

Development of Interactive Teaching Materials in Reflective Microteaching for Prospective Teacher Students

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Abstract: Reflective-based interactive media in microteaching is a valuable tool for improving teaching and developing teacher professionalism. Through the use of digital technology and a structured process of reflection, teachers can more effectively identify weaknesses in their teaching practices and make necessary improvements. This research aims to develop interactive teaching materials in reflective microteaching learning to shape the professional character of prospective teachers. This research is development research using the ADDIE model which has 5 development stages, namely analysis, design, development, implementation, dan evaluation, Due to time constraints, this research is still limited to this stage development due to research limitations. The validation results from material and media experts stated that this teaching material was very valid with a percentage score of 95.09% and 96.25% respectively in the "very valid" category. The feasibility test was carried out by the lecturer in charge of the microteaching course with a result of 94.93% in the "very feasible" category. The student teacher response was 93.00% in the "very good" category. From this data, the media in the form of interactive microteaching teaching materials that have been developed can be used as media in microteaching courses and can help students identify deficiencies that need to be corrected in each teaching practice and for lecturers to make them available platform who helps with the learning process microteaching.

Keywords: ADDIE, Interactive Teaching Materials, R&D, Reflective Microteaching.

INTRODUCTION

Education is one of the important pillars in a country's development. Teachers are one of the main components in the world of education who have a big role in forming a generation of people with character and professionalism. Therefore, developing the quality of teachers is crucial in improving the quality of education. Microteaching is a teaching method that has been proven effective in improving the pedagogical competence of prospective teachers (Padmadewi, 2020). Through microteaching, prospective teachers can hone their teaching skills in a controlled environment, before they actually teach in the classroom. This need shows the important role of microteaching in forming prospective teachers who have professionalism. In addition, there are concerns about the decline in the quality of learning at all levels of education due to the lack of providing professional values

to prospective teachers during higher education (Mellyzar, 2021; Sohibun & Maisaroh, 2017).

Reflection is a key driver in the learning process and is the basis for personal and professional development. The importance of reflection is very prominent because through awareness of the strengths and weaknesses of methods and other pedagogical areas, reflection can inspire new ideas to improve the quality of teaching (Taufik et al., 2021). Therefore, prospective teacher training programs should integrate reflective elements in their microteaching implementation. Reflection skills are considered capable of preparing prospective teacher students to carry out teaching assignments by considering all demands and changes that may occur. Prospective teachers who have reflection skills will be able to reflect on and reinterpret the teaching and learning they do, so that their teaching abilities in the classroom can be improved (Sukaesih & Alimah,

2012). The process of forming teachers with reflective abilities should start at the pre-service training stage, so that prospective teachers can practice supervising the quality of their own teaching. On the basis of this reflection, it is hoped that teachers will be able to critically evaluate and criticize themselves as a tool of analysis in their teaching.

In the current digital era, the use of interactive media has also become very important in education. Interactive media can increase student involvement and help teachers teach more effectively (Ginting et al., 2020; Semarayasa et al., 2021). Integrating reflective aspects of microteaching with interactive media is a promising innovation in shaping the professional character of prospective teachers. Through this combination, it is hoped that prospective teachers will have better teaching skills, a deeper understanding of student characteristics, and strong reflection abilities, so that they can become qualified, responsible teachers, and able to form a better young generation in the future. Based on the background that has been described, this research aims to produce interactive teaching materials based on reflective microteaching that are valid and practical to shape the professional character of prospective teachers.

Reflective-based interactive media in the context of microteaching is an approach that combines digital technology with the principles of reflection in the learning and teaching process. This approach utilizes software, video recordings of teaching, and online platforms to facilitate teacher reflection in order to improve their teaching practices. Reflection is a critical process in which a teacher examines and rethinks their teaching experiences. This involves a deep understanding of what happens in the classroom, how students teaching and then examining the recording to identify areas of improvement. Reflective-based interactive media allows teachers to review their teaching in a more in-depth and comprehensive manner. Reflective-based interactive media in microteaching also has a significant contribution to the development of teacher professionalism (Indiati & Sumardiyani, 2010; Rosali & Singkawijaya, 2020).

Teachers who are accustomed to reflecting on their teaching through these media tend to become more aware of their teaching practices and more open to change. They can also develop

better communication and reflection skills, which are important aspects of professional development in teaching. This research aims to develop interactive teaching materials in reflective microteaching learning to shape the professional character of prospective teachers. The results of this research development are very useful for prospective teachers and teachers. Reflective-based interactive media in microteaching is a valuable tool for improving teaching and developing teacher professionalism. Through the use of digital technology and a structured process of reflection, teachers can more effectively identify weaknesses in their teaching practices and make necessary improvements. It also facilitates collaborative learning and constructive feedback from fellow teachers and mentors. As an integral part of teacher education, reflective-based interactive media can help produce teachers who are more competent and effective in their teaching.

METHODS

The type of research used is development research (Research and Development) or commonly called R&D. R&D research methods used for produce certain products, and test the effectiveness of these products (Sugiyono, 2016). The media preparation design refers to and media development based on the ADDIE model (Branch, 2009). Which has 5 development stages, namely Analysis, Design, Development, Implementation, dan Evaluation. This research is still limited to this stage Development due to research limitations. Level Analysis, A preliminary study is carried out, this stage collects relevant information regarding initial microteaching abilities through field studies (observation of prospective teachers teaching directly), literature studies (reviewing literature to collect information related to the development of interactive learning media). Stage Design, The development of interactive learning media based on reflective microteaching was carried out, the development started from developing e-learning and providing a broader understanding of reflective microteaching guidance procedures using the reflective microteaching model. Stage Development, This stage includes expert validation tests, feasibility tests, and responses by student teacher candidates. The instruments used in this research were observation sheets,

expert validation sheets, feasibility test sheets, and response questionnaires.

The research subjects were 2 lecturers who were experts in the field of media and educational technology as expert validators, the feasibility test was carried out by 8 lecturers who taught the Microteaching course, and the response test was carried out by 5 students. Expert validation sheet criteria, eligibility and responses use a Likert measurement scale with a score of 1-5.

Table 1. Criteria for Completing Expert Validation Sheet, Eligibility and Student Response.

Value	Category
5	Strongly (Valid, Decent, Agree)
4	Valid, Decent, Agree
3	Sufficient (Valid, Decent, Agree)
2	Less (Valid, Decent, Agree)
1	No (Valid, Eligible, Agree)

The calculation is done by calculating the total score obtained divided by the maximum score for all points then multiplied by 100%. % score = $\frac{\text{Score obtained}}{\text{Maximum score}} \times 100\%$ After knowing the validity score results, determining eligibility and student responses, it can be determined using Table 2.

Table 2. Expert Validator Assessment Criteria, Eligibility and Student Responses

Value	Category
$84 < x \leq 100$	Strongly (Valid, Decent, Agree)
$68 < x \leq 84$	Valid, Decent, Agree
$52 < x \leq 68$	Sufficient (Valid, Decent, Agree)
$36 < x \leq 52$	Less (Valid, Decent, Agree)
$20 < x \leq 36$	No (Valid, Eligible, Agree)

FINDINGS AND DISCUSSION

Level of Analysis

Microteaching is a training method that can be applied to prospective teachers at both the pre-service and in-service stages of their professional development. Through Microteaching, teachers can increase their confidence and teaching skills. This approach is not only relevant for teachers just starting their careers, but is also useful for experienced teachers. Thus, microteaching is a sustainable training approach, applicable at various stages of teacher career development, and provides significant benefits for improving their teaching abilities. Microteaching is a very effective method in building skills and confidence in a

teaching context. This approach allows teachers or prospective teachers to experience a variety of learning styles, as well as learn and practice providing constructive feedback. Through practical experience and reflection on their teaching, teachers can improve the quality of their teaching and adapt to the needs of diverse students (Reddy, 2019).

Observations were made by researchers on 4 prospective teacher students in semester 7 who were carrying out Field Experience Practices (PPL) who were given the task of carrying out microteaching by implementing all the theories that had been provided when taking the microteaching course in semester 6. Implementation of microteaching for each student was carried out in two time. In general, the problems found among prospective teacher students are the same, including a lack of ability to master the class, a lack of involvement of students in active learning, and the ability to explain material that is still less effective. After each teaching practice, students given feedback by lecturers and fellow students regarding several current shortcomings and future steps. However, this also happened again in the next practical activity. This is due to a lack of understanding by prospective teacher students regarding the improvements that should be made and most students forget the shortcomings of previous teaching practice activities. So it can be assumed that it is necessary to develop reflective-based interactive teaching materials in the context of microteaching. In microteaching, this principle is applied by recording teacher teaching sessions and then reviewing the recordings to identify areas that need improvement.

Design Level

The design phase involves determining the content so that the initial overall design can be developed (Ghani & Daud, 2018). The interactive teaching materials developed consist of interactive microteaching teaching materials. Interactive teaching materials are needed to facilitate prospective teacher students in absorbing information and reflecting in the microteaching process. In this phase, the determination of components to be included in the instructional media is carried out, such as formulating learning objectives, the concept of coverage of learning materials, individual tasks for each course, assessment and reflection, as

well as other components that support the development of instructional media. All components that will be included in the developed instructional media must be carefully

considered so that the instructional media can achieve the goals of the development research conducted.

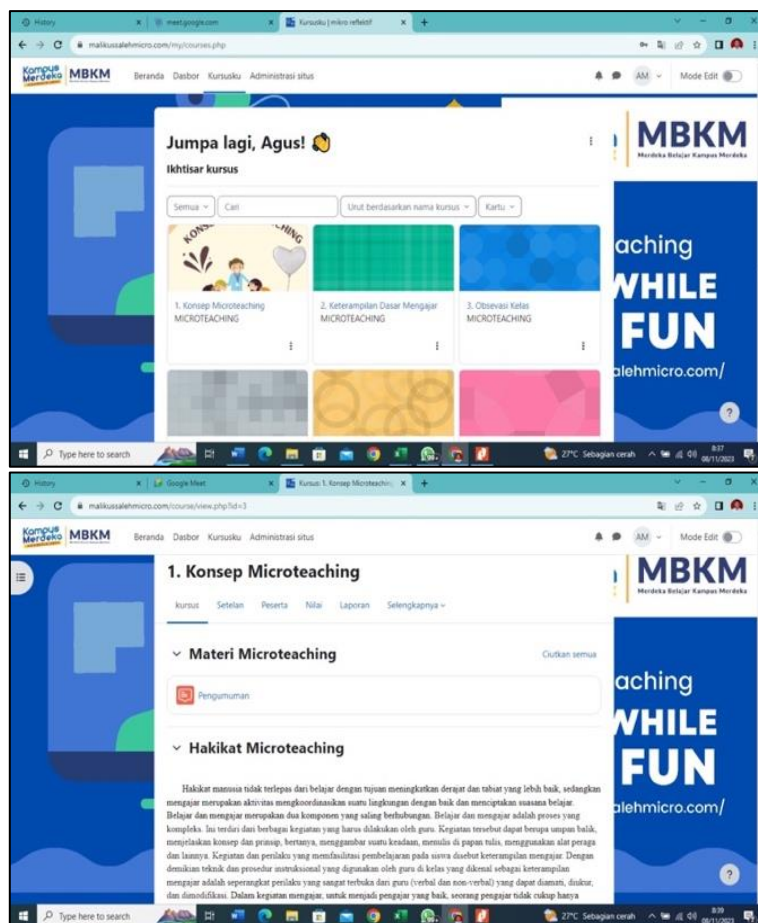


Figure 1. Reflective Microteaching Interactive Teaching Materials

Development stage

The interactive teaching materials are validated based on two aspects, namely the media aspect and the content aspect. Each aspect is verified by two expert validators who are lecturers in the field of educational technology. The results of expert assessments quantitatively will later be transformed into qualitative data according to categories. The assessment items for validation are divided into three aspects: content, presentation, and language. The content aspect consists of 4 indicators: alignment of the material with basic competencies, accuracy of the material, currency of the material, and stimulation of curiosity. The presentation aspect consists of 4 indicators: presentation techniques, supporting materials, learning presentation, coherence, and the flow of thought. The language aspect consists of indicators such as clarity, communicative, dialogical and interactive

elements, alignment with development, and adherence to language rules.

Overall, the validation results for the content obtained a percentage of 95.09%, categorized as very valid. The material validation results show that Validator 1 gave a total score of 94.78% for the material aspect of interactive teaching materials, with a criteria of very valid. The breakdown for each aspect is 95.00% for content, 96.00% for presentation, and 93.33% for language. Validator 2 gave a total score of 95.41% for the material aspect, with percentages for content, presentation, and language being 96.67%, 94.00%, and 95.56%, respectively. Based on the assessments from both expert validators, it can be concluded that the developed interactive teaching materials are highly valid. The summary of the validation results for each aspect by each validator is presented through a diagram in Figure 2.

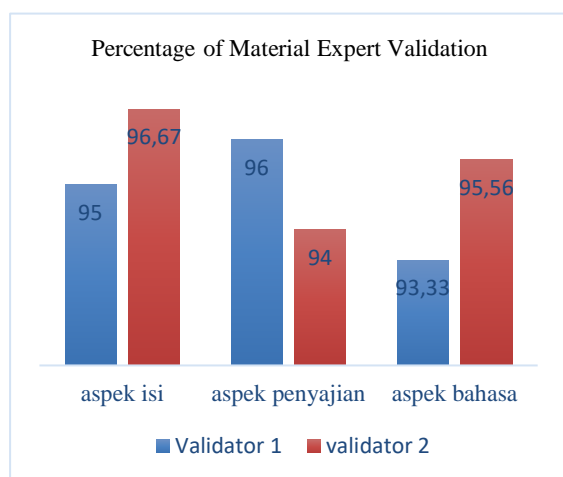


Figure 2. Validation results from material experts

Media validation is carried out by providing a media validation test instrument rubric. There are 2 aspects, namely software engineering and visual communication aspects with 18 indicators evaluation. The software engineering assessment aspect consists of 6 assessment indicators including: accuracy of selecting the type of media application used in developing learning media, use media application can be managed easily, smoothly media applications easy to use and simple to operate, creativity and innovation in learning media, clarity of instructions for using learning media, and opportunities for developing learning media towards the development of science and technology. The visual communication aspect consists of 12 indicators, namely communicative, in accordance with the message and acceptable/in line with the target's desires, creative in ideas and the expression of ideas in making media, simple and attractive, appropriateness of audio selection (narration sound effect, back sound, music) for the video section, selection accuracy development visual (layout design, typography, color), accuracy of selecting moving media (animation, video) and resolution, accuracy of selection layout interactive, suitability of font type selection, suitability of font size selection, suitability of text and image sizes, suitability of image illustrations to the material, and clarity of color of image illustrations. Media validation results with an average of 96.25% are very valid categories. Validator 1 gave a total score for assessing media aspects of interactive teaching materials of 96.67% with very valid criteria and for each aspect it was 96.67% for the software engineering aspect, 96.67% for the visual

communication aspect. Validator 2 gave a total assessment score for the media, namely 95.83% in the very valid category. Details of the percentage of software engineering assessment aspects 96.67% and visual communication aspects 95%. Based on the assessments of the two material expert validators, it can be concluded that the interactive teaching materials developed are very valid. The recapitulation of material validation results for each aspect by each validator is presented via a diagram in Figure 3.

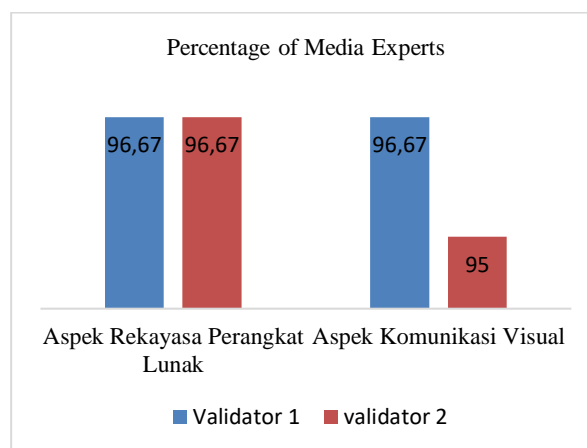


Figure 3. Validation Results from Media Experts

Interactive microteaching teaching materials that have been declared valid by expert validators, both in terms of material and media, will be tested for practicality by lecturers who teach microteaching courses as well as student teachers' responses to interactive teaching materials based on reflective microteaching. The feasibility test involved eight lecturers who teach microteaching courses and responses were carried out by 10 student teacher candidates.

From the results of the feasibility test, it was stated that the interactive microteaching teaching materials developed were very suitable to be used as a platform and learning resource for students programming microteaching courses. The assessment carried out by 8 lecturers in microteaching courses at Malikussaleh University resulted in the average percentage of these lecturers being 94.93% in the very appropriate category. Indicators assessed by lecturers include content, namely completeness of material, breadth and depth of material, accuracy of concepts, data, examples and terms used, use of concrete examples, creating active learning for students, presentation aspects such as concept continuity, introduction, availability of exercises, assignments, language use,

practicality and characteristics. From the data obtained, each aspect was assessed by the lecturer with a percentage above 94. With details for the material aspect the average percentage was 94.17%, presentation aspect 95.75%, language aspect 95.56%, practicality aspect 95.00%, and characteristic aspects 94.17%. The recapitulation of the feasibility test results for each aspect by each lecturer is presented via a diagram in Figure 4.

The final development stage carried out was testing student responses. The response of students as users of teaching materials is important to reveal because students are users of teaching materials. The teaching materials that will be used in learning must be tested and in accordance with the needs and characteristics of the users of the teaching materials (Hartati & Safitri, 2017). The response test to the teaching materials that had been developed was carried out on student teacher candidates at FKIP Malikussaleh University. The respondents consisted of 10 students who had finished taking microteaching courses and were currently carrying out practical field experiences at several schools in the North Aceh region, Lhokseumawe City and Bireuen Regency.

From the results of student responses, it was stated that interactive microteaching teaching materials were. It was developed very well as a learning resource for students taking microteaching courses. An assessment carried out by 10 prospective teacher students at Malikussaleh University resulted in the average percentage of these students being 93.00% in the very good category. Indicators assessed by students include cognitive and affective abilities as users. The cognitive aspect includes teaching materials that are useful for increasing insight, the available materials are easy to understand, the language is easy to understand, and the images match the content of the material. The affective aspect can be seen from student responses that the teaching materials developed can motivate students to learn, are interesting to read, increase curiosity and increase interest. From the data obtained, every aspect of the student response was above 85 with very appropriate criteria. Details for cognitive and psychomotor aspects, the average percentage is 94.00% and 92.00%. The recapitulation of the response test results for each aspect by each lecturer is presented via a diagram in Figure 5.

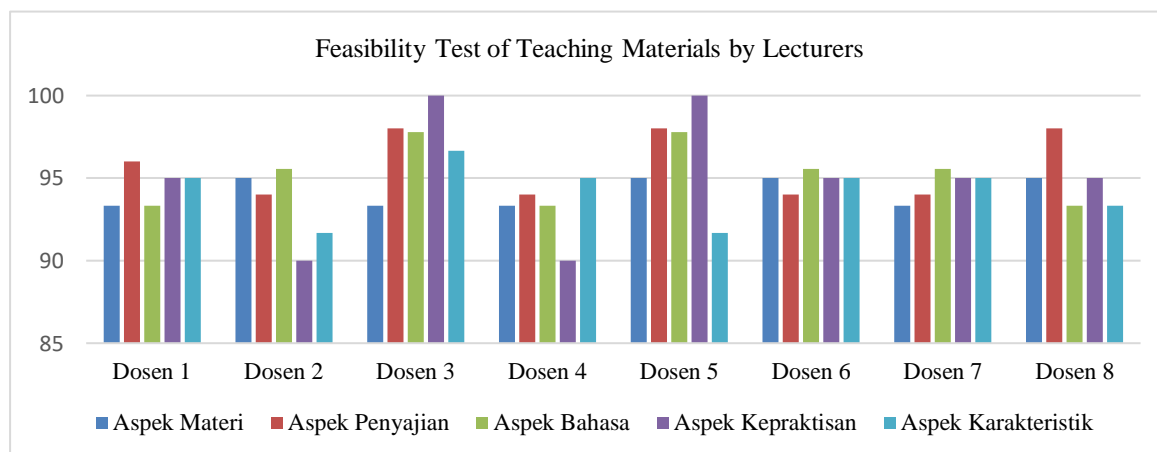


Figure 4. Eligibility Test Results for Microteaching Lecturers

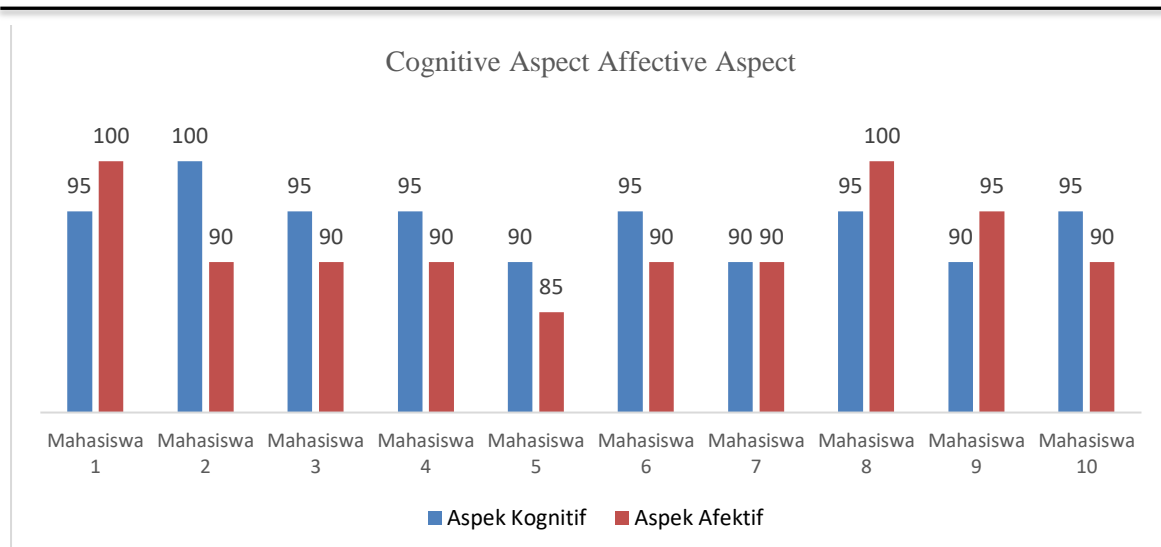


Figure 5. Student Response Test Results

CONCLUSION

Based on the research results, it can be concluded that the interactive microteaching teaching materials developed are valid and suitable for use and have received positive responses from student teacher candidates. The validation results from material and media experts stated that this teaching material was very valid with a percentage score of 95.09% and 96.25% respectively in the "very valid" category. The feasibility test was carried out by the lecturer in charge of the microteaching course with a result of 94.93% in the "very feasible" category. The student teacher response was 93.00% in the "very good" category. From this data, the media in the form of interactive microteaching teaching materials developed can be used as media in microteaching courses and can help students identify deficiencies that need to be corrected in each teaching practice and for lecturers the availability of a platform that helps the microteaching lecture process. Further research can be carried out by implementing and evaluating. Implementation is the stage of applying reflective microteaching-based interactive media to prospective teachers. The classes used in the implementation process consist of two classes, namely the experimental and control classes. This is used to determine differences in the use of microteaching abilities in forming professional character. The evaluation stage is carried out to carry out analysis and evaluation. The results of this development are expected to form professional character in prospective teachers.

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