PERCEPTION OF ELEMENTARY SCHOOL TEACHERS AND STUDENTS ON DIGITAL AUGMENTED REALITY LEARNING MEDIA

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Abstract: *This study aims to determine the extent to which teachers and elementary school students perceive the use of augmented reality digital learning media. The method used in this research is the descriptive qualitative research method. The results of this study say that learning using augmented reality is very suitable for use at the elementary school level. Because basically the learning of elementary school children is still teacher-centered and the use of learning media itself is still minimally used. There are still many teachers who lack an understanding of science and technology. The teacher's perception of the impact of augmented reality is that by utilizing technology, students not only gain cognitive abilities, but students also gain the abilities and skills in using and utilizing technology wisely which is one of the skills in the 21st century. Furthermore, students' perceptions of media Augmented reality digital learning is that students can enjoy learning, enrich their knowledge of the material studied through augmented reality, and students are more enthusiastic about learning. Augmented reality is a learning media by utilizes technological developments.*
Keyword: augmented reality, digital literacy, learning media

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INTRODUCTION

The development of science and technology that is happening at this time is so rapid, it certainly affects various aspects and sectors of human life itself. The development of technology is one aspect that plays a role in the learning process, one of which is the use of technology in the process of teaching and learning activities. It can be understood that, by utilizing technology in the process of teaching and learning activities, the learning concept can become more interesting and more concise without reducing the essence of the learning material itself (Alkhattabi, 2017; Midak et al., 2020). Furthermore, the 21st century requires a person to master various skills including skills in the fields of technology, information, and communication (Saputra et al., 2020). It was further stated that the development of science and technology in this century was very rapid and resulted in a very sophisticated life. Information from various parts of the world can be accessed easily, quickly and at any time, anywhere and by anyone (Anggianita et al., 2020). It can be understood that this is one of the reasons why education must be able to keep up with the times, especially in this digital era, so that students have sufficient competence to face various problems when they enter society.

Based on this, the learning process must be able to present interactive, fun, challenging aspects, provide more space for students so that students can develop creativity and independence in accordance with the interests and talents of the students themselves, and learning must also be able to motivate students to study harder. Furthermore, teachers must be able to create a pleasant learning atmosphere, and stimulate students to be more active in learning (Agustina & Susanto, 2017). It can be understood that it is strongly influenced by various factors, one of which is the selection of learning media used by teachers must be able to attract students to learn, and learning media must be interactive.

Furthermore, it was stated that learning media is a mediator tool between educators and students in learning that can connect, provide information and distribute messages as a result of creating an effective and efficient learning process. Furthermore, learning media causes communication between educators and students in the learning process. If the learning process does not use the media, the learning process will not occur. It is further said that one of the technological developments in the learning process that is currently still new is the use of augmented reality (Gershon, 2001; Molnár et al., 2018; Wagner & Schmalstieg, 2003).

Furthermore, Augmented Reality is software that combines the concrete world using virtual worlds in 2-dimensional and three-dimensional forms that are projected on a real environment in the same activity (Friedrich, 2002). Furthermore, Augmented Reality can be used in entertainment, medicine, mechanics, and learning media (Litts & Lewis, 2019; Williams & Lebsock, 2019). Furthermore, the use of educational media using Augmented Reality can stimulate students' mindsets to think critically about problems and events that occur in everyday life, because the nature of educational media is to help students in the learning process with the presence or absence of educators in the learning process. Education, so that the use of educational media with augmented reality can exclusively provide learning wherever and whenever students want to carry out the learning process (Bell et al., 2001; Rekimoto & Ayatsuka, 2000; Van Krevelen & Poelman, 2010). It can be understood that AR learning media can visualize shapeless concepts for understanding and the structure of an object model enabling AR as a more effective medium according to the objectives of the learning media (Amin & Govilkar, 2015; Chen et al., 2019; Yuen et al., 2011).

Augmented Reality is a concept of combining the virtual world with the real world to produce information from data

taken from a system on a designated real object so that the boundary between the two becomes increasingly thin (Bimber & Raskar, 2006; Elmqaddem, 2019). AR can build interactions between the real world and the virtual world, all information can be added so that the information is displayed in real-time as if the information is interactive and real (Billinghurst et al., 2014; Dünser et al., 2008; Karaarslan, 2018). Furthermore, it is said that augmented reality is an alternative in technology-based learning media with the aim that learning activities can be more interesting for students. Thus, augmented reality is a more advanced learning media by utilizes current technological developments.

Research on augmented reality shows that the augmented reality-based 3D spatial model that has been developed is able to create a new, more interactive atmosphere in learning mathematics which usually seems boring to students (Suharso, 2012). Furthermore, research on the development of learning media for early childhood using augmented reality states that children are more interested in using AR than using educational teaching aids as learning media (Saurina, 2016). Furthermore, research on the use of augmented reality as a prototype of supporting learning media in fiber optic splicing practicum shows that augmented reality media is very effective in learning, and can increase student interest in learning (Usada, 2018).

Furthermore, the results of the PISA test and survey in 2018 scores of students' Reading, Mathematics, and Science abilities of 371, 379, and 396 positioned Indonesia in 75th position out of 80 countries that took tests and surveys (Summaries, 2019). Thus, it needs special attention from all elements related to the field of education in Indonesia. Based on these problems, there needs to be a renewal in the learning process so that students are motivated in following the learning process. Furthermore, one of the efforts to improve the quality of education is through the development of digital augmented reality learning media. Augmented reality digital learning media is seen as having ease of use and is also easy to develop and in accordance with the characteristics of elementary school students. Based on this, researchers have developed digital augmented reality learning media with the aim of improving the quality and quality of education in Indonesia.

Another thing that becomes the basis for consideration is that digital augmented reality learning media can provide challenges and learning motivation for students. Through the use of technology, students are not only expected to acquire cognitive abilities, but students also gain the ability and skills to use and utilize technology wisely which is one of the skills in the 21st century.

Based on the explanation above, in order to find out the views of teachers and students regarding researchers, it is necessary to conduct a scientific study of the perceptions of teachers and elementary school students towards augmented reality digital learning media. This study aims to determine the extent of the views of teachers and elementary school students on the use of augmented reality in the learning process.

METHOD

This study uses a qualitative approach with a descriptive design, to provide an overview of the perceptions of teachers and elementary school students towards augmented reality digital learning media. In qualitative research, the types of data sources in the form of humans in research are generally respondents. The data sources for this study were 10 teachers and 50 students at the State Elementary School I Sukarame and SDN II Sukarame, Leles District, Garut Regency, West Java Province. The techniques in collecting data in this study area are by means of interviews, observation, and documentation (evidence collection, selection, processing,

and information storage). The questions in this study are about teacher responses and elementary school students' responses to the use of augmented reality digital learning media. Furthermore, the data obtained were analyzed using descriptive data analysis by explaining the data.

RESULTS AND DISCUSSION
Elementary school teachers' perceptions of augmented reality digital learning media

Based on the results of direct interviews with teachers said that digital-based learning is still minimally implemented. The teachers admit that this is the first time they have used digital augmented reality-based learning media. Teachers admit that they are still not literate with existing technology or are still clueless. So that to create interesting learning when this learning is difficult to do. Based on these interviews, information was also obtained that learning using augmented reality digital media is very suitable for use in elementary schools. This is because the technological environment is very close to children.

Figure 1. Interviews with primary school teachers

Based on the results of interviews, the teacher said that students still had difficulty understanding the concepts being taught, besides that students, felt less motivated to learn independently, and students were less challenged in participating in learning in class. It was further stated that some teachers still carry out conventional learning, teachers are also not accustomed to using technology-based learning media, and there are still teachers who rarely use media in learning.

Conventional learning also has an impact on the less than optimal delivery of material by teachers to students. This clearly has an impact on the achievement of the student's own competence. Based on the results of interviews, the challenge for teachers in the current learning process is to use technology in teaching and learning activities. This is in line with the demands of the 21st century which states that one of the basic competencies that must be mastered by students in the 21st century is mastering information and communication technology. Therefore, teachers must always develop students' digital literacy skills themselves through the teaching and learning process by utilizing technology.

Furthermore, the results of the interview revealed that teachers welcomed the use of augmented reality learning media. The teacher stated that with the existence of digital augmented reality learning media, learning would be much more varied so that the delivery of learning materials would be delivered optimally. In addition, by using augmented reality digital learning media, the process of teaching and learning activities in the classroom feels more colorful. According to the teacher, by using augmented reality a lot of learning materials can be displayed in this application. The learning process using augmented reality digital learning media can be seen in the following figure:

Figure 2. The use of augmented reality digital learning media in the process of teaching and learning activities

The results of the interview show that the teacher hopes that in the future the children will be more advanced. Using digital augmented reality learning media, children can explore and be active, and collaborate with their friends. In addition, the teacher stated that this augmented reality learning media is a form of implementing digital literacy in elementary schools. With the existence of augmented reality in the learning process in elementary schools, the demands of 21st-century learning will be achieved optimally. Furthermore, the teacher said that through the use of technology, students are not only expected to acquire cognitive abilities, but students also gain the ability and skills to use and utilize technology wisely which is one of the skills in the 21st century.

The results of the interview, the teacher hopes that the use of augmented reality will be even more and spread to all schools in Indonesia so that all Indonesian children can enjoy augmented reality technology so that children can be facilitated by technology, friendly with children, and according to children's needs.

Elementary school students' perceptions of augmented reality digital learning media

The results of interviews with elementary school students are not far from those of teacher interviews. Students admitted that learning still does not use technology. In addition, students also feel that in the learning process they rarely use learning media, so students feel bored and bored in participating in learning. At the beginning of the introduction of augmented reality, students initially felt tense and embarrassed because they were using a tool that was new to them, but after a while, the children were able to enjoy it and the learning time was not felt.

Based on the results of interviews with elementary school students, students said that they wanted a different atmosphere in the learning process. Furthermore, when students are introduced

to augmented reality in the process of teaching and learning activities, students feel happy and more enthusiastic to participate in learning activities. students look very enthusiastic about learning materials using augmented reality, this can be seen in the following picture:

Figure 3. Students are using augmented reality

The results of interviews with students get information that students feel happy in participating in learning using augmented reality. They are so enthusiastic about learning every learning material contained in augmented reality. Another thing said by students is that by using augmented reality in the learning process, they feel as if they are learning the real form of the augmented reality display. In addition, students are very happy with augmented reality. During the interview, students said that this was the first time they had done learning by using augmented reality. Students also hope that they can learn other learning materials using augmented reality.

The presentation of the research results above is in line with the opinion that, in the future, augmented reality-based learning media will be increasingly needed in education because, with the help of augmented reality-based learning media, teachers can provide routines and learning to students in interesting and interesting ways. Unique, so that it has an impact in helping students communicate and explore

their potential (Fuchs, Nd; Hohl, 2017; Kljun et al., 2020; Shinde et al., 2021). Furthermore, augmented reality is considered to be able to make the learning process in the future something simple, but interesting and productive. Furthermore, research on the use of augmented reality in learning states that using augmented reality can increase students' interest, motivation, and learning outcomes (Faith Marcel, 2019; Hanafi et al., 2017; Johnson, 2013; Nguyen & Dang, 2017; Santos et al., 2014; Yoon et al., 2017).

CONCLUSION

The implementation of learning using augmented reality can have a positive impact on teachers and elementary school students. The teacher's perception of the impact of augmented reality is that by utilizing technology, students not only gain cognitive abilities but students also gain the ability and skills to use and utilize technology wisely. Furthermore, students' perception of augmented reality digital learning media is that students can enjoy learning, enrich their knowledge of the material studied through augmented reality, and students are more enthusiastic about learning. Thus, teachers should always use technology in the learning process and be more innovative in making learning media so that students are more interested in participating in teaching and learning activities.

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