questionnaire, on the other hand, includes questions about language appropriateness, writing on the module, color combinations, photos and descriptions, and PjBL-based module content.

3 Result and Discussion

Through valid and practical tests, this research produced a module of basic teaching skills based on PjBL. This module received a score of 0.76 from two media and material experts with high criteria. The initial step in this research is observation to get a transparent background of the problem. Then the activity continues by collecting information from various references, both from previous research and from a collection of books that support the research. Next, we entered the R & D research stage adapted from Thiagarajan, which is as follows:

a. Definition

The author stage analyzes according to the demands of competence and learning objectives. The next activity is to analyze the form of tasks that are suitable to be given in line with the learning objectives to be achieved based on the CPMK (Course Learning Outcomes), namely being able to explain the scope of basic teaching skills and the application of the PjBL model in lectures. These indicators include:

1. Able to simulate the skills of opening and closing learning
2. Able to explain skills
3. Able to affect questioning skills
4. Able to affect reinforcement skills
5. Able to perform the skill of organizing variations
6. Able to affect class management skills
7. Able to affect small group discussion skills
8. Able to affect small group and individual teaching skills
9. Able to describe the application of PjBL in learning
10. Able to develop case methods and project-based student worksheets.

b. Design

After analyzing the conditions and needs of students and teachers, the author began to design an attractive module presentation and the form of evaluation that would be given to measure the extent of students' understanding of the primary teaching skills material. Finally, it was agreed that the state of questions designed was an objective test or multiple choice. The material on essential teaching skills is equipped with relevant images to support students' reading interests. With the image media, students' analytical power is expected to increase and add meaning to each part of the material. Suryosubroto [11] added that a module has at least an attractive module cover, an introductory letter, a contents page, procedures for use, competency standards and learning objectives, material coverage, a summary, exercise questions, and a reading list. Here, the author begins to write a series of module contents in sequence.

c. Development
    1. Validity Test Results
       It aims to determine the level of validity of the essential teaching skills module based on the PjBL (project-based learning) learning model. Validation is done on two lecturers with educational backgrounds. After material and media experts confirm, suggestions and criticism from validators are needed. Below are details of finalized results for material component and media component of engineered assembly:

Table 1. Module Validity Test

Module Validity	K	Category
Material Component	0,75	High
Media Component	0,78	High
Average	0,76	High

       The module validity test, after being reviewed by the validator, shows that the microteaching module on basic teaching skills material based on PjBL for students of the anthropology education program at UNIMED is in the high category and suitable for use. Two experts from various aspects assessed the module material validity test to get an average value of 0.76 with high criteria.
    2. Revision
       After the validation questionnaire is received from the validator and tested for validity, the next step taken by the author is to revise the important parts requested by the material and media experts, even though the validity test results are classified as high. This must be done to create a module that is valid and suitable for use by students. Overall, from the aspect of the scope of the material, the two validators agreed with the designed module because it was to the learning objectives. In the evaluation section, the validator requested that the evaluation questions be deepened again. In the media aspect, they highlighted the type of font used and the use of images that still need to be added more. This is to anticipate the reader's boredom, so the author has revised it per the suggestions of the validator. After all revisions, the module can be tested in a limited group. The object is students who are studying microteaching courses in semester 4.
    3. Limited Trial
       Furthermore, the author conducted a limited trial of 30 students and three students who were randomly selected to be interviewed to get responses from users or students. The module practicality test begins with the distribution of a practicability questionnaire to students to determine student satisfaction with the module designed. The practicality test was carried out on students who took microteaching courses in the odd semester yesterday in the Anthropology Education program at UNIMED. This module is said to be practical if it is flexible in its use and useful for information seekers about basic teaching skills. The average acquisition of student responses to the designed module is 0.90 with

a very high category or very practical to be used by readers. Students agreed that the microteaching module based on the PjBL (Project-based learning) learning model that has been designed is exciting because of the continuous description equipped with project examples, the colours of the supporting images and the presentation of complete material packed with straightforward language so that it is easy to understand. It is only a matter of how to make students diligent in reading this module so that they can simulate each part of the essential teaching skills. Students also realize that basic teaching skills are necessary in microteaching courses. As prospective professional teachers, these eight basic skills should be mastered. As a provision of knowledge when later going to the field. Microteaching courses are given before students carry out PLP (school field practice), so learning basic teaching skills is very relevant. Finally, students agree that lectures using modules combined with the PjBL (Project-based learning) learning model can generate enthusiasm for learning and critical thinking about school problems. Through the PjBL model, students are also invited to be responsible, cooperate, and tolerate different opinions for the solutions given to each problem encountered by the group in the field when extracting information as case method material, which is a form of their project assignment. Previously, this module had received a valid category with an average validity score classified as high by the expert judges. In line with this the results of the student responses, after being tested, even achieved very practical criteria. Then, from the students' responses, it also meets practical standards after being tested with an average kappa moment practicality value of 0.90 without re-revision. Thus, this module can be used in microteaching courses on eight basic teaching skills.

4   Conclusion

The results of research and data processing show that the PjBL (Project Based Learning) based microteaching module on basic teaching skills material designed by the author has been tested valid in terms of material and media and practical in use from the reader's side. The average kappa moment obtained with high criteria and very practical, which is 0.76 for the module validity value and 0.90 for the module practicality value. This means that the designed module is suitable for the students who will take microteaching courses in the anthropology education program at UNIMED in the next even semester.

5   Acknowledgments

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