

Development of Interactive Learning Multimedia to Increase Understanding of Basic Skills Teaching Procedures

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Abstract—The teacher has an important role in student life that is as a facilitator, resource developer, planner, information providers, and innovators. Strategies for transferring knowledge and skills require learning resources and learning media that are adaptive to technological advances and pedagogical concepts in the era of the industrial revolution 4.0. This study aims to develop interactive multimedia that functions to help students understand the concepts and procedures of eight basic teaching skills. This research method uses the ADDIE model. The results of the study, the expert subject test results on the quality of interactive teaching materials were 85%, 88% lecturer manuals, and 88% of student manuals. The media expert test on the quality of interactive teaching materials was 85%, 95% lecturer manuals, and 94% of student manuals. The effectiveness of interactive multimedia microteaching is based on changes in students' knowledge, performance, and positive responses as well as the ease of students in conducting microteaching practices.

Keywords: *interactive multimedia, pre-service teacher, microteaching*

I. INTRODUCTION

Teachers have a strategic role in building a civilization, because of the true task of the teaching profession with the shape characteristics of the nation's children through the process of humanity, the intellectual and familiarization character. Teachers also have an important role in the life of the student as a facilitator, resource developers, planners, information providers, innovators, so that students are able to learn and achieve the expected [1]. In order to prepare and make the professional teacher, Teacher Training and Education Faculty of Mulawarman University becomes one of the Workforce Education Institutions and is expected to be able to print professionals in education. The Teacher Training and Education Faculty success equips students with a number of theoretical and practical experiences on the duties of the professional teachers to determine the quality of prospective faculty/teachers to produce graduates who are skilled [2].

One form of briefing against the prospective teachers is microteaching course, the course that contains the essence of micro and eight learning basic skills teaching. Microteaching acquired learning students are expected to assist students in mastering eight teaching skills, but not a few students who had difficulty in mastering basic skills teaching [3].

In addition to these conditions, the development of readiness of prospective teachers in the face of education era of the 21st century are also demanding a change in the application of technology to use the computer as a medium that has great potential to change the way people learn, gather information, customize the information that can improve the performance and it is possible to carry out the activity quickly, precise, and accurate resulting in higher productivity [4].

Based on the observations of investigators during the course of learning support micro or microteaching, many of them found the problem is less skilled students in applying eight teaching skills in teaching practice. There was also the lack of learning resources in the form of a complete learning media about eight teaching skills as a reference for the lecture microteaching. The above-mentioned problems can be solved by designing media that incorporate advances in technology and pedagogy oriented elements in improving the quality of learning [5].

A problem to be solved and elaborated in development research are 1) How to Develop Multimedia Interactive Learning in improving students' ability to achieve understanding of the concepts and procedures of basic skills teaching, 2) How the feasibility Multimedia Interactive Learning in improving students' ability to achieve an understanding of concepts and procedures on teaching basic skills, 3) What is the appeal of learning that is designed using the Multimedia Interactive learning in particular on teaching basic skills.

Microteaching is a means and an effective vehicle to train and improve the ability to teach a teacher. This is considered the best way to build skills and confidence, to gain teaching experience and practice giving constructive feedback. In practice, teachers can use video footage to train one of the components of teaching, and then the results can be observed by peers or lecturer of the course microteaching. After practicing, prospective teachers or teachers get feedback from friends as well as from faculty [6].

Microteaching can basically be used in pre-service education and training in service. The purpose of education in pre-service is to provide practical experience for prospective teachers, the teaching practice in preparation for the prospective teachers to teach the class the truth.

One of the important components in the preparation are taught basic skills. There are eight teaching skills that

contribute to the quality of learning, namely (1) the skills to ask, (2) provide reinforcement (3) hold a variety, (4) the ability to explain, (5) opening and closing the lesson, (6) to guide small group discussions, (7) manage the classroom, (8) teaching small groups and individuals. Teaching skills that must be mastered as a whole and integrated, so that the necessary training systematically through microteaching or micro or micro-teaching learners.

Multimedia means "multiple media" or "a combination of media". The media can be still graphics and photographs, sound, motion video, animation, and/or text items combined in a product whose purpose is to communicate the information in multiple ways [7]. The assertion terms of the use of terminology multimedia related to interactivity components inside: "The combination of media such as video and audio with text makes them multimedia. The ability to get from one to another makes them hypermedia [8]. Thus, according to Roblyer & Doering if only a combination of video, audio, and text, it is called multimedia, and if it has the capability of interaction, the media becomes hypermedia. Multimedia also means that media pattern is not limited to computer technology, as for the term hypermedia research mentioned above, interactive multimedia authors use the term because both are equally a combination of text, graphics, audio, video that has the ability to interact with one another. Multimedia-based instructional development model consists of several stages: (1) analysis, (2) design, (3) development and implementation, and (4) evaluation or abbreviated ADDIE [10]. Model ADDIE development of multimedia-based instructional is a development cycle. Multimedia development stage can be illustrated in the Fig.1.

In general, this development model is done in four stages, namely: assessment and analysis, design, development, implementation, and evaluation.

II. METHOD

The model of development used in this study is a model of research and development (R & D) proposed by Lee & Owens, The reasons for selecting this model because this model is a model that is devoted to developing multimedia [10]. This development model is said to be a procedural model for the sequence of steps in the process of systematically arranged and every step of the development has a structured sequence of steps clear development. The model commonly known as the ADDIE development model is an abbreviation of analysis, design, development and implementation, and evaluation.

The subject of this research is a media expert, material expert, and student of Teacher Training and Education Faculty of Mulawarman University (economic education, elementary school teacher education, mathematics education, and physics education programs). The types of data obtained in this study were qualitative and quantitative data. Qualitative data obtained from data from interviews of faculty and students. In addition, qualitative data were also obtained from the product improvement suggestions by subject matter experts, media specialists, and students. While the quantitative data obtained from the questionnaire media feasibility study by experts, as well as student assessment questionnaire responses. Data were analyzed using descriptive statistics with SPSS III.

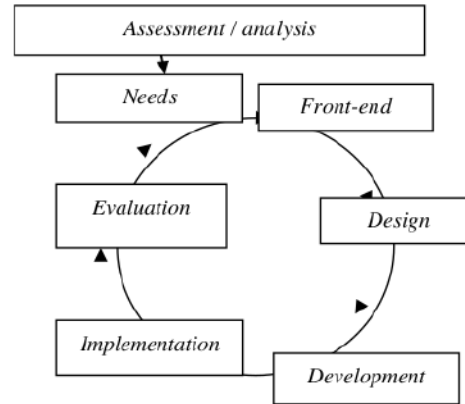


Fig. 1. Model multimedia development Lee and Owens

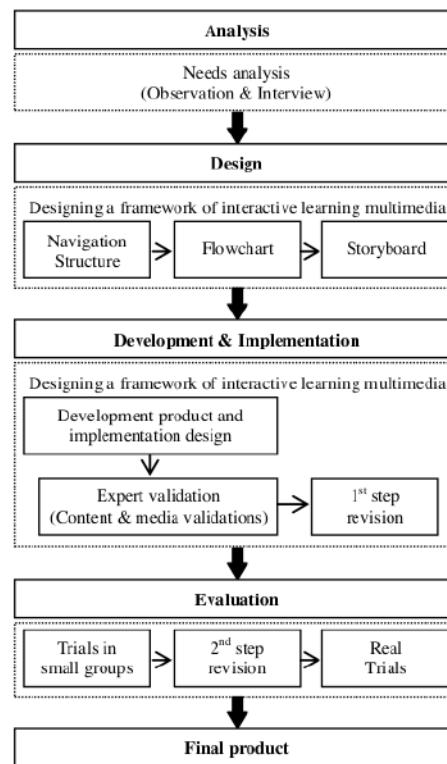


Fig. 2. Flowchart of interactive multimedia development

III. RESULTS AND DISCUSSION

Multimedia Development adopted ADDIE multimedia development. The analysis phase is carried out through preliminary research activities, observation, reflection, and interviews of course lecturers and students. This needs analysis is done in two events, namely by observing to places that serve as a testing ground to share product development and learning style analysis student questionnaire which will serve as product development.

Analysis of learning styles of students who will be the user or users of multimedia learning that will be developed

amounts to 64 students with results students will only understand 33% of his ability to understand the course material that is visible to them, 31% of his ability to understand the subjects heard by them, and 36% the ability to understand the course with practice. It shows that the need for a third attempt to maximize their learning style, which is a multimedia learning that can stimulate learning styles are visual, auditory, or kinesthetic them.

In addition to analysis of the characteristics of students also do material analysis, material analysis carried out by the identity of the achievements of graduate teaching, learning gains subject to sub of learning goals of courses or special abilities microteaching course. The material developed in this research focuses on teaching basic skills that consist of opening and closing skills, skills of explaining, questioning skills, held a variety of skills, skills to provide reinforcement, initiate discussion skills, teaching skills of small groups and individuals.

At the design stage framework structured learning multimedia, interactive learning framework consists of the navigation structure, the block diagram and the storyboard. At this stage of development and implementation, interactive learning multimedia framework developed by implementing design products has been designed. After completion of initial products was produced, then the product is further validated by experts. Validation of experts aimed to evaluate the feasibility of the initial product developed multimedia interactive learning. Validation of experts made up of expert validation of media and subject matter experts. Expert validation produced data by expert product evaluations and product improvement suggestions.

Validation of the media, at this stage the media experts were asked to rate eight aspects: 1) the quality of the material, 2) the achievement of learning objectives, 3) feedback and adaptation, 4) motivation, 5) presentation design, 6) interaction use, 7) accessibility, 8) reusability. The mean total score given by the experts was 91.6% (category "very decent"). So overall the interactive learning multimedia teaching basic skills developed based media expert assessment included category of "worth" is used as instructional media. Then the material expert validation includes three indicators, namely: 1) The substance of the material, 2) instructional design, 3) benefits. The score given is 91.9% proficient mater (category "very decent"). so that overall it can be said that multimedia interactive learning Teach Basic Skills are developed based on expert assessment materials included in category "very feasible" is used as a medium learning.

At this stage of the evaluation conducted trials of multimedia products for users of interactive learning students. Product trials conducted in two stages, namely the small group trial and field trials. The small group trial with indicators, namely: 1) the display media, 2) the presentation of learning, 3) benefits. The mean score obtained was 87% (Category "very well"). So that overall it can be said that multimedia interactive learning Teach Basic Skills are developed based on student assessment responses on small trial groups included in the category "very good" as the media learning. The field trials with indicators, namely 1) the display media, 2) the presentation of learning, 3) benefits. The mean score obtained was 80.5% (Category "very good"). So that overall it can be said that multimedia interactive learning based on the response to Teach Basic Skills student

assessment in field trials including into the category of "very good" as the instructional media.

This development has resulted in several findings, namely 1) Multimedia interactive learning that has been generated ADDIE model by providing video interactive, animated interactive repetitive, and descriptions of attractively packaged material in the form of flip book which can be accessed via hardware Laptop and Personal Computer (PC). 2) Multimedia interactive learning developed has been declared feasible by experts based on several related aspects. 3) The response of students to multimedia interactive learning after conducting field trials categorized as very good.

The development of multimedia interactive learning is one form of instructional media development with the application of technology [11]. In his research concluded that technology-based learning, students can access their lessons and delivering them online anytime and anywhere. On the other hand, teachers can upload learning materials, assign tasks, determine the discussion and receive student assignments electronically. From these results, it can be seen that with the application of technology in the learning process, communication between learners and teachers can do more easily.

Students as prospective teachers are required to have teaching skills and the ability to use effective instructional media so that the necessary provisioning sufficient to provide an understanding of the concepts and procedures of teaching basic skills. The importance of the briefing is supported by research conducted Namamba and Rao [12] that report on the status and practice of preparation and professional development of teacher educators at this time of teacher education institutions in Tanzania, that there are a large number of teachers of private colleges and universities that provide teacher education. The most basic debriefing can do is to hold a university lecture microteaching on.

Research conducted by Kilic [13] concluded that the scores before and after the test showed that the model LCMT (Learner-Centered Microteaching) had progressed in the behavior of prospective teachers teach in the subject area, the planning, the process of teaching, classroom management, communication, and evaluation. These results are also consistent with studies small [14] that their microteaching teacher training programs is seen to have a positive impact on the consciousness and the teacher's views on language competence and teaching them. The use of multimedia interactive learning on microteaching courses to make students able to understand all the basic concepts of teaching, for multimedia interactive learning can display text, illustrations, animations, simulations, and video presentations. Then the interactive learning multimedia products contain materials that are served with a variety of objects that facilitate students to learn the material and can improve students' ability to reach understanding concepts and procedures on teaching basic skills.

Microteaching is a technique in which a small group teaching prospective teachers or classmates to see detailed teaching competence. In addition, they can also observe and evaluate the different learning strategies with a view re-recorded they presentation [15]. Microteaching practices conducted prospective teachers can reduce anxiety and errors in teaching. Microteaching method is effective in reducing

anxiety prospective teachers about classroom management and to increase the confidence of prospective teachers on teaching competencies and manage classes [16, 17].

From the results of research and product development, multimedia interactive learning to be eligible to apply to the learning process and produce finding that Application of multimedia interactive learning is able to improve student achievement of learning objectives related to teaching skills that eight students. The findings are consistent with research Toom et.al [18] confirming that video-based learning by teachers to broaden the focus of teaching and get more attention from students. Application of multimedia interactive learning can improve teaching skills in students who covers (1) questioning skills, (2) provide reinforcement, (3) hold a variety, (4) the ability to explain, (5) opening and closing the lesson, (6) to guide small group discussions, (7) manage the classroom, (8) teaching small groups and individuals.

Learning the 21st-century challenges prospective teachers to master the technology to facilitate the delivery and presentation of learning materials. Other research shows ICT has a huge impact on the learning process by offering new possibilities for students and teachers who have an impact on the performance and achievements of learners [19].

In recent years, multimedia has facilitated and facilitated learning on campus. Students are becoming more active and easier to presenting or deliver material by using a variety of media [20, 21]. By utilizing multimedia students can find the source of information in a short time, the relevant topics and they can build new knowledge from the information obtained [22, 23]. It is important for students to determine the exact source of information or in learning and will make students more engaged in learning participation as a form of student-centered learning [24, 25].

Currently, the multimedia-based learning is becoming popular because it can stimulate new ways of communication of the material and can reach all learners by incorporating new teaching methods into multimedia, but it also can eliminate the frustration in the learning process [26, 27].

IV. CONCLUSION

Microteaching on teaching basic skills developed using the facilities ADDIE model of interactive video, animation, interactive repetitive, and descriptions of attractively packaged material in the form of flip book which can be accessed via hardware Laptop and PC.

Multimedia interactive learning in the subject of microteaching has been declared eligible by subject matter experts microteaching based aspects content quality, aspects of learning goal alignment, feedback, and adaptation, motivation, presentation design, interaction usability, accessibility, reusability, which reached an average score that can for use.

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