Development Of Multi-Media Based Learning Media For Early Childhood Education Using The MDLC Method

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Abstract— The success of the use of learning media depends on several factors, such as cognitive processes and student motivation. Multimedia is the use of computers to present and combine text, sound, images, animation, audio, and video with tools and connections so that users can navigate, interact, work, and communicate. Multimedia can be used in the world of education. In the world of education, multimedia is used as a medium of teaching, both in class and individually or self-taught. The purpose of developing this learning media is to improve cognitive processes and student motivation. Based on the description above, in this study, the development of learning media for early childhood education based on multi-media will be carried out using the method of developing multi-media systems. The use of multi-media based learning media provides an opportunity for educators to develop learning techniques to improve the effectiveness of the learning process. Likewise, for students, the use of multimedia is expected to be easier to determine what and how students can absorb information quickly and efficiently.

Index Terms— Childhood Education; Learning; Multimedia; MDLC.

1 INTRODUCTION
Media is a tool that is used as an intermediary in the teaching and learning process, which makes it easy for someone to deliver learning material and attract people to learn [1]. Learning is a conscious process of delivering all information in the form of knowledge that is conveyed to provide benefits in the form of behavioral changes, additional knowledge, and can provide skills. Thus the learning media are media that carry messages or information that aim to simplify the learning process so that it can stimulate children's thoughts, feelings, concerns and interests and in the end the child conducts learning activities [2], [3]. One factor that must be considered from the character of early childhood is their fondness for playing, so the learning media must be directed to the circumstances that seem to be playing. From the results of observations and interviews conducted with classroom teachers, it was concluded that the use of conventional media is monotonous and causes children to get bored quickly so that it can reduce the achievement of learning goals. From several research results explained that the use of instructional media by using instructional media in the form of games has increased the interest and effectiveness of learning. So that this research will develop a multimedia-based software in introducing numbers and letters accompanied by sound. So hopefully, the results are not much different from the use of game media. Special note from the use of this media is efficient both in terms of supporting the hardware system and software system, another thing that can also be used as consideration is the use of this media does not require special skills so that the existing human resources can still be utilized. Based on the results of the study, it is known that learning media influence the success of the teaching and learning process [2], [4]. From time to time, learning always develops — various models, methods, media, and other things that just emerged and were used in learning. Multimedia development is also included in use in learning. The use of multimedia in learning can replace conventional learning methods to be more interesting [4]. To support the success of teaching and learning processes, it needs to be supported by the use of computer-based technology, to provide an interactive impact on students and teachers. Thus it is expected to increase the success rate of the teaching and learning process because it is not monotonous and boring. Based on the description, the aim is to develop multimedia-based learning methods using the Multimedia System Development method. The use and combination of images, videos, and sounds in multimedia attracts and arouses the learning interest of students or students. Multimedia is also able to facilitate the delivery of certain materials to students compared to the way another material is delivered [5]–[9]. However, to make appropriate use and multimedia material on learning needs special development, considering that multimedia production requires knowledge and skills in developing and building good multimedia-based material.

2 METHOD
This research deals with the process of software engineering [10], which focuses on the effectiveness of the presentation of learning material. So that it appears interactive, communication between students and teachers. Therefore, in developing this learning media, a software engineering method is needed that is relevant to the needs and business processes [11]–[13]. Multimedia development can be done using the Multimedia Development Life Cycle (MDLC) method, which consists of 6 stages [14]. The stages of development in the Multimedia Development Life Cycle (MDLC) are:

2.1 Concept
Formulate the basics of multimedia projects that will be created and developed. Especially on the purpose and type of project to be made

2.2 Design
The stage where the maker or developer of a multimedia project describes in detail what will be done and how the multimedia project will be made. Manuscript creation or
navigation and other design processes must be done completely. At this stage, you will need to know how the final project will be done.

2.3 Obtaining Content Material
Is a process for collecting everything needed in the project. Regarding the material to be delivered, then multimedia files such as audio, video, and images will be included in the presentation of the multimedia project.

2.4 Assembly (Preparation and Making)
The time for multimedia projects is produced. The materials for the multimedia files that have been obtained are then arranged and arranged according to the design. In this process, the ability of experts is needed to get good results.

2.5 Testing
After the results of the multimedia project are formed, further testing is carried out. Trials are conducted by applying the results of the multimedia project to minor learning. This is so that what has been made before is indeed right before it can be applied in mass learning.

2.6 Distribution
Stage of multiplication and dissemination of results to users. Multimedia needs to be packaged properly by the media spreader, whether through CD / DVD, download, or other media.

3 RESULTS AND DISCUSSION

3.1 Stages of concept development
The use and combination of images, videos, and sounds in multimedia is believed to be interesting and arousing interest in learning early childhood. Thus this media multi to simplify the learning process so that it can stimulate the thoughts, feelings, concerns, and interests of children to carry out learning activities. At the development stage of the concept, the main factor that must get attention is the user's characteristics. In this case, the user is divided into a class guide teacher and students who receive lessons. In this case, the main concern is the students. Therefore, in this stage, the concept is based on the characteristics of early students.

3.2 Design Stage
Presentation of images as learning materials, which are integrated into the video and sound so that they appear as real as they are. These images involve the introduction of animals, fruits, flowers, and objects that are around the playground. Every material that will be taught is displayed interactively so it is not monotonous and makes it not quickly bored in the learning process. The main thing to get attention in doing this stage is that there must be relevance and consistency with the stages of concept development where the main reference is the user character. Some considerations that deal with user characteristics concerning early childhood include emotional stability expressed through play likes, play patterns, sound use, and color usage. The main obstacle of early childhood psychology is its age group, which is categorized as the golden age so that the presentation of the material must be oriented to the actual condition.

3.3 Stages of material collection
1. An image file containing learning material
2. Sound files that represent each image used
3. Video files that collaborate between images, sounds, and animation testing

All material collected in the form of pictures, sounds, and videos must reflect the actual situation by the characteristics of early childhood.

3.4 Preparation and Making
By using a programming language that suits your needs, then the multi-media files are combined so as to create a unity in the packaging of multi-media files. Below, we discuss some design results that support the teaching and learning the business process, which starts from the main menu, learning materials, and examinations. Broadly speaking, the main menu that can be displayed will look like the image below [15]:

- Presentation of the learning material, combining images, text, sound, and animation, changes the conventional pattern that is presented manually so that it is expected to increase student learning interest, teacher creativity and eliminate boredom. Thus the use of multimedia-based learning media is expected to increase the effectiveness of the teaching and learning process, especially in the cognitive process and student motivation.
3.5 Trial Phase
The resulting multi-media system is then tested using simulations of the audience, namely teacher and student teacher. From the hearings conducted, it will be known the effectiveness of making multi-media systems towards the purpose of the learning process carried out [16], [17]. At this stage, the simulation is conducted through hearings with potential system users, including the teacher as the class guide and the students themselves. With the capacity possessed by the teacher, the relative will not be a problem because the user interface delivered very user-friendly, but the results of the display of requests for data entry must get the picture that the students show a sense of enjoyment indicated by the circumstances and attention of the participating children students who focus and enjoy.

3.6 Stages of Distribution
To do the distribution of software products, this can be done using secondary storage media in the form of CDs, DVDs, Flash disks, or other media. Sections, subsections, and subsubsections.

4 CONCLUSIONS
Based on the results and discussion conclusions can be drawn, the engineering of making multi-media software can be done using the multi-media development life cycle (MDLC) method. There is relevance between the teaching material and the main menu structure displayed and recommended that you do re-research using other development methods or enrich the scope of the discussion.

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