



# Improving the Listening Ability of Elementary School Students Through the Use of Augmented Reality-Based Learning Media

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## ABSTRACT

This research is motivated by the low listening ability of elementary school students. The purpose of this study is to determine the improvement of listening skills of fifth-grade elementary school students by using augmented reality-based learning media. This study uses an experimental model with a pretest-posttest control group design with a sample of 60 students. The instrument used in this study is to use a listening ability test, besides that the test results are analyzed by looking at the differences in students' listening abilities between students who learn by using augmented reality-based learning media and students who learn by using conventional learning media. The results showed that (1) there was a very significant difference in listening ability between the experimental class and the control class, and (2) the listening ability of students who studied using augmented reality-based learning media was higher than students who studied using conventional learning media. Through the use of augmented reality media, learning activities can be more fun and meaningful so that students do not feel bored studying learning materials.

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## 1. INTRODUCTION

Listening is one of the language skills that everyone should have. Furthermore, listening is one aspect of language skills that is very important for students to learn (Laeli, 2021; Metruk, 2019; Mutasim, 2020). Based on this, listening skills are a form of responsive language skills. It can be understood that listening is the process of listening to oral symbols with full attention, understanding, appreciation, and interpretation to obtain information, capture content and messages, and understand the meaning of communication that has been conveyed by the speaker through spoken language (Afriyuninda & Oktaviani, 2021; Saragih, 2022).

Listening skills are very important language skills and must be taught the earliest before other language skills (Basri et al., 2020; Sabri et al., 2020). Students who lack the skills to listen to the lessons given by the teacher will have difficulty following the learning itself (Mailawati & Anita, 2022; Pham, 2021). Furthermore (Coskun & Uzunyol-Köprü, 2021; Eriani & Dimyati, 2019; Hajerah, 2019; Intan et al., 2022; Mankel et al., 2020; Nurhanani et al., 2020) suggests that activities in communication that are carried out every day include 45% is used for listening, 30% for speaking, 16% for reading, and 9% for writing. Furthermore, it is said that 50% is for listening and 50% for speaking, reading and writing (Girsang et al., 2019; Munar & Suyadi, 2021; Rahmat & Sumira, 2020). In the communication process that takes place in learning at school, teachers and students must be able to use listening skills well. In the process of learning activities, students must be able to capture and understand correctly the information conveyed by the teacher and other students. If students do not have effective listening skills, they will be wrong in understanding and interpreting the information which results in acquiring and having the wrong knowledge.

Based on the description of the problem above, it is necessary to make efforts to improve the quality of listening learning. One of the efforts that can be used to improve students' listening skills is to use augmented reality-based learning media. Furthermore, Augmented Reality (AR) is a technology to complement and overlays the real world with virtual information (Garzón, 2021). Furthermore, AR learning media can visualize abstract concepts to understand and construct object models that enable AR as a more effective medium in accordance with the objectives of learning media (Billinghurst, 2002; Elmqaddem, 2019; Subhashini et al., 2020).

Research on the application of augmented reality has been carried out by previous researchers. The research that has been conducted by Subhashini et al., (2020) provides some assistance to students by encouraging them to learn new ideas using graphic guides. Besides being used in schools, it can also be used in the commercial, travel industry, games, and medicine. Next research that has been done (Lee, 2012) states that augmented reality is a projection on the field of education and training in the future. Bower et al., (2014) suggest that augmented reality can encourage students to have high-level thinking skills by presenting the real world in virtual form and can present real problems through the use of digital technology. Furthermore, it is said that by using augmented reality students can interact with visual objects as if they were integrated with the real world so that the interaction can be seen in real terms (Bower et al., 2014; Radu, 2014; Wang et al., 2018). In line with this, the application of augmented reality in the field of education has the advantage of being an educational medium that can have a considerable influence where students who study learning materials will more easily understand the material compared to students who do not use augmented reality media (Ariani et al., 2019; Selviana et al., 2020; Widayati & Simatupang, 2019). But in reality, augmented reality media has not been

implemented yet, fiber has not been applied in learning. Furthermore, the application of augmented reality in education can be a solution for teachers in helping provide knowledge and understanding to students.

Based on the explanation above, researchers are interested in conducting research on improving the listening ability of elementary school students through the use of augmented reality-based learning media. This study aims to see the effectiveness of augmented reality media in listening learning for elementary school students.

## 2. METHODS

This study aims to determine how effective the use of augmented reality learning media is in learning listening for elementary school students. This type of research is an experimental design with a pretest-posttest control group design. Pretest-posttest control group design is this research design consisting of two groups that were, then given a pretest before learning and a posttest after learning which serves to determine whether there is a difference between the control group and the experimental group. The experimental class was given treatment using augmented reality learning media, while the control class used conventional learning media. Respondents in this study were fifth-grade elementary school students. The sampling technique used in this study is a sampling purposive technique. Purposive sampling is a sampling technique with certain considerations. The reason for using the purposive sampling technique is that it takes two classes that are homogeneous in their abilities and can represent the characteristics of the population. The selected sample is 60 respondents.

The instrument used in this study was a listening ability test. According to (Dole, 2020) the listening indicators are divided into 5 stages, namely listening, paying attention, perceiving, assessing, and responding. Meanwhile, an almost identical opinion is explained by Pebriana et al., (2018) explaining that indicators can be used as material for assessment in the learning process. Listening is the listening stage, understanding stage, interpreting stage, evaluating stage, and responding stage. Before conducting the research, the researcher tested the instrument to measure the validity of the instrument that had been prepared.

Furthermore, the data collected in this study was obtained by conducting a pretest and posttest. The pretest is used to measure the initial ability before learning begins and the posttest is used to measure students' ability after learning is complete. Pretest and posttest were given to the control class and the experimental class. Then a different test of the average initial performance was carried out in each group. This is done to determine whether there is a difference in the average initial achievement of the two groups. The test used is an independent sample.

## 3. RESULTS AND DISCUSSION

The results of data analysis in this study were to find out how the use of augmented reality learning media improves the listening skills of grade V elementary school students. We can see in the **Table 1** below.

**Tabel 1.** Values of Descriptive Statistics of Pretest and Posttest in Experiment Class and Control Class

Learning Class	Respondent	Mean
Pretest Experiment Class	30	29,33
Pretest Control Class	30	29,33
Posttest Experiment	30	95,50
Posttest Control Class	30	71,17

It can be understood that the average value of students before being given action in the experimental and control classes was 29.33. Furthermore, the average value of students after being given action in the experimental class was 94.67 and the average value in the control class was 72.33. So descriptively there is a difference in the average before and after the use of Augmented Reality Media in elementary school students.

Next, the researcher conducted a Paired Sample T-test for the experimental class and the control class. The following is a **Table 2** of the results of the statistical analysis of the Paired Sample T-test:

**Table 2.** Paired Sample T-Test

Class	Value Sig.
Pretest Posttest Experiment	0,000
Pretest Posttest Control	0,070

Based on the table of t-test results it can be understood that the significance value of the experimental class is 0.000, it can be said that the significance value of the experimental class is less than 0.05 (sig. 2-tailed <0.05), it can be stated that in the experimental class there are differences in students' understanding abilities before and after using augmented reality media. Furthermore, the significance value in the control class is 0.000. It can be understood that the significant value in the control class is less than 0.05, it is stated that in the control class there are differences in students' listening skills before and after learning.

Next, the researcher conducted a simple linear regression test with the aim of testing the effect of one independent variable on the dependent variable. You can also see how big the impact is. The results of a simple linear regression test can be seen in the **Table 3** below.

**Table 3.** Simple Linear Regression Test Test

Regresi	R	R Square
Augmented Reality	0,414	0,171

It can be understood that the correlation value (R) is 0.414, then the coefficient of determination (R square) is 0.171. Based on the results of these statistical tests, it can be concluded that there is an influence of Augmented Reality media for elementary school students. Furthermore, to see the influence of the use of Augmented Reality media on students' listening skills as follows. The results can be seen in the **Table 3** below.

**Table 4.** Cohen's Value Interpretation d

Cohen's Standart	Effect Size	Persentase (%)
Moderate	1,32	90%

Based on these calculations, it is known that the effect size is 1.32 Percentile Standing 90%, which means that in the interpretation table it is included in the high category. So it can be concluded that the influence of the use of augmented reality media on students' listening skills is 90% and is classified as high.

The research above is in line with the results of research that has been carried out by (Saidin et al., 2015) showing that the application of AR in a number of learning fields including Medicine, Chemistry, Mathematics, Physics, Geography, Biology, Astronomy, and History shows that, Overall, AR technology has positive potential and advantages that can be adapted to the world of education. Furthermore, the results of the study Elmqaddem (2019) state that the nature of AR and VR promises new teaching and learning models that better meet the needs of 21st-century learners. Based on this explanation, in general, it can be concluded that the results of the statistical test show that there are differences in the listening ability of students who learn by using augmented reality learning media with students who learn by using conventional learning media. This can be seen from the significance value of the different test results using a non-parametric test of 0.000 which is smaller than 0.05, thus it can be concluded that the difference in students' listening abilities is very significant. Apart from the results of the statistical analysis, differences in students' listening abilities can be seen from the average score of the student's final tests in their respective learning classes. The average value in the control class is 95.50 while the average value of listening ability in the control class is 71.17.

The research above is in line with the results of research that has been carried out by showing that the application of AR in a number of learning fields including Medicine, Chemistry, Mathematics, Physics, Geography, Biology, Astronomy, and History shows that, Overall, AR technology has positive potential and advantages that can be adapted to the world of education. The results of the study Elmqaddem (2019) state that the nature of AR and VR promises new teaching and learning models that better meet the needs of 21st-century learners.

Increasingly advanced technology has had an impact in all fields. One of them with the presence of augmented reality. Erbas & Atherton (2020) explained that augmented reality is a technology that allows user interactivity from the real world into computer-generated objects. Augmented reality technology is also capable of creating an environment using virtual objects to support real conditions. Meanwhile, Sontay, & Karamustafaoglu (2021) said that augmented reality applications have been prepared with 4D technology.

Several studies regarding the use of augmented reality applications by Bower et al., (2014) and Uluyol & Eryilmaz, (2015) suggest new research on augmented reality, especially in the field of education because of the unique features possessed by augmented reality itself which can provide innovation for students or teachers.

Based on the explanation, in general, it can be concluded that in improving the listening ability of elementary school students, augmented reality learning media can be used.

#### **4. CONCLUSION**

Based on the results of the research and discussion that have been presented, it can be concluded that in improving the listening skills of fifth-grade elementary school students, augmented reality learning media can be used. Augmented reality learning media can present and visualize abstract learning materials in real form through the use of technology in the learning process. In addition, the use of augmented reality-based learning media can encourage students to have critical thinking skills and be able to visualize abstract concepts

for understanding the structure of an object model enabling AR as a more effective medium in accordance with the objectives of the learning media. Through the use of augmented reality media, learning activities can be more fun and meaningful so that students do not feel bored studying learning materials.

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