

ANALYSIS OF THE NEED FOR THE DEVELOPMENT OF VIRTUAL REALITY-BASED TEACHING MATERIALS IN THE EARLY CHILDHOOD EDUCATION STUDY PROGRAM

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Abstract

The purpose of this study was to analyze the needs of students of the Open University Early Childhood Education Teacher Education Study Program for lecture materials that will be developed for games based on Virtual Reality technology. This analytical research is part of the development research stage with the ADDIE model. Stages of analysis on the ADDIE model were carried out by interviewing and documenting and distributing questionnaires through the google form application with 200 respondents from the PGPAUD study program. Data analysis is described quantitatively. The results showed that 31.41% or 158 students chose the Development Activity Management course to be a much-needed course to be visualized through virtual reality technology and 26.93% or 143 students chose BCCT circle time material as material that was needed for a media virtual reality.

Keywords: virtual reality, circle time, analysis

1 INTRODUCTION

Technology is increasingly developing and is becoming a reference for universities in improving the quality of student learning because technology has become a tool for humans to continue to innovate (Maritsa et al., 2021). This is also what the Universitas Terbuka does. Being a Cyber University, the Universitas Terbuka continues to innovate in developing its learning materials using various technologies, one of which is virtual reality technology. The Early Childhood Education Study Program is one of the study programs with the most students at the Universitas Terbuka, so it requires learning innovations that various students can use. Therefore, developing module teaching materials using Virtual Reality technology is a creative step in supporting the independent learning process. So far, the Early Childhood Education study program has developed forty-five modules as the main teaching materials for its students. The knowledge is theoretical and practical concepts that students must master to become professional early childhood education teachers. Therefore, it is necessary to innovate teaching materials to improve student competence in mastering practical materials in Early Childhood Education institutions.

The selection of Virtual Reality technology as a medium for visualizing the concept of lecture material refers to the following literature. Sutherland stated that virtual reality is a technology with a concept like a window so users can feel, see and hear in a real virtual world (Cipresso et al., 2018). Virtual Reality is called the same as telephone or television, a conductor or medium

(Steure, 1993). According to other experts, it was also stated that the virtual world could stimulate learning comprehensively so that it can be understood better because the virtual world provides experiences as well as symbolic information (Pantelidis, 2010). It is also mentioned that virtual reality can increase students' knowledge, skills, creativity, and constructivist mindset (Rachmatullah & Sukihananto, 2020) (Rohmah & Russanti, 2021). Based on this description, the selection of virtual reality as the technology base for developing teaching materials is appropriate because this technology can be a medium for students to experience different learning experiences and real learning situations.

As a first step in the development of media based on virtual reality technology, it is necessary to select and determine modules (basic teaching materials) and the concept of appropriate lecture materials with student needs, so the purpose of this study is to analyze student needs in developing virtual reality-based teaching materials.

2 METHODOLOGY

This study uses a type of development research with the ADDIE model. The ADDIE research model is an instructional process centered on individual learning that goes through 5 phases, which are the analysis phase, the design phase, the development phase, the implementation phase, and the evaluation phase, which are carried out dynamically (Cahyadi, 2019; Hidayat & Nizar, 2021). According to the developers Reiser and Molenda, the analysis phase aims to identify possible gaps in the learning process or other necessary needs (Hidayat & Nizar, 2021). For this analysis phase, the researcher carried out several stages of analysis, such as curriculum analysis, module analysis, and material concept analysis. For the curriculum analysis stage, interviews and documentation were carried out with lecturers and the head of the Early Childhood Education study program, while for module analysis and material concept analysis using the survey method and distributing questionnaires via Google Form to 200 Early Childhood Education students in term 3 and term 9, then the results were analyzed by descriptively quantitative.

3 FINDINGS AND DISCUSSION

The results of this study are divided into three parts. The first part is the curriculum analysis stage. This stage analyzes the curriculum containing all Early Childhood Education study program courses. This analysis is used to see the suitability of the lecture module with the demands of the graduate profile. This stage produces four courses that will be proposed for the development of virtual reality game media, namely the courses (1) Management of Early Childhood Development Activities, (2) Language Development Methods, (3) Physical Development Methods, (4)

Curriculum and Materials Kindergarten Learning, (5) Moral Development Methods & Religious Values. As for the concept of the module material for each of these courses, they are (1) Circle time-BCCT management, (2) Visual media and language development, (3) a combination of basic movements, (4) Models of development activities, (5) Development Kohlberg's theory.

Curriculum analysis is the first step in this research stage because the curriculum is a summary of the expectations of an educational institution for the quality of its output. The curriculum contains all the knowledge and skills that the learner must master. This is what makes the curriculum referred to as a learning implementation guide (Fatih et al., 2022; Kurniaman et al., 2013; Purwadhi, 2019). Therefore, the selection of virtual reality materials cannot just be choosing teaching materials but must be following the demands of the Early Childhood Education study program curriculum in Universitas Terbuka and, of course, considering other indicators such as the level of difficulty of teaching materials, the benefits for students and demands from school institutions in the field.

The second and third stages analyze student needs for the five modules and five material concepts that have been determined in the previous stage. The module requirements analysis uses quantitative description, which is described with the criteria obtained from the conversion of the minimum benchmark criteria according to the calculation of statistical data. Obtaining research results are analyzed with the following criteria:

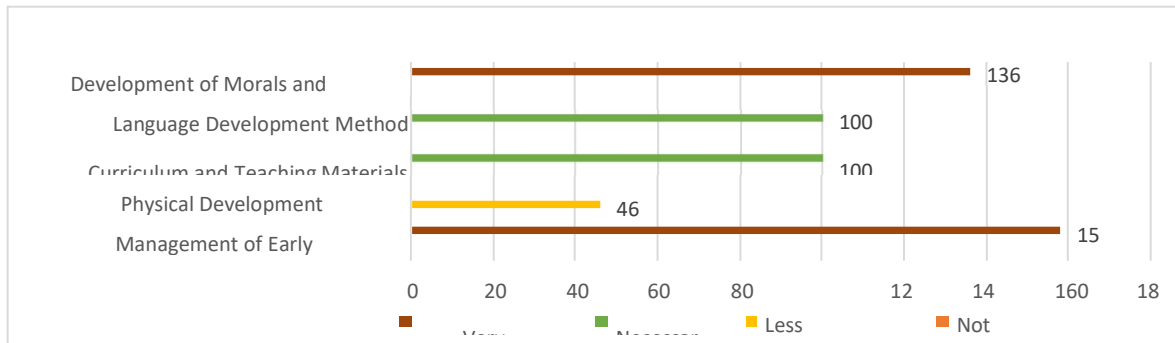
Obtaining research results are analyzed with the following criteria:

Table 1. Criteria

Average Percentage	Criteria
$\geq 25 \%$	Very Necessary
$16 \geq 25 \%$	Necessary
$7 \geq 16 \%$	Less Necessary
$\leq 7 \%$	Not Necessary

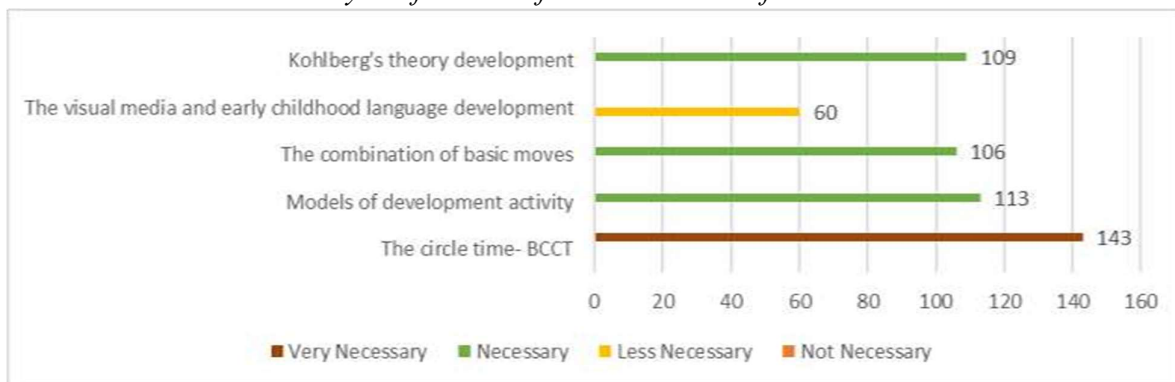
Based on the table of requirements criteria above, the decision-making on the results of the questionnaire distribution obtained the following results.

Table 2. Analysis of the needs of the Visualization Module



The criteria used were obtained from the conversion of the minimum benchmark criteria following the calculation of statistical data. From the diagram of the results of the research on the visual needs of the module, 158 people (31,41%) are interested in the indicators for the management of early childhood development activities. Next, as many as 46 people (8.51%) are interested in physical development methods. Furthermore, as many as 100 people (19.8%) are interested in curriculum and teaching materials as many as. Meanwhile, the language development method has 100 people (19.8%) interested. Lastly, as many as 136 people (25.65%) are interested in developing morals and religious values. It can be understood that based on the research data, the most needed module is the Module with titled Management of Early Childhood Development Activities and Methods for Development of Morals and Religious Values.

Table 3. Analysis of the need for Visualization of Lecture Materials



The criteria used were obtained from the conversion of the minimum benchmark criteria following the calculation of statistical data. From the diagram of the research results on material visualization needs, it can be seen that the interest in the Circle time - BCCT material indicator is 143 people (26.93%). Next, students who are interested in development models are 113 people (21.29%). Furthermore, a combination of basic movements interests 106 people (19.96%).

Finally, in visual media and language development for Early Childhood, 60 people (15.9%) are interested, while in the development of Kolhberg's theory, 109 people (20.52%) are interested. Therefore, it can be understood that material visualization is very much needed, which is the Circle time - BCCT material.

Learning management in the Beyond Centers and Circle Time (BCCT) model is one of the skills that a teacher must master because BCCT is an ideal model for early childhood learning. After all, it provides a fun challenge for early childhood (Fitri et al., 2022; Lestari, 2015). This learning departs from Vygotsky's scaffolding theory, where children are given a foothold to build the concept of rules, ideas, and knowledge of children to help them master their competencies. This model provides opportunities for children to choose their activities according to their interests and talents (Fitri et al., 2022; Hamzah, 2016; Lestari, 2015; Samad, Farida Alhaddad, 2016). Based on this description, it can be said that the management of circle time-BCCT in Early Childhood Education institutions must be the skill of every teacher to provide learning that can improve the development of their students. Early Childhood Education students need to explore this material so that when they graduate and become professional teachers, they can create fun learning while optimally stimulating their students.

4 CONCLUSION

It is concluded that Early Childhood Education students in Universitas Terbuka need to strengthen the concept of material from basic teaching materials/modules in the Management of Early Childhood Development Activities course, especially in the management of circle time-BCCT as material for developing teaching materials based on virtual reality technology.

ACKNOWLEDGMENTS

We would like to thank the Research and Community Service Institute in Universitas Terbuka for providing space to conduct virtual reality research so that the Early Childhood Education study program has the opportunity to develop learning media. We also thank Mr. Diki, S.Si., M.Ed., Ph.D. as a virtual reality research reviewer so that we can find a formulation that fits the characteristics of the Early Childhood Education study program.

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