

Development of Mathematics Learning Media Based on Assemblr Edu in Primary Schools

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Abstract

Purpose: This study aims to develop and implement Assemblr Edu-based learning media to increase the learning interest of fourth-grade students at SDIT Nur Hasan.

Methodology: The research uses a qualitative approach, with data collected through observation and interviews conducted at SDIT Nur Hasan. The focus is on analyzing the impact of Assemblr Edu media on student engagement and interest.

Results: The implementation of Assemblr Edu learning media proved effective in enhancing students' learning interest. Data analysis indicated an average increase of 81% in students' enthusiasm and participation after using the media. The media was deemed highly feasible and suitable for classroom application.

Applications/Originality/Value: This research highlights the potential of augmented reality-based platforms like Assemblr Edu as an innovative and engaging tool to foster learning interest in elementary education. Its success at SDIT NUR HASAN during the 2023/2024 academic year demonstrates its relevance for broader application in similar educational settings.

Introduction

In the current era, the development of science and technology (IPTEK), especially in the educational aspect, is very important to support quality in an educational institution. Because technology in the education sector seeks to reform the quality of the education system. These efforts are demonstrated through changes in provisions in the design of learning activities by taking into account the learning needs of students in the current era of globalization, one of which is the curriculum. This curriculum was developed by responding to the dynamics of the problems of all the demands that occur in the era of globalization and the policies used, the aim is that educational programs can improve by developing existing curricula in elementary schools. For this reason, the Ministry of Education, But Research and Technology is developing a curriculum as a form of reform in the education system.

According to the law, the purpose of education is to help students become better prepared to face life outside of school. This is manifested through the atmosphere active and innovative teaching and learning. In the context of teaching, Educators are expected have competencies that include the ability to develop material creative and innovative learning, as part of efforts to advance Participants' potential educate. Based on research conducted at Elementary Schools, there are difficulties in arouse students' interest in learning, especially in class IV. Create an environment interesting learning is hampered by various factors, including inappropriate learning materials interesting, lack of resources, and conventional teaching approaches. Therefore, Innovative solutions are needed that are in line with technological developments, one of which is through the development of Assemblr Edu-based Learning Media.

Thematic development provides a learning experience that is fun, not boring and leaves an impression on students. So that in thematic learning, teachers have the freedom to choose various sets of teaching materials provided that these teaching materials must be innovative and in accordance with developments in science and technology (Science and Technology) in the current era of globalization through the creation of technology-based learning media. The development of learning media is very necessary, with the aim of making students interested in participating in class learning and easily understanding the subject matter. The use of learning media can foster students' interest in learning new things in the learning material presented by the teacher so that they can be easily understood.

The innovation that can be implemented is through the use of the learning media "Assemblr Edu" based on augmented reality. With this innovation, it is hoped that the development of Assembler Edu media can motivate teachers to create interesting learning media so that in the teaching and learning process students will not get bored easily because this software is very suitable for students' needs because this software provides 3D image displays, and can increase interest in

learning in presenting explanations of the material presented by the teacher. Talent interest is the driving force within an individual aimed at carrying out learning activities to increase knowledge, skills and experience. The advantages of Assemblr Edu are as follows 1). Visually based, 3D images and animation are the best media to attract attention and trigger curiosity, especially for young students. 2). Easy to understand, assembler can make complex and abstract concepts feel more real by bringing them right into the classroom; 3) Unlimited material, Assemblr has provided educational content that can be used for free. Be it models, diagrams, to simulations, and can find most of the material needed from the subjects taught at school; 4) Encouraging creativity, the AR Editor and scan-to-see feature provide endless possibilities to make learning activities occur in two directions and turn learning moments into more meaningful ones (Lino Padang et al., 2021).

Augmented reality (AR) is a term for an environment that combines the real world and the virtual world and is created by a computer so that the boundary between the two becomes very thin (Nugroho, 2013). Meanwhile, according to Hakim (2018) Augmented Reality is application combining the real world with the virtual world in two or three dimensions projected in a real environment at the same time. According to Young (2015), the advantages of augmented reality are as follows: 1) The interaction is felt so real, because virtual objects are displayed in real life on the device's screen user, the user can interact with the virtual object directly. 2) Cheaper implementation, Augmented reality does not require special equipment which of course makes implementing augmented reality systems much cheaper.

Assemblr Edu is a programming learning platform specifically designed for education. This platform uses augmented reality (AR) technology to displays 3D models of the Assemblr programming language packaged in more ways easy to understand and clear for students. Assemblr Edu has several advantages Chairudin (2023) that make it as an effective learning platform, including: (a) Using a programming language that is child-friendly and more straightforward. With simple and child-friendly packaging. Simpler syntax and easier to recognize symbols are features of programming languages for children, (b) Utilize interesting and participatory teaching techniques. Interesting and captivating teaching strategies are implemented by Assemblr Edu. This learning method using various kinds of learning media, such as animation, video, and game. Children who use this learning strategy may be able to understand the subject matter better, and (c) Offers a thorough, inclusive, and comprehensive set of educational resources offered by Assemblr Edu. This learning material covers various basic concepts of Assemblr programming, as well as various program examples. These learning materials can help children to develop their programming skills.

Method

Result Sam Research using Assembler EDU media has been carried out by several people researcher. Previous research was carried out by Arrum & Fuad (2021) which produced Augmented Reality interactive learning media. The results of the research stated that the use of interactive learning media based on Augmented Reality through the Assemblr application helped increase interest in learning and provide a more interesting learning impression for participants educate. Another research was conducted by (Rachmawati et al., 2020) which produced a sheet student work by strengthening character with the help of Augmented Reality media, namely applications Assembler. Based on the discussion above, the aim of conducting this research is to develop Assembler EDU-based mathematics learning media in elementary schools. The research approach applied was a qualitative approach. During learning activities, in-depth interviews with students and teachers, as well as literature reviews (Adlini et al, 2022). Data analysis was carried out to find out how interested students were in learning mathematics. This research was carried out at SDIT Nur Hasan on September 26 2024 on 14 grade 4 students. Data collection techniques using observation, interviews and documentation. The subjects of this research were grade 4 elementary school students. Interviews were conducted with the grade 4 homeroom teacher, namely Mrs. Melly Anavita Apreliani S.Pd. It is hoped that this research will provide in-depth insight into the application of assembly-based mathematics learning in elementary schools to increase students' interest in learning mathematics.

Result and Discussion

Assemblr Edu is a programming learning platform specifically designed for education. This platform uses augmented reality (AR) technology to displays 3D models of the Assemblr programming language packaged in more ways easy to understand and clear for students. The first step in the analysis was observation of educators and students in the classroom while teaching and learning activities were taking place. Then analyze the initial interest in learning of class IV students at SDIT Nur Hasan. The results of the analysis obtained were that there were problems with students, namely they were less active and less enthusiastic in participating in learning activities.



Figure 1. Assemblr edu features



Figure 2. Students practice using assemblr edu

Assembler Edu can also be a very effective teaching material for student learning in class and at home. Using Assembler Edu it can also be shared by scanning barcodes, and can also be accessed anytime and anywhere. The images contained in Assemblr Edu can also be added with descriptions or explanations according to the images listed to make it easier for students to better understand the material in Assemblr Edu. Assemblr Edu can be said to be more effective because the way to view the image or display of the image can be seen from various sides such as top, bottom, right, left, front and back. Assembler Edu is designed to make students more enthusiastic about learning mathematics. Assemblr Edu can not only be used in mathematics learning, but can also be used in other learning.

Conclusion

The use of learning media is very influential in increasing students' enthusiasm for learning. The use of technology-based Assemblr EDU learning media greatly influences student learning outcomes and student learning motivation. Students and teachers are interested in using Assemblr EDU learning media to make it easier to understand the material. With the presence of Assemblr EDU learning media, students tend to be very active. Student results before using Assembler Edu were fifty percent, while student results after using Assembler Edu were seventy percent. The teacher's results before implementing Assembler Edu were seventy percent not capable, twenty-five percent sufficient, and five percent of the teacher's results after implementing Assembler Edu were eighty-seven point fifty percent very capable, two point fifty sufficient, and ten percent. The results of the development of Assemblr Edu-based mathematics learning media in elementary schools are ninety percent very useful and ten percent useful.

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