TO BOOST STUDENTS' SPEAKING SKILL THROUGH MOBILE AUGMENTED REALITY

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Abstract

There has recently been a spike in student enthusiasm in using technology to engage in their study. Augmented reality is one of the technologies that has been determined to be acceptable for usage in educational settings such as science, mathematics, and engineering. As a result, this study looked into the usefulness of employing mobile augmented reality (MAR) to improve students' speaking skills. This study employed a quasi-experimental approach with two groups: control and experimental. They are conducting MAR and traditional instructional methods teaching and learning sessions. According to the findings of this study, students in the experimental group demonstrated considerably higher levels of speaking skills than those in the control group following teaching and learning. Furthermore, this study discovered that MAR can help to highlight student-centered learning, stimulate student interest and curiosity, improve student cognitive, emotional, and psychomotor processes, and increase student involvement in the information-seeking process. It is recommended that educators employ MAR in their teaching and learning since it has effectively improved students' speaking skills and encouraged a better grasp of knowledge.

Keywords: MAR, speaking skill

INTRODUCTION

For teachers or educators, AR technology is used to connect real experiences in a virtual world. This is a new concept that can help teachers and students in acquiring real knowledge. Although this technology has not been widely implemented in the world of Education (Geroimenko, 2020).

AR technology can help students develop new techniques in learning, compared to classical ways of learning. Studies on this type of application have discussed several advantages such as: (a) this application turns something difficult into easy to understand something; (b) the application presents relevant educational information at the right time and place, providing easy access to information; (c) the application directs the student's attention to an important aspect of education i.e. experience; (d) the application allows students to become physically active; (e) the application allows students to interact with challenging phenomena (Radu, 2014; Mozaffari &Hamidi, 2023; Muhazaroh, 2023; Wu et al., 2013).

Although there have been many studies confirming the usefulness of AR technology in education, many contemporary researchers claim that research on AR in education is still at an early stage. However, a study refutes evidence of that the effects of AR on learning and teaching "appear to be superficial" (Ibanez et al., 2014). A meta-analysis of a study that reviewed 26 studies on AR in education, he identified both positive and negative effects of using this technology and likely underlying factors (Radu, 2014).

A study investigated how effective this type of virtual learning environment is. The study showed positive results in terms of effectiveness, which could be the basis for some further research (Wang et al., 2014). Researching studies on the effectiveness of AR in the education system, particularly recently, it is proven that the use of this technology leads to improved performance and motivation in students, creates positive emotions, and helps students adopt a positive attitude towards the subject studied (Hinojo Lucena et al., 2020). However, these experimental studies have shown effectiveness in only a few areas of science. According to a review by López-Belmonte, the majority of research on AR is geared towards users on how to effectively utilize technology in created learning environments and considering the diversity of learners (Ardiansyah & Nana, 2020).

Future research should concentrate on the emergence of AR devices in smartphones; or better known as MAR which in this case is based on android or Macinthos. What's more, students get a learning experience through smartphones and tablets (Sukmayasa & Sudiana, 2023). This is the basis for knowing the effectiveness of using AR in the world of education, especially in the field of English. Based on the background above, the problems formulated in this study are: a) is the use of MAR effective in improving speaking skills? b) what are the factors that influence the presence / absence of MAR effectiveness in improving speaking skills?

For this reason, one of the ways to solve problems in improving speaking skills is to provide experience that is direct and can be felt naturally (Tsai, 2023). The problem-solving approach in this research is a learning approach that focuses on developing students' analytical, creative, and critical skills in solving problems faced in everyday life. This approach leads students to learn through the process of finding solutions to problems at hand, rather than just studying concepts or theories in isolation.

In the context of developing speaking skills, the problem-solving approach encourages students to use English effectively to solve problems encountered in real situations. In this case, the use of MAR can provide a more interesting and interactive learning experience, thereby increasing students' motivation and interest in learning English (Ambarwati, 2023).

MAR allows students to interact with objects or virtual environments in English (Wibowo et al., 2023). In use, students can view virtual objects and hear instructions or instructions in English. Students are then asked to express their understanding of the virtual object in English, using the speaking skills they have learned.

In the use of AR, students are given the opportunity to practice and improve their speaking skills in challenging and stimulating situations (Rifai et al, 2023). Improving English speaking skills can be challenging for many students learning English as a second language. This is due to factors such as anxiety, lack of vocabulary, or lack of opportunities to speak English in everyday life (Afriyadi et al., 2023). Therefore, many new technologies have been developed to assist students in acquiring better English-speaking skills.

In this context, the use of AR technology can help students to overcome obstacles in speaking English such as anxiety or lack of vocabulary. In an AR environment, students can practice speaking English in a more relaxed and structured way, and get immediate feedback from the technology (Falan et al., 2023). In addition, AR technology can also facilitate students to learn English vocabulary in a more interactive and fun way (Rahmad et al., 2023).

In conclusion, the problem-solving approach to MAR can improve students' speaking skills through interesting and interactive learning experiences. This is consistent with constructivism theory, which suggests that the best learning occurs when students are actively involved in the learning process and build their own knowledge through experience. Therefore, the problem-solving approach to AR can be an effective learning alternative to improve students' speaking skills.

The state of the art of this research, apart from wanting to know whether there is effectiveness in using AR in improving speaking skills, will also reveal the factors that influence the effectiveness of using augmented reality in improving speaking skills. this is important to know as a consideration and input later in the development of AR in the future. This research is very important to know because AR technology is growing rapidly and is increasingly being used in various fields, including education and training. Therefore,

exploring the potential of AR in improving one's speaking skills can make a significant contribution to the development of AR technology in the future. This study aims to contribute to expanding understanding of the potential of AR technology in improving one's speaking skills and the factors that influence it. By doing so, it is hoped that this research can provide a more holistic view of the use of AR in education and training, as well as provide input for the future development of AR technology.

METHOD

Research Design This study used a quasi-experimental design with a non-equivalent control group. The experimental group will be given treatment using MAR technology in learning speaking skills, while the control group will be given conventional speaking skills learning. Data on students' speaking skills will be measured before and after treatment, as well as after a certain period of time to measure the long-term effects of using MAR technology. Research Participants The research participants were class VII students at a junior high school in Paiton District, Probolinggo. The total participants involved in this research were 45 students, of which 24 students would be placed in the experimental group and the other 21 students would be placed in the control group.

Participants were selected randomly using a simple random sampling method. Research Instrument The research instrument consists of a speaking skill test which was developed based on established English speaking skill assessment standards. This test consists of several parts such as pronunciation, intonation, vocabulary and grammar. Apart from that, the research instrument is also equipped with a questionnaire to determine students' perceptions and satisfaction with the use of MAR technology in learning speaking skills. Data Collection Data on students' speaking skills will be collected before and after treatment, as well as after a certain period of time to measure the long-term effects of using MAR technology. Treatment The experimental group will be given treatment using MAR technology in learning speaking skills. In learning using MAR technology, students will use the MAR application on their smartphones and practice speaking English through interactions with virtual objects that appear in the application. Meanwhile, the control group will be given conventional speaking skills learning, such as presentations and group discussions in class. Data Analysis Data on students' speaking skills will be analyzed using descriptive and inferential statistical

techniques such as the t-test using the SPSS 20.0 application. The results of the analysis will be used to test research hypotheses and to evaluate the effectiveness of using MAR technology in improving Speaking Skills.

FINDINGS AND DISCUSSION

Findings

Effectiveness MAR to students speaking skill

The Descriptive Statistic of Pre-Test Experimental Class and Control Class

Table 1 Descriptive Statistic of Pretest Experimental Class and Control Class

Descriptive Statistics

Class	N	Mean	Std. Deviation
Control	24	40.00	22.8
Experimental	21	40.00	26.0
Total	45	80.00	48.8

Table 1 provides the mean scores of the control class and experimental class. The pre-test descriptive statistics table shows that the mean score of the control group was 40.00 (sd 22,8) while the experimental group also had a mean score of 40.00 (sd 26,0). Standard deviation is a value used in determining the distribution of data in a sample and seeing how close the data is to the mean value. Standard deviation cannot be good or bad because it only tells us how spread out the values in the sample are. The data of means score that the control class has the same average score as the experimental group. In homogeneity, it is said that the two groups have the same ability in pretest learning outcomes before conducting the treatment of with the MAR.

The Descriptive Statistic of Post-Test Experimental Class and Control Class

Table 2 Descriptive Statistic of Posttest Experimental Class and Control Class

Class	N	Mean	Std. Deviation
Control	24	60.00	28.2

Experimental	21	86.67	13.1
Total	45	146.67	41.3

The output of the descriptive statistics can be seen in Table 2 which shows the total number of population in this study (N), which is 45. The table provides the mean scores of the experimental class and control class. The mean score of the control class using the conventional learning model was 60 (s.d. = 28.2) and the increase in the mean score was 20 or 33.3% but not as significant as the experimental class. The post-test descriptive statistics table shows that the mean score of the experimental group (in this case the group taught using the STAD type cooperative learning model) was 86.67 (s.d. = 13.1). The increase in mean score from the pre-test mean score of the experimental group was 46.67 or 53.8%. After analyzing the students' comprehension based on the table above, the next table would show the normality test and homogeneity test of the two classes; experimental class and control class.

Test of Data Analysis

Normality Test of Control Class and Experimental Class

The normality test for the learning outcomes of control class and experimental class students used IBM SPSS Statistic 25 and found that the data was normally distributed. These results can be seen in 3

Table 3 Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Control	.138	24	.200[*]	.942	24	.179
Experimental	.158	21	.186	.914	21	.066

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Testing criteria:

- ☐ If sig > 0.05, this means (data is normally distributed)
- ☐ If sig > 0.05, this means (data is not normally distributed)

Based on the output above using IBM SPSS Statistic 25, data with the score of sig. in the Kolmogorov-Smirnov column of control class 0.200 and experimental class 0.186. The

data obtained with the score of sig. (0.200 and 0.186 > 0.05), which means that the value of student learning outcomes in the control and experimental classes is normally distributed.

Homogeneity Test of Control Class and Experimental Class

The results of the homogeneity test analysis of student learning outcomes in this study using IBM SPSS Statistic 25 found that the data is homogeneous. These results can be seen in the table 4.

Table 4 Homogeneity Test of Experimental Class and Control Class

		Levene Statistic	df1	df2	Sig.
Test of Homogeneity	Based on Mean	.159	1	43	.692
	Based on Median	.059	1	43	.809
	Based on Median and with adjusted	.059	1	42.094	.809
	Based on trimmed mean	.138	1	43	.712

Testing criteria:

- If sig > 0,05, this means (variance in each group is similar or homogeneous)
- If sig > 0,05, this means (variance in each group is not similar or homogeneous)

A data can be said to be homogeneous if the sig value. > 0,05. Based on picture 4.5, the data was obtained the based on Mean score of sig. is 0.692. So, 0.692 is more than 0.05 then the data of student learning outcomes can be said homogeneous.

The Hypothesis Testing The Independent Sample T-Test (Post-test)

The results of hypothesis testing using the independent sample T test because the data on student learning outcomes are normally distributed and homogeneous. In this research using the help of IBM SPSS Statistic 25, the results showed that the hypothesis in this research was accepted. These results can be shown in the table 5.

Table 5 Hypothesis Testing

		Levene's Test for Equality of Variances		t-test for Equality of Means						
								Std. Error Differen ce	95% Confidence Interval of the Difference	
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Differenc e		Lower	Upper
Test _ Scor e	Equal variances assumed	.159	.692	-2.027	43	.049	-16.250	8.018	-32.420	-.080
	Equal variances not assumed			-2.032	42.594	.048	-16.250	7.997	-32.382	-.118

Research is said to have an accepted hypothesis if the sig value. < 0.05, which means H0 is rejected and Ha is accepted. Based on picture 4.6, it can be seen that the score of sig. on Levene's test is 0.692, which means that the data is homogeneous. Furthermore, the t-test for equality of means obtained a sig value. (2 tailed) of 0.049 so that the hypothesis in this

research can be said to be proven because 0.049 <0.05, which means that H0 is rejected and Ha is accepted. It means that MAR affects students speaking skill significantly

CONCLUSION

Based on the research that has been conducted, the researcher concluded that There is a difference in student learning outcomes before and after without and applied MAR can be seen from the average in the control class of 33.3% and in the experimental class increased by 53.8%. So that the difference in student learning outcomes between the control class and the experiment class is 20.5%.

Hypothesis testing of student learning outcomes with independent sample t test obtained sig value = 0.049. Thus, 0.049 < 0.05 so that H0 is rejected and Ha is accepted, which means that there is a significant difference in learning outcomes between students who are taught and not taught with the STAD type cooperative learning model or the effect of MAR on student students 'speaking skill at MTs Negeri1 Probolinggo

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