

Utilization of Augmented Reality to support the creation of interactive learning media at the Showatul Is'ad Islamic Modern Islamic Boarding School, Pangkep Regency

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ABSTRACT

Information technology continues to develop rapidly and can be used to make human work more accessible. In the world of education, students are expected to be able to adapt to the environment and create positive things using technology. Technology can be used in the world of education to support the development of student knowledge. Learning media is one of the factors that play an essential role in the teaching and learning process and knowledge development. The learning media used by the Showatul Is'Ad Islamic Boarding School teachers is textbooks that contain theories that cause students to get bored and not understand abstract material. Therefore, in the research, training was carried out in creating interactive and applicable learning media using the Assemblr Edu Augmented Reality Platform. Developing learning materials using AR can help students easily understand abstract theories by providing virtual, 3D materials and implementing them in the real world. The result of this activity is that the teacher has created learning media material for science subjects that explains body organs, making it easier for students to understand the actual representation of organs and their functions in 3D visual form.

Keywords — Interactive and Applicative Learning Media, Augmented Reality, Assemblr Edu, Visual 3D

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1. Introduction

Information technology continues to develop rapidly and can be used to make human work more accessible. The existence of information and communication technology can make it easier for us to learn and get the information we need from anywhere, anytime, and from anyone [1]. In the world of education, students are expected to be able to adapt to the environment and create positive changes in their lives. Student-centered learning allows students to develop their knowledge independently (self-directed) and with the help of peers (peer-mediated instruction). The teacher's role in learning design is to create and understand creative and innovative learning models [2].

Learning media is one factor that plays a vital role in the teaching and learning process. Teachers usually use learning media as intermediaries in conveying material so students can understand it [3]. Learning media is a solution that needs to be developed so that students can not only imagine objects in their minds but also have a more realistic visual learning experience with their eyes and minds [4]. Currently, interactive learning media has yet to develop optimally. One of the obstacles to developing interactive learning media is teachers' need to master interactive media development technology, so the development of interactive learning materials using computers is less than optimal [5]. Interactive learning media can be understood as software comprising various multimedia elements such as text, images, animation, video, and audio presented interactively for teaching purposes.

One of the interactive learning media that is now widely developed and in demand is learning media using Augmented Reality (AR). AR technology can combine a 3D object into a natural environment using webcam media. The advantage of this AR method is its attractive visual appearance because it can display 3D objects as if they exist in a natural environment [5].

The edu assembler application is an AR application explicitly created for educational purposes. Visually based, making it possible to make abstract concepts feel more natural, Assemblr EDU has provided AR educational topics, encourages creativity, and will help in the

learning process, including increasing the creative reasoning power of students so that it will also increase understanding of the material studied [6].

Based on the results of observations at the Shohwatul Is'ad Islamic Modern Islamic Boarding School, Pangkep Regency, it was found that the learning process by teachers to students currently still uses textbooks. In the learning process, teachers use books as teaching references and deliver material without using learning media, resulting in a lack of motivation to learn and students' inability to receive the learning provided by the teacher actively. In this case, teachers are challenged to create more effective learning in conveying learning messages and making educational innovations, especially using interactive learning media.

Therefore, the researcher provides a proposal to carry out resource development service activities in learning by assisting in creating interactive learning media at the Shohwatul Is'ad Islamic Modern Islamic Boarding School, Pangkep Regency, using Augmented Reality (AR) Assemblr Edu.

2. Targets and Output

The increasingly rapid development of technology is also influencing the world of education. Teachers and students must adapt to an environment that uses technology. Teachers can use technology to transfer knowledge to students in teaching and learning. The use of Augmented Reality Technology in learning media to provide applicable education, namely learning using technology, knowledge, and skills in real situations and not just theory. The expected output of this community service activity is that the Showatul Is'Ad Islamic Boarding School teachers will assist in implementing interactive and applicable learning media.

3. Method

Figure 1 shows the stages of the activity implementation method. Stage 1 carried out observations made by the community service team leader regarding the problem of using technology in the learning process and overcoming the problem of transferring knowledge using only theory. Stage 2 is



coordinating with partners regarding solutions to partner problems, training to be provided, facility needs, ICT equipment, and training participants. Stage 3 is preparation for the community service team regarding AR Technology, Training Modules, and other documents. Stage 4 is the implementation of community service activities; participants in this training are teachers at the Showatul Is'Ad Islamic Boarding School. Stage 5 evaluates the training provided, and stage 6 prepares a training activity report.

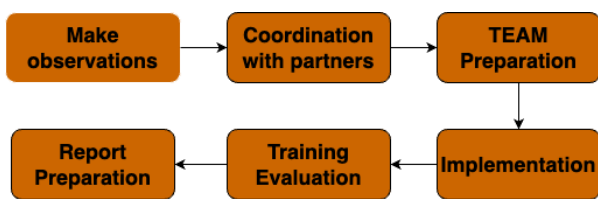


Figure 1. Implementation method stages

4. Result

Implementing Community Service activities with assistance in creating interactive learning media using Augmented Reality at the Shohwatul Is'ad Islamic Modern Islamic Boarding School, Kab. Pangkep was held in the Computer Lab room on the 2nd Floor of the Shohwatul Is'ad Islamic Boarding School on Wednesday, November 8, 2023. Participants in the mentoring activities were 23 Islamic boarding schoolteachers. The training process uses computers/PCs and cell phones. The AR software used is Assemblr Edu. In the training process, participants are given modules used to create projects. The following are the stages of implementing training activities:

Stage 1: give a posttest to training participants to determine the participants' initial knowledge.

Stage 2 is presenting Augmented Reality and Assembler Edu material.

The 3rd stage is a practicum for making projects according to the module given to each participant. The practical material provided is: 1 Create an account on Assemblr Edu Via Website. 2 Introduction to the Class feature, namely creating a class, adding an assembler project, adding interactive material, and inviting teachers and students. 3 Introduction to Assemblr Edu, namely creating a new project, adding 2D

objects, adding text, adding video, adding annotations, publishing projects, and displaying AR project results.

The 4th stage is the implementation of creating an AR project for science subjects, selecting material content about Life Sciences, and selecting Human People content about "Digestive Systems." During the activity, there was discussion interaction between the training participants and the presenters. The final stage is giving a posttest after obtaining AR-related material and creating an AR implementation project in science subjects.

The following are the results of the pretest given to 23 participants before training in creating interactive learning media using Augmented Reality, showing an accuracy level of 61%, shown in Table 1. In Figure 2, the results of the pretest are displayed using graphs.

Tabel 1 Pretest Result

Game Type	LiveQuiz
Participants	23
Total Attempts	23
Class Accuracy	61%

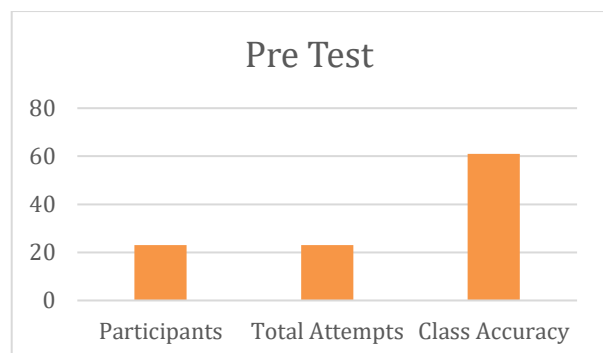


Figure 2. Pretest Result Graph

Table 2 shows the results of the posttest, which was also given to 23 participants after implementing assistance in creating interactive teaching media using Augmented Reality, showing an accuracy rate of 86%. In Figure 3, the posttest results are displayed using graphs.

Tabel 2 Posttest Result

Game Type	LiveQuiz
Participants	23
Total Attempts	23
Class Accuracy	86%

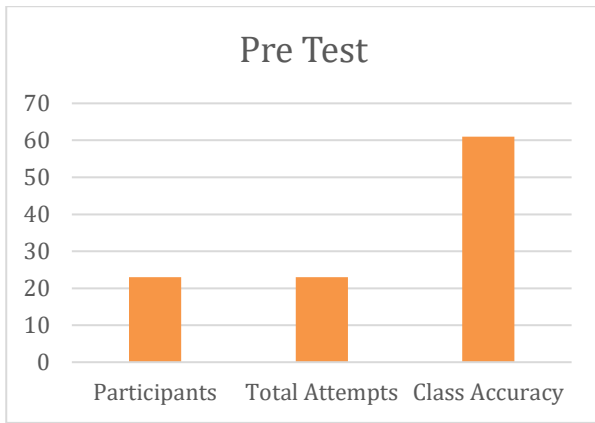


Figure 3. Posttest Result Graph

Figure 4 is the learning material currently used by the Showatul Is'Ad Islamic Boarding School, where students are only given information using theory and pictures. Figure 5 shows the results of creating interactive and applicable AR learning media. The material provided is in the form of information, and students are also directed to scan the barcode given by the teacher. The barcode scan results in Figure 6 are in the form of a video that moves in 3D and is accurate.

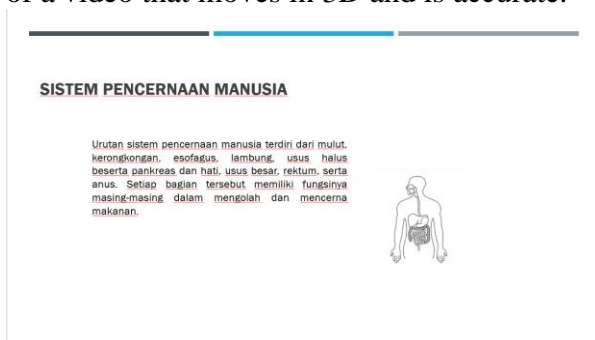


Figure 4. Theory-based material



Figure 5. AR-based material



Figure 6. 3D Video-based material

5. Discussion

The use of Augmented Reality in Assembler Edu to create interactive learning media, namely providing material using technology, skills, and real-world illustrations, is very much needed [7]. In transferring knowledge, teachers often only give theory to students so that students find it easier to understand and feel bored listening to it [8].

Teachers are still limited in using technology to create learning media, so assistance is needed to utilize AR technology in Assembler Edu to develop lessons that provide actual concepts to students. Learning materials using AR will help students understand abstract concepts. Students also get virtual experiences related to material that is difficult to access, thereby increasing their understanding of the real world. Creating learning media using AR on the Assembler Edu Platform helps teachers minimize the time spent explaining certain concepts, and teachers can provide a better learning experience to students [9].

6. Conclusion

The training activity for making Interactive and Applicable learning media went well, with outstanding enthusiasm from the participants. The increase in accuracy scores from the pretest to the posttest and the results of the AR project proves that the Showatul Is'ad Islamic Boarding School teacher has succeeded in making interactive and applicable learning.

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