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Transforming English Language Learning in Elementary Schools Through Augmented Reality

Yulian Purnama[1*], Pikir Wisnu Wijayanto[2], Yelly Andriani Barlian[3], Sri Nurbani[4], Isry Laila Syathroh[5]

[1] UIN Saizu Purwokerto, Purwokerto, Indonesia
[2,3,4] Telkom University, Bandung, Indonesia
[5] IKIP Siliwangi, Cimahi, Indonesia

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ABSTRAK

Masalah dalam pembelajaran Bahasa Inggris di sekolah dasar adalah rendahnya hasil belajar siswa, terutama dalam pemahaman materi. Urgensi penerapan teknologi Augmented Reality (AR) sebagai media pembelajaran adalah untuk meningkatkan pemahaman siswa terhadap bahasa Inggris dengan cara yang lebih menarik dan interaktif. Tujuan dari penelitian ini adalah untuk mengevaluasi efektivitas penggunaan AR dalam meningkatkan hasil belajar siswa dalam mata pelajaran Bahasa Inggris di sekolah dasar. Metode penelitian yang digunakan adalah kuantitatif dengan subjek penelitian berupa siswa sekolah dasar. Teknik pengumpulan data dilakukan melalui kuesioner yang diisi oleh siswa setelah menggunakan media pembelajaran berbasis AR. Teknik analisis data yang digunakan adalah analisis statistik untuk mengukur peningkatan hasil belajar siswa sebelum dan sesudah penggunaan AR. Hasil penelitian menunjukkan adanya peningkatan signifikan dalam pemahaman siswa terhadap materi Bahasa Inggris setelah menggunakan AR sebagai media pembelajaran. Kesimpulan dari penelitian ini adalah bahwa penerapan AR efektif dalam meningkatkan hasil belajar siswa dalam mata pelajaran Bahasa Inggris di sekolah dasar. Implikasi dari penelitian ini adalah perlunya integrasi teknologi AR dalam kurikulum pembelajaran Bahasa Inggris di sekolah dasar untuk meningkatkan kualitas pembelajaran dan pemahaman siswa terhadap materi pelajaran.

ABSTRACT

The problem with learning English in elementary schools is the low learning outcomes of students, especially in understanding the material. The urgency of applying Augmented Reality (AR) technology as a learning medium is to improve students' understanding of English more interestingly and interactively. This research aims to evaluate the effectiveness of using AR in improving student learning outcomes in English subjects in elementary schools. The research method used is quantitative with the research subjects being elementary school students. The data collection technique is carried out through questionnaires filled out by students after using AR-based learning media. The data analysis technique used is a statistical analysis to measure the increase in student learning outcomes before and after using AR. The research results show that there is a significant increase in students' understanding of English material after using AR as a learning medium. This research concludes that the application of AR is effective in improving student learning outcomes in English subjects in elementary schools. The implication of this research is the need to integrate AR technology into the English language learning curriculum in elementary schools to improve the quality of learning and students' understanding of the subject matter.

1. INTRODUCTION

One of the skills that students must master in English is the ability to understand conversations that have previously been studied and discussed (Alduais et al., 2022; Ibna Seraj & Habil, 2021; Zhai & Wibowo, 2023). This communication ability must be proven by lots of direct interactions and communication with the help of technology with fellow students and teachers (Markowitz & Ansari, 2020; Haleem et al., 2022). Communicating in English is most often used in schools, tourist attractions, and big cities in Indonesia (Phoocharoensil, 2022; Bashori et al., 2021). Realizing the importance of mastering

Corresponding author
*E-mail addresses: yulianpurnama@uinsaizu.ac.id (Yulian Purnama)

English, models, methods, and strategies in learning English have been provided since the elementary school level (Hu & McGeown, 2020; Cenoz & Santos, 2020). In elementary schools, examples of English are given from first grade to sixth grade. However, not all students accept and understand the importance of learning English and can master English. Some students have doubts about following the models, methods, and strategies used by teachers in teaching. Likewise, during training carried out by teachers in class, some students also did not submit the daily assignments given by the English teacher. This is enough to show that there are still a few students who do not understand the importance of learning English. In the training provided by English teachers, they often deliver learning material in the form of recordings which are uploaded to YouTube, then give daily assignments that students must complete and complete according to the given time limit. Teachers' time, energy, and office limitations make practicing English boring, and generally, they will use similar learning media that can help students understand it. This makes some students feel tired and less motivated to take part in English learning activities if they use media that does not interest them (Suryana & Indrawati, 2018).

Innovation based learning media is required with an end goal to confront the time of the Industrial Revolution 4.0 and Society 5.0 (Aquilani et al., 2020; Fukuda, 2020). Apart from YouTube media, there is the newest media, namely Expanded Reality (AR), which is one of the learning media of choice and can answer the difficulties of today's changing times. Understanding AR as an innovation that utilizes two or perhaps three layers of virtual objects in a real environment and then expanding these virtual objects progressively can have a positive impact on the development of a person's knowledge. In contrast to computer-generated reality which completely replaces reality, augmented reality essentially augments and complements reality itself on the ground. Virtual items showing data that a person cannot see on their own can be helped by AR. This makes reality enhancement an instrument to assist discernment and communication with its current and future uses. The data shown by the virtual articles helps one to complete the exercises in real form (Manuli et al., 2020; Viitaharju et al., 2023). In the research recommendation, the use of AR is an illustration of the media that can be created by PC innovation (Faqih, 2022; Talwar et al., 2020). In AR, it is recognized in two ways to display items, namely special AR that uses markers (marker-based) and without markers. Both are suitable for delivering two-layer and three-layer objects, but marker-based AR requires markers as complex, non-repeating design images that must be printed first. So it could be said that the media created by utilizing this innovation is remembered as media that is the result of a combination of PC and print technology (Dwi et al., 2021). This AR learning media can attract students' attention and make learning activities more interesting because when presenting the stamps it can look authentic for elementary school students. Three-layer (3D) objects are consolidated into real-world climates based on mobile or desktop applications and make AR a sensible and easy-to-use medium. AR in the world of education has a positive impact, namely encouraging multi-modular learning, increasing the availability of teaching materials, increasing students' mastery of teaching materials, opening up the potential for cooperative learning, encouraging students to be actively and effectively involved, and turning something unique into reality in life (Suryana & Indrawati, 2018; Mora et al., 2020).

AR-based learning applications have obstacles in their role in the application related to the objectives and activities presented during learning implementation (Rovira, M. S., Turro, M. R., Fioretti, R. M. S., & Velilla, 2018). The role of most of the application of AR technology is only limited to interactive and visual elements without having a direction to conceptualized learning activities, even though learning activities have a very vital role in the success of learning objectives (Mailani, 2019). Referring to some of these things, this literature review was compiled as an effort to find out technological developments in making AR learning media. Information related to the implementation of the use of AR in the world of education or non-education can be known in detail and factually (Andriani, 2015). This study uses multimodal analysis. The multimodal analysis discussed in this paper uses the theory of functional systemic linguistics (LSF) (Meneses, 2018). The multimodal analysis model was developed from a combination of multimodal theory and multimodal analysis by Kress and Leeuwen (Kress, G., & van Leeuwen, 2016). In multimodal examination as per Anstey and Bull expresses that a text is called multimodal on the off chance that the text is acknowledged from a mix of at least two semiotic frameworks (Syamsuar, 2018). As per them, there are five multimodal semiotic frameworks in a text, in particular: 1) Linguistic: jargon, conventional construction and the sentence structure of oral and composed language, 2) Visual: variety, vectors and perspective in still and moving pictures, 3) Audio: volume, pitch and mood of music and audio effects, 4) Gesture: development, speed and tranquility in look and non-verbal communication, and 5) Spatial: vicinity, bearing, position of format and association of items in space (Murica, 2018).

Learning English is considered necessary and important for children, considering that in this very advanced era, children should be taught to learn English. Learning English is mandatory apart from the mother tongue, sometimes starting and teaching English to children will feel bored only with textbooks or only by learning from YouTube. So, learning methods that only use books and printed media can only

transfer basic knowledge (Prasetio, 2019). Children who are starting to enter the age of 6-11 years really like something that is interesting or has never been seen before, especially something that can be seen in real terms and contains elements of learning (Verawati dan Desprayoga, 2019). If at this age you already have the ability to speak English well and correctly, then you can be sure that this ability will be used at the next level of education (Chien et al., 2020). As of now, an ever-increasing number of new advances are arising in the field of Information Technology (IT). These innovations are at present growing quickly. One innovation that is presently being created is Augmented Reality (AR) (Bilfaqih, Y., & Qomarudin, 2017). The hope is that AR is an innovation that is used to merge the virtual world and reality today, this framework is closer to the real climate so that the boundaries between the two become thin. [1] Augmented Reality plans to encourage innovation that enables continuous convergence, this innovation allows clients to view real 3D items using mobile phones. [2] With so many media that can use innovation as a guide in data acquisition, this is the reason for the readiness of this latest effort (Ningsih, 2018). The creator plans an English learning application by utilizing Augmented Reality innovation by utilizing cell phone media which encourages the provision of data and 3D views of existing objects. Usually, at this time children are starting to get bored of learning English by using books, therefore the author raises an exploration called "Expanded Reality Application for Learning English for Elementary School Children".

The application of Augmented Reality (AR) technology in English language learning in elementary schools has significant urgency in overcoming gaps in student learning outcomes. This gap can be seen from the low understanding of English material experienced by some students. With AR technology as a learning medium, it is hoped that it can increase students' interest in learning and improve their learning outcomes. The urgency of this research also lies in the need to introduce more interesting and interactive learning methods in teaching English. By utilizing AR technology, students can be actively involved in the learning process, allowing them to understand the material better. Apart from that, the use of AR can also create a more fun and interesting learning environment for students, thereby increasing their learning motivation. Thus, this research not only aims to improve student learning outcomes in English subjects but also to address gaps in understanding of the material that some students may experience. Through the application of AR technology, it is hoped that English learning in elementary schools can become more effective, efficient, and enjoyable for students, thereby creating a learning environment that is conducive to improving the quality of education. So, the research aims to evaluate the effectiveness of using Augmented Reality (AR) technology in improving student learning outcomes in English subjects in elementary schools. This research aims to measure the increase in students' understanding of English material after using AR as a learning medium.

2. METHOD

The research method used is quantitative (Baas et al., 2020). The research subjects were elementary school students who used Augmented Reality (AR) technology as a learning medium. This sort of exploration is a subjective examination utilizing an engaging subjective methodology (Rambe, 2019). The information in this review is general in the form of images from video accounts obtained when the teacher appears in the study room. This information is then described using Kress and Leeuwen's multimodal hypothesis, specifically to find out how types of nonverbal correspondence are carried out, more specifically, educators' signals in learning exercises utilize listening strategies and are assisted by utilizing note-taking procedures (Sugiyono, 2017). In subjective exploration, scientists are straightforwardly associated with the most common way of gathering information. The place of the scientist in subjective exploration isn't just as an organizer yet in addition as an agent of information assortment or as an instrument (Sari, 2020).

The data collection technique used was a questionnaire. Questionnaires are filled in by students after they use AR-based learning media. The use of questionnaires as a data collection technique provides advantages in systematically collecting responses and evaluations from students. With a questionnaire, researchers can measure students' perceptions of the learning experience with AR, the extent to which their understanding of English material has improved after using AR, as well as their response to the effectiveness of using this technology in learning. Questionnaires also allow researchers to collect extensive data from a large number of respondents, to provide a representative picture of students' experiences in using AR as a learning medium. To gather information in this review, the specialist utilized the referential technique. The listening strategy is a technique that is completed by listening which is lined up with the perception technique (Sugiyono, 2015). The listening strategy as per Sudaryanto said which will be applied in this review incorporates the accompanying methods: (1) recording procedure, for this situation the scientist records learning exercises in class at Hang Tuah Elementary School Medan by utilizing a Samsung S7 brand cell phone that has a screen. 5.2 crawls with super AMOLED board backing and QUAD HD goal. For the

machine, it utilizes the Qualcomm Snapdragon 820 chipset. This processor is upheld by 4GB RAM so that its exhibition is very quick and agreeable while recording video, so it can catch sound and pictures obviously (Harrison, 2017). Then the recording is changed over into a picture. The outcomes are arranged by the request for time. In the information arrangement, information coding is given (information code), in particular italics and striking letters. Likewise, the date and month of distribution are additionally composed with a foreordained code. This was finished to make it more straightforward to sort the information. What's more, utilized as examination proof.

Table 1. Indicators Used as Research Measuring Tools

Indicator	Items
Ease of Use	13
Usefulness	8
Attractiveness	11
Technology Use	9

The data analysis technique used is statistical analysis. Data collected from filling out questionnaires by students after using AR-based learning media was analyzed statistically to measure the increase in student learning outcomes before and after using AR. By using statistical analysis techniques, researchers can measure how much student understanding increases after intervention with AR technology. The results of this statistical analysis provide objective and numerically measurable information about the effectiveness of using AR in improving student learning outcomes. In addition, statistics also allow researchers to make broader generalizations about the impact of using AR in English language learning in elementary schools. By using this approach, research can provide strong empirical evidence regarding the effectiveness of AR technology as a learning medium.

3. RESULT AND DISCUSSION

Result

Based on the results of the pre-test and post-test, shows that there is an increase in students' English vocabulary skills. The mean pre-test result was 49.67 and the mean post-test result was 86.78. The augmented reality-based products provided are in the image below

Figure 1. School Students

Figure 2. Records of School Students

Figure 3. AR Dialogue in English

Figure 4. Media Recording Tool

The Figures above is a picture of two students having a dialogue in English, then the figures above will be scanned with the application. So that a video of what kind of conversation they discussed by the two people will appear, as shown in Figure 1 and Figure 2, so that students can record the English vocabulary spoken by each person in the dialogue, then other students can easily learn it and repeat the pronunciation,

by the two people, the word is in accordance with what is in the dialogue. This finding is in line with previous research which says that every conversation can be repeated by recording it and giving it to be studied by different people (O'Brien et al., 2020; Bates et al., 2020; Seuren et al., 2021). The pre-test and post-test were used as instruments to measure differences in students' English vocabulary scores before and after using AR. The results of the statistical descriptive analysis showed that the pre-test average score of the English vocabulary of fourth-grade students who attended the training was high (mean = 87.00; SD = 11.64; SE = 1.97), while the post-test results showed a very high increase. (Mean = 91.71; SD = 10.77; SE = 1.82). This finding is in line with previous research which said that the use of AR can improve students' understanding of English (Hussein et al., 2020; Parmaxi & Demetriou, 2020; Thees et al., 2020). The difference between the pre-test and post-test mean scores is 4.71. The data findings show that there are differences in the results of the English vocabulary skills of grade IV elementary school students before and after the application of Augmented Reality in the classroom.

In addition, an analytical test was carried out to find out whether the data obtained was normal and homogeneous. The results of the analysis test obtained the amp value. sig. (2-tails) = 0.00. Because the value of 0.00 is smaller than <0.05, it can be concluded that the data is not normally distributed. Because the data were normally distributed, the analysis was carried out using the Wilcoxon test to determine the significance of the differences in the pre-test and post-test scores of applying AR to the English vocabulary mastery skills of elementary school students. The first result of the Wilcoxon test is ranking, especially positive ranking or difference (positive) between the pretest and posttest results. There are 22 positive data (N) which means that 22 students experienced an increase in English vocabulary learning outcomes from pre-test to post-test scores. The average result of increasing the rank of understanding is 14.93, while the number of positive powers or the number of powers is 328.50. In addition, based on the output of Test Statistics, it is known that asymp Sig (2-tailed) is 0.014, less than < 0.05, it can be concluded: "Ha is accepted". This means that there is a significant difference between the results of learning English vocabulary on the pre-test and post-test scores. Thus, it can also be concluded that there is an effect of the application of Augmented Reality on the results of learning English vocabulary for fourth-grade elementary school students.

The results of the analysis show that Augmented Reality can be used as an alternative learning medium to increase understanding and knowledge of learning English vocabulary. The English subject teacher plays a role in making learning implementation plans, making materials and media as learning aids, and making effective learning videos. In addition, the English subject teacher also helps in coordination, student discussions with other students, and questions and answers between the service team and service participants. Another party that plays a role is the guardian of the fourth-grade students. Parents of students always accompany their children in participating in the activities provided in this service program. At the implementation stage which was carried out online through a Zoom meeting, the principal, of Hang Tuah Medan Elementary School gave a speech and motivated the participants. In addition, English teachers are also directly involved in the implementation of this program by providing material reviews to service participants. Parents also accompany and guide their children during Zoom meetings. The results of this study indicate that there are differences in student learning outcomes before and after using Augmented Reality-based learning media implemented at the Hang Tuah public elementary school in Medan. In addition, the use of AR media also has a positive impact on teachers and students because teachers and students are more enthusiastic about learning and because the learning process becomes more interesting. In addition, it also received a positive response from parents who showed a positive response in helping students in dialogue in English, because, through the augmented reality application, students increasingly liked learning English as shown by the activeness of students in discussions and increased understanding and mastery of English vocabulary. This is in line with previous research which said that increasing English vocabulary starts from the activeness of students in dialogue with each other (Desmiyanti et al., 2020; Badem-Korkmaz & Balaman, 2020; Yang et al., 2020).

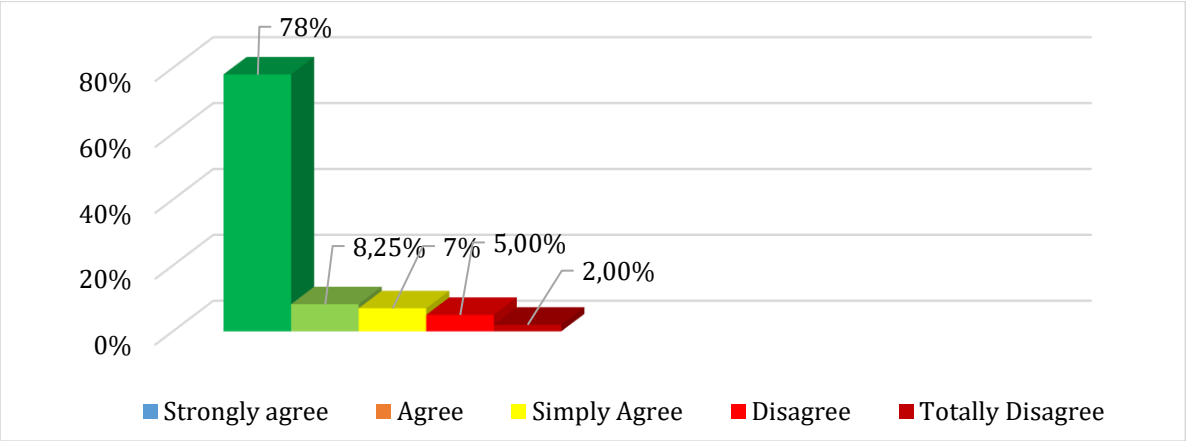

Figure 5. Ease of Use by Students

Based on student assessments, it can be seen in Figure 5 that there are 78% and 8.25% of students who strongly agree and agree with the ease of using AR media in helping English conversations. Elementary school students are very helpful and make it easier for elementary school students to repeat missed conversations.

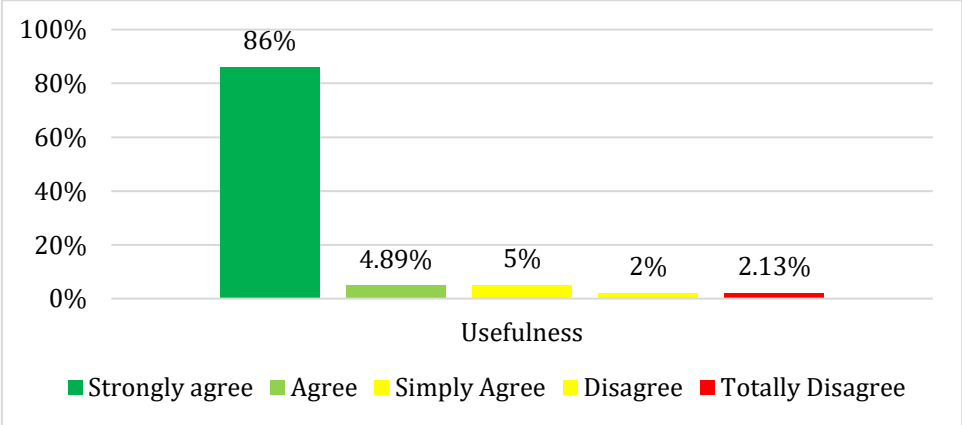

Figure 6. Usefulness by Students

Elementary school level students considered that a large number of them used this media in English dialogue conversations. From Figure 6 it can be seen that there are 86% who strongly agree with using AR media and 4.89% agree with the use of this English dialogue recording tool. This shows that the interest of elementary school students has a fairly high interest in using this conversational media.

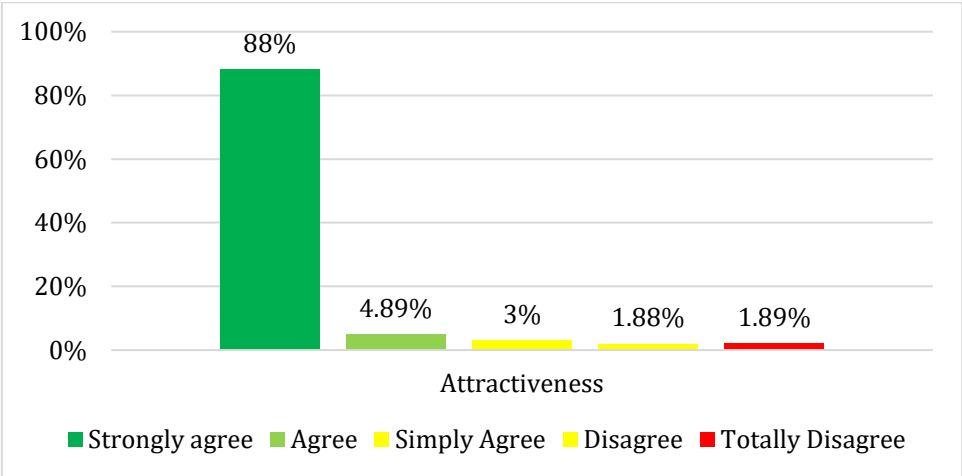

Figure 7. Attractiveness by Students

Figure 7 shows that there are 88% who strongly agree with students who assess interest in the way of dialogue and repeating conversations by recording using AR media. Students who judge agree there is 4.89%. In total there are 92.89% who are interested in using this method.

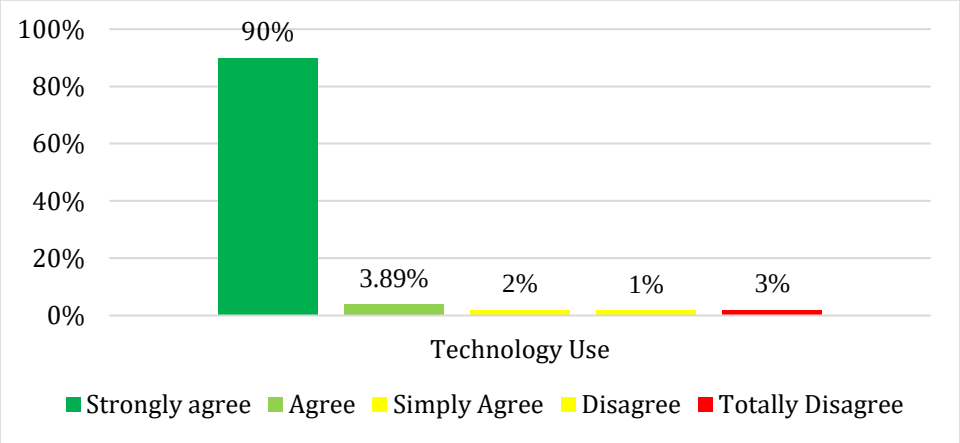

Figure 8. Technology Use by Students

The high use of technological media by students is very high. Seen in Figure 8, there are 90% and 3.89% who strongly agree and agree with the high use of technological media in helping students to communicate in English. This has a positive impact on the development of students' vocabulary to better understand English.

Table 2. This Is Known from The Results of Filling Out the Questionnaire

Indicator	Total Score (Average)	Number of Appraisers	Information
Ease of Use	87	50 people	Well
Usefulness	95	50 people	Very good
Attractiveness	90	50 people	Very good
Technology Use	96	50 people	Very good

Discussion

In this research, pre-tests and post-test were used to measure differences in students' English vocabulary skills before and after using Augmented Reality (AR) as a learning medium. The results show a significant increase in students' understanding of English material after using AR. The average pre-test score is 49.67, while the average post-test score is 86.78. 22 positive data showing an increase in English vocabulary learning outcomes from pre-test to post-test. In addition, statistical analysis shows that there is a significant difference between the results of learning English vocabulary in the pre-test and post-test scores. These results are consistent with previous research which shows that the use of AR can improve students' understanding of English. Thus, the application of AR is effective in improving student learning outcomes in English subjects in elementary schools. This finding is in line with previous findings (Che Dalim et al., 2020a; Saadon et al., 2020). Figure 2, Figure 3, and Figure 4 are illustrations of the implementation of Augmented Reality (AR) in English language learning in elementary schools. Figure 2 shows recordings of school students that can be scanned with an AR application to display video conversations in English. In this way, students can record the English vocabulary spoken in the conversation to facilitate learning and repetition of pronunciation. Meanwhile, Figure 3 shows a dialogue in English between two students. When the image is scanned with the AR app, a video of their conversation will appear. This allows students to record the English vocabulary spoken by both students in the dialogue so that other students can learn and repeat the pronunciation easily. In addition, Figure 4 shows the media recording tools used in AR learning. With this tool, students can record conversations in English and allow other students to learn from the recordings. Thus, the use of AR in English learning in elementary schools not only makes learning more interactive but also facilitates effective repetition and understanding of English vocabulary. Figure 5 depicts student interactions with virtual objects in the Augmented Reality (AR) learning environment. In the context of English learning, this image can reflect how students use AR technology to interact with 3D objects related to certain English vocabulary or topics.

Through AR, students can visualize abstract concepts to become more concrete and easier to understand. By interacting directly with virtual objects, students can improve their understanding of English learning material visually and practically. The use of AR in learning can make the learning process more interesting, interactive, and effective, and help students deepen their understanding of English vocabulary and concepts in innovative ways. Meanwhile, Figure 6 shows a demonstration of the use of Augmented Reality (AR) in learning English vocabulary. Students can use AR devices to view images or objects related to certain vocabulary words. By involving 3D visualization in learning, students can enrich their understanding of English vocabulary more interestingly and interactively. Through direct experience with virtual objects, students can strengthen the connection between words and real objects, making it easier for them to remember and understand the vocabulary. Using AR in learning English vocabulary can help students expand their vocabulary, improve language skills, and make the learning process more enjoyable. With AR technology, students can learn English vocabulary more visually and practically, which can increase learning effectiveness and motivate students to be more actively involved in the learning process. Figure 7 depicts collaborative activities between students and teachers in using Augmented Reality (AR) in learning. In the context of English learning, this image can reflect how teachers facilitate discussions, questions, and answers using AR technology. Students can be actively involved in the learning process with the help of AR, which can increase their engagement and understanding of the subject matter. Collaboration between students and teachers in using AR can create an interactive and fun learning environment, thereby increasing student learning motivation. Teachers can utilize AR technology to enrich students' learning experiences, facilitate more dynamic discussions, and provide immediate feedback. With intensive interaction between students and teachers through AR, English learning can become more interesting, and effective, and deepen students' understanding of the subject matter. Figure 8 shows the use of Augmented Reality (AR) in recording an English conversation between two students. In a learning context, this image can reflect how students can record and playback the English conversations they have using AR technology. With this recording feature, students can improve their pronunciation, deepen their understanding of vocabulary, and improve their English-speaking skills.

The process of recording and playing back conversations can also help students practice listening and speaking skills independently. The use of AR in recording English conversations can provide a more personal and interactive learning experience for students. With this recording feature, students can actively involve themselves in the learning process, increase their confidence in speaking English, and deepen their understanding of the lesson material. AR technology can be an effective tool in improving students' language skills through innovative and engaging learning experiences. From the information you provided, Table 2 contains the results of filling out questionnaires by students and teachers in a study related to the use of Augmented Reality (AR) technology in learning English in elementary schools. This table is likely to include several evaluation indicators such as ease of use, usefulness, attractiveness, and use of technology. From the interpretation that based on the results of filling out questionnaires by students and teachers, the use of AR technology in learning English in elementary schools is considered positive. Ease of use, usefulness, attractiveness, and effectiveness of AR technology in enhancing English language learning were identified as important and successful aspects of the research. This finding is in line with previous findings in (Alalwan et al., 2020; Zhang et al., 2022). The questionnaire given was filled out by students and teachers in elementary schools. Filling out the questionnaire was carried out after finishing using augmented reality learning media, so that the results of the study were obtained, namely: A score of 87 for the ease-of-use indicator with good interpretation, 95 for the usefulness indicator with very good interpretation, 90 for the attractiveness indicator with very good information, 96 for indicators of technology use with excellent descriptions. So, it can be seen that the use of augmented reality in learning English in schools is appropriate to use and respond to properly, and according to teachers and students, it is very good if it is applied in elementary schools on a larger scale. This finding is in line with previous research, that augmented reality is very good for learning English (Parmaxi & Demetriou, 2020; Danaei et al., 2020; Che Dalim et al., 2020).

The implication is that the use of Augmented Reality (AR) in improving student learning outcomes in English subjects in elementary schools has a significant impact in the educational context. Important implications of this research: First, the integration of AR technology in the English learning curriculum in elementary schools can improve the quality of learning. By utilizing AR as a learning medium, students can engage in a more interesting and interactive learning experience. This can help increase students' learning motivation and strengthen their understanding of the subject matter. Second, the application of AR can help create an inclusive learning environment. AR technology can provide opportunities for students with different learning styles to engage in more enjoyable and effective learning. In this way, teachers can create more diverse learning experiences and support student diversity in achieving learning goals. Apart from that, the use of AR can also prepare students to face the demands of an increasingly digital world of work. By getting used to using AR technology from an early age, students will have relevant technology skills that

can be applied in various fields of work in the future. This will help increase students' competitiveness in an increasingly competitive job market. Apart from that, the results of this research also encourage the development of more innovative educational technology. By demonstrating the effectiveness of AR in improving student learning outcomes, this research can encourage further development in the use of technology for education. This could open the door for further research in exploring the potential of other technologies that can improve learning at various levels of education. Thus, the application of AR in English language learning in elementary schools has broad implications in improving the quality of learning, creating an inclusive learning environment, preparing students for the digital world of work, and encouraging innovation in educational technology. These implications show the importance of continuing to develop technology-based learning approaches to improve student learning outcomes and prepare them for an increasingly digital future.

Although this research shows the significant benefits of using Augmented Reality (AR) in improving student learning outcomes in English subjects in elementary schools, several limitations need to be considered. First, limitations in the generalization of the results. This research was conducted with research subjects limited to certain elementary school students, so the results may not be directly applicable to a wider student population. Further research with more representative samples is needed to validate these findings. Second, limitations in the duration of the research. This study may have time limitations that affect long-term observations of the effects of using AR in learning. Follow-up studies involving long-term monitoring could provide a deeper understanding of the effectiveness of this technology over a longer period. By paying attention to these limitations, future research can overcome these obstacles to strengthen the findings and implications of using AR in the context of English learning in elementary schools.

4. CONCLUSION

The research conclusion is that the use of Augmented Reality (AR) technology has proven effective in improving student learning outcomes in English subjects in elementary schools. In this research, quantitative methods were used with the research subjects being elementary school students. The research results show that there is a significant increase in students' understanding of English material after using AR as a learning medium. This shows the urgency of applying AR technology as a learning medium to improve students' understanding of English in a more interesting and interactive way. In the context of learning English, communication skills are an important aspect that needs to be improved. These communication skills must be proven through lots of direct interaction and technology-assisted communication between fellow students and teachers. Research also shows that AR media helps in English conversation, with most students agreeing that using AR makes it easier for them to communicate and understand missed conversations. Apart from that, the use of AR is also considered very useful by students in learning English. In the study, most students agreed that AR media helped them understand the material and improve their English language skills. With AR technology, students can record conversations in English, so that other students can easily learn and repeat the pronunciation of the words used in the conversation. The implication of this research is the need to integrate AR technology in the English language learning curriculum in elementary schools to improve the quality of learning and students' understanding of the subject matter. Thus, the use of AR can be one solution to improve student learning outcomes in learning English at the elementary level. In a broader context, this research also contributes to the development of innovative and interactive learning methods. By continuing to integrate technology in the learning process, it is hoped that we can create a more interesting and effective learning environment for students. Apart from that, this research also provides a positive view of the potential of AR technology in improving students' language skills, especially in the context of English learning. Thus, the use of Augmented Reality (AR) technology in learning English in elementary schools has proven effective in improving student learning outcomes and can be one solution to improve the quality of learning in the future.

5. REFERENCES

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