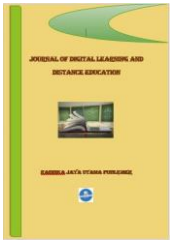

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The Augmented Reality (Ar) In Learning Social Science (IPS) at Elementary Schools

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Abstract

The study aims to explore the use of Augmented Reality (Ar) in Learning Social Science (IPS) at Elementary Schools. It scrutinizes a situation where educators must have competencies and experience in organizing their study to produce good interaction with students. Teachers must improve educational quality, which produces reliable students who are potential, independent, and critical in facing the rapid development of technology in the future. Augmented reality is an interactive medium, such as virtual images that are integrated into real life. The study applied for a literature review, using secondary data obtained by summarizing several research articles related to the use of media which are carried out to describe and interpret relevant information related to the use of augmented reality media. The study results were: 1) IPS learning in elementary schools is intended for students to become human beings and good citizens, as it is expected by themselves, their parents, society, and religion; 2) Learning Media can make it easier for someone to convey material or information to listeners; 3) AR media as a technology that objects in two or three dimensions in a certain way. AR media provides space for learners to improve their learning process. Through the use of AR in social studies learning, it is expected to involve students in the learning process. Another benefit of using reality media is advanced technology.

Keywords: AR, Social Science, Elementary School

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Introduction

The learning process occurs when there is a cooperation between teachers and students to achieve learning goals. Learning outcomes should help students develop their potential to cope with their environment. A combination of learning variables is needed for teachers and students, learning materials, and other supporting infrastructures (Owan & Ekpenyong, 2022). Regarding the development of science and technology, it requires an increase in the number of graduates from each educational institution, including primary education which is the first education of students. Thus, they have insight and provisions to face their future life (Kaleva et al., 2019).

The success and progress of a country are supported by a good education system to produce competent and trustworthy human resources (Ningsih et al., 2022). Schools are expected to be able to produce quality students, who can compete to continue their education with lectures that aim to increase knowledge and skills. Education must be of good quality, a quality that can provide knowledge to students so that students have good knowledge and can socialize and interact in their environment

Schools are hoping to produce quality students who can compete to further their education in formal courses aimed at improving knowledge and skills. Education must be of good quality that can provide knowledge to students so that students have good knowledge. Thus, they can socialize and interact in their environment (Munif et al., 2022). According to (Malik, 2018), the task of education is to produce well-educated students so that educators are required to have the ability to develop their personalities properly related to the mandated tasks. Educators must have skills and experiences in organizing their studies to produce good interaction with students and improve the quality of education. Therefore, it will lead to qualified, independent, and critical potential students to face the rapid development of technology in the future (McDiarmid & Zhao, 2022).

Education will be carried out by involving various elements, such as curriculum, teachers, students, and schools (Sabrina et al., 2022). However, successful learning results in the mastery of the subject by the students according to the level of the class they occupy and it can be implemented in their daily activities. Therefore, the teacher is a very central part of educational success, without neglecting other components (Keiler, 2018). (Selvaraj et al., 2021) said that educators need to find ways to change bad thoughts about educational institutions so that they can create an awesome learning atmosphere for students to better understand the media. Learning can be expressed through values and observations of attitude scales to create a memorable and meaningful learning atmosphere.

Learning materials are a container for conveying information and they are used as a stimulus for students' thoughts and attention. It will encourage the learning process to take place within them. Learning media is divided into two types, such as digital and non-digital media. Digital media requires devices such as gadgets, computers, or, laptops. Meanwhile, non-digital media requires humans and the surrounding environment as a tool in its function. Media that has not been widely used at this time is digital media based on Augmented Reality (AR) because the teacher did not understand how to apply it. It is stated by, AR is the application of real-world fusion of virtual worlds in two-dimensional and three-dimensional forms projected onto a real environment at the same time. AR supports access to information in the form of digital information to real-world scenes enabling hybrid representations on a single screen.

Methodology

The research applied a literature study. It is a type of research conducted by searching for references related to the research topic. Literature research contains a brief description of the research topic and it is arranged chronologically and thematically. It contains a brief description of the research topic. It is organized chronologically and thematically. This literature review focused on ideas in the field of study, containing theories and cases. While collecting data, the researchers collected research articles, and books, and reviewed numerous research papers regarding AR media. The collected theories support the theme of the study. Finally, the data was compiled and linked to the relevant theories.

Results

Elementary School Students

The development of children's knowledge is done systematically and continuously according to their age. Learning must be planned in such a way as to be adapted to the development of the student's intelligence. Piaget suggests the process of developing children to be able to think like adults through four stages of development, namely: sensory-motor stage, pre-operational stage, concrete operational stage, and formal operational stage. In the concrete operational stage of the age of 7 to 11, pupils can think logically to solve concrete problems.

Every child psychologically experiences a stage of development, such as mental development(Saracho, 2023). It includes intellectual, linguistic, social, emotional, and moral development. Primary school-aged children who are in the operational stage exhibit learning behavior. Pupils look at the world objectively and move from one aspect to another reflexively and simultaneously. They also begin to think operationally to classify things and to form and use relationships based on simple scientific principles. Furthermore, they use relationships causal relationships and understand the concepts of substance, volume, length, width, area, and weight.

Social Science in Elementary School (SD)

Social sciences (IPS) is a subject in primary and secondary schools or the name of a study program in higher education, synonymous with the term "social research" and school courses in other countries, especially in Western countries. countries, Australia and the United States. IPS is a synthesis of various branches of social science disciplines (Mariati et al., 2021). These sciences are highly integrative, such as geography giving insight related to the region, history giving insight into past events, economics giving insight into various human needs, and sociology or anthropology giving insight into the creed values, insight into the social structure, then political science. more concerned with examining the relations between citizens and the relations between countries, while psychology deals with the mental state of a person or a human being.

Social Studies is one of the subjects taught in elementary schools that examines a set of events, facts, concepts, and generalizations related to social problems(Anggraini et al., 2020). State that IPS learning must be able to prepare, develop and shape students' abilities to master the basic knowledge, attitudes, values , and skills necessary for social life. The quality and success of learning depend very much on the ability and thoroughness of the teacher in the choice and use of learning methods. It must encourage students to become citizens who are responsible for society,

nation, and state. Therefore, the teacher's learning design must be appropriate according to the conditions and potential development of students (Kim et al., 2019). Hence, the learning process is beneficial for students and helps them become good learners.

The teacher's learning plan should be guided and focused according to the conditions for the potential development of students so that the learning they do is truly beneficial (Iqbal et al., 2021). Therefore, social studies learning should focus on creating a conducive student learning atmosphere, as well as developing knowledge, attitudes, values , and skills in the learning process. Guiding students to become citizens of Indonesia who are democratic, responsible, and citizens. At the elementary school level, learning is carried out in an integrated manner, which is applied to the 2013 curriculum. The concept of learning poetry in K13 is integrated thematic. Students play a role in learning activities and in overcoming a problem from competency standards to basic competencies of various subjects. Implementation of lessons referring to integrated themes capable of linking multiple subjects such as social studies(Co et al., 2021), and MTK sciences into themes, where the themes contained concepts and ideas to create an interesting learning atmosphere. Students play a role in learning activities so that they can solve a problem they face (Fricticarani & Maksum, 2020). implementation of integrated thematic lessons can train students in making their discoveries of teaching materials. Stating that integrated thematic learning aims to make it easier for educators to focus on the topic of discussion.

Instructional Media

The media can make it easier for someone to convey material or information to listeners. In the media, there is a concept that contains various information that does not contain racist, pornographic elements or the form of acts of violence. The media are made based on the concept that will be explained. The media is also used as a graphical or photographic tool in electronic form that can be used to convey or manage various information both visually and verbally (Sulindawati, 2021). Another view suggests that media comes from Latin. It means an introduction or an intermediary. in general, it is an instrument that can facilitate the provision of information or materials in teaching and learning activities. The media can support the implementation of activities and learning that can improve student learning outcomes. Good media can help students understand teaching materials so that learning objectives can be achieved. Teaching materials are a source or combination of learning materials and learning tools. the application of learning aids during learning activities can stimulate thought or emotion in students as they participate in ongoing learning activities.

Characteristics of Learning Media

Each type of media has its characteristics and performs certain functions to promote the success of the student learning process. For the role of learning sources and media to show a certain type of media, learning media should be classified in a certain method according to the nature and function of learning. The characteristics of the media are good in their capabilities. The ability to understand the characteristics of various learning media is an essential ability for educators to learn media selection skills. In addition, it offers educators the possibility to use various learning media in various ways. At the same time, it will be difficult for educators to carry out the learning process without understanding the characteristics of the media. before applying to learn, media educators must be required to understand the characteristics, types, and groupings of learning instruments that can support the implementation of their learning activities. Many experts, such as Bretz,

Duncan, Briggs, Gagne, Edling, Schramm, and Kemp, have grouped or made a taxonomy of learning media. Of these groupings, learning media can be classified into graphic media, audio media, silent projection media (only highlighting visuals and accompanied by audio recordings), and game-simulation media. classified instructional media into four groups based on technology, namely: media produced by print technology, media produced by audio-visual technology, media produced by computer-based technology, and media produced by a combination of printing and computer technology.

Functions and Benefits of Instructional Media

Instructional Media has many functions and which are:

1. Achieving a pleasant learning atmosphere.
2. producing the desired learning atmosphere.
3. Facilitating the implementation of lessons.

Lessons can attract students' attention to increase their enthusiasm. The topic is more meaningful so that it is easy for students to understand. Learning strategies vary so that they are not able to learn interesting situations for students, students like to carry out learning activities, such as observing, applying, and leading lessons. Meanwhile, according to the opinion of other experts, the benefits of learning instruments (Hille & Schupp, 2015)are: 1) It helps to understand diversity in students. 2) It assists to understand the whole concept. 3) It is good to understand natural events that cannot be witnessed directly 4) It can create wholeness in research on a different object. 5) It increases the enthusiasm of students to participate in learning activities. The use of learning instruments in learning activities can foster enthusiasm and interest in students in responding to the implementation of lessons. Based on the illustrations of the experts, it can be concluded that there are many benefits of learning instruments, such as increasing students' enthusiasm.

Development of Instructional Media

The development of learning materials is an activity integrated with the preparation of other learning documents, such as the curriculum, syllabus, and learning implementation plans (RPPs). The importance of media development is one of the determining factors in the success of learning(Haleem et al., 2022). Through the media, the teaching and learning process can be more interesting and fun by using the developed media that are tailored to the needs of the students and teachers in the class. It is expected to increase the efficiency of learning, which leads to an increase in student learning outcomes. In general, there are two main reasons for the importance of learning media development, especially in Indonesia(Fayanto et al., 2019), which are:

1. The limits of print media are the main media used in schools because they are easy to find and develop. Printed materials in the form of textbooks tend to be produced in strategic locations and capital cities, including the 2013 school curriculum printed books specially printed by the government. The textbooks needed at school are often considered difficult, both by students and teachers. The difficulty is caused by the fact that textbooks are written by experts and writers, but now involve teachers. Each medium has its advantages and disadvantages. For example, print media which requires a lot of money for printing and distribution, or computer media which requires adequate computer equipment and the capacity of qualified students and teachers. For this reason, existing media can be developed or collaborated to overcome various limitations, with development enabling problem-solving and alternative solutions.

2. Updating teachers' abilities in the use of technology and media The development of learning media can be done by teachers as an actualization of their abilities, it is explained that teachers must use technologies of information and communication for the benefit of learning. Thus, teachers who can develop learning materials should be more motivated to actualize their abilities in real work in the form of products resulting from the development.

Augmented Reality (AR) in Teaching

Augmented Reality (AR) is a technology that combines the real world and virtual objects or real-time virtual conditions. The merging of real objects into the virtual world happens with the support of the right technology (Flavián et al., 2019), while interactions can be done using certain devices. AR is a variant of Virtual Environment (VE), better known as VR. VR technology allows users to participate in a completely virtual environment. Even though AR technology is developing very rapidly, there are already many applications that use AR technology in Indonesia. AR is a breakthrough in the field of highly sophisticated technology. Because with this technology we can make anything abstract or virtual become real. In its development, AR is used as a learning medium to interpret information so that it can be received and provide interaction during the learning process.

The concept of AR itself was first proposed by Thomas P. Caudell in 1990. The technology that applies the concept of AR has three characteristics, namely the ability to combine the real and virtual worlds(Li & Tang, 2019), the ability to provide information interactively in real-time, and the ability to make three-dimensional presentations. It can be used to visualize abstract concepts to understand and build models of objects. Currently, AR is widely used in gaming. It also can be applied to help visualize abstract concepts for understanding and structure of an object model.

Using learning materials with AR is very helpful in improving the learning process and students' interest in learning (Kaso & Ilham, 2020), because AR itself has realistic aspects that can increase students' interest in learning and are performed and projected realistically and involves all parts. students interact with sensory technology. Indeed, augmented reality has almost the same characteristics and functions as learning media, namely the transfer of information between recipients and senders or between educators and students (Abdullah et al., 2022), can clarify the transfer of information provided by educators and students during the learning process, can provide stimulation and interest that motivates learning.

The Supported Tool of Augmented Reality

Figure 1. The Steps of AR

To run an AR system, must consist of a camera, a display device, and a dedicated device for interacting with virtual objects(Syed et al., 2022). The main equipment required to run AR-based applications is a screen, input tracking device, and computer, as Carmigniani explains in "The

main tools for AR are displays, input devices, computer". The use of AR is very good for interactive and authentic learning media. It can be used directly by students. In addition, it can increase students' interest in learning because of the nature of AR combined with the virtual world. It can increase students' imagination of the real world. AR is interactive, allowing students to see real and immediate situations. The use of educational media using AR can stimulate students' minds to think critically about events that exist in daily life, the nature of media is to help students in the process of learning with existing ones, so the use of AR can directly provide learning and when students are willing to carry out learning. AR Learning Media can visualize abstract concepts for understanding and the structure of object models allows AR to become a more effective medium according to the objectives of learning media.

Conclusion

Augmented reality is a technology that combines virtual objects with real objects. One area that uses AR e-technology is the education area, which is used as a learning aid for students to better understand the material provided. Through the use of AR in social studies learning, students are expected to participate in the learning process. Another advantage of using reality media is that the learning media used are more advanced using current technology.

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