



## THE EFFECT OF USING AUGMENTED REALITY IN THE STUDENTS' SPEAKING SKILL

<sup>1</sup>Eli Nofriati, <sup>2</sup>Chalil As'ari, <sup>3</sup>Silvi Listia Dewi\*, <sup>4</sup>Sriwinar

<sup>1,2,3</sup>English Language Education, Universitas Almuslim Aceh, Indonesia

<sup>4</sup>Teknik Informatika, Universitas Almuslim Aceh, Indonesia

### ABSTRACT

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\*Correspondence:  
[silviliadewi@umuslim.ac.id](mailto:silviliadewi@umuslim.ac.id)

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Implementation of Independent Curriculum requires teachers must be able to use digital media to create classroom more active, innovative, enjoyable, and can improve students' learning outcomes. However, students' speaking skills at SMA Negeri 1 Gandapura are still low due to the teacher not yet utilizing digital media optimally in teaching speaking. This study aims to determine the effectiveness of using Augmented Reality (AR) media in improving students' speaking skills. This research used an experimental method and the sample of the research was taken two classes; class XI Merdeka 1 as control group and class XI Merdeka 2 as experimental group. The research instrument used was pre-test and post-test. The collected data was analyzed using inferential statistics with a t-test, through SPSS version 16 software. The finding was the students' average pre-test speaking score in the experimental class was 69.7, while the average post-test score was 72.3. In conclusion, the use of AR media is effective and can enhance students' speaking skills.

**Keywords:** *Augmented Reality (AR) media, students' speaking skill*

### ABSTRAK

Penerapan Kurikulum Merdeka mengharuskan guru mampu menggunakan media pembelajaran berbasis teknologi untuk menciptakan lingkungan belajar yang lebih aktif, inovatif, menyenangkan dan dapat meningkatkan hasil belajar siswa. Namun, pada kenyataannya, kemampuan *speaking* siswa di sekolah SMAN 1 Gandapura masih rendah. Hal ini disebabkan oleh guru yang belum menggunakan media pembelajaran yang berbasis teknologi dalam pembelajaran *speaking* secara optimal. Oleh karena itu, tujuan dari penelitian ini adalah untuk mengukur keefektifan penggunaan media teknologi *Augmented Reality (AR)* dalam meningkatkan kemampuan *speaking* siswa. Jenis penelitian yang digunakan dalam penelitian ini adalah metode penelitian eksperimental dan sampel dalam penelitian ini diambil dua kelas yaitu kelas XI Merdeka1 sebagai kelas kontrol dan kelas XI Merdeka 2 sebagai kelas eksperimental. Instrumen yang digunakan pada penelitian ini adalah pre-tes dan pos-tes untuk pengumpulan data. Selanjutnya, data dianalisis menggunakan statistik inferensial t-test yang diproses dengan aplikasi SPSS versi 16. Berdasarkan data analisis, nilai rata-rata pre-test speaking siswa pada kelas eksperimental adalah 69.7 sedangkan nilai rata-rata post-test speaking adalah 72.3. Hasil penelitian ini dapat disimpulkan bahwa penggunaan media *AR* sangat efektif dan dapat meningkatkan kemampuan speaking siswa.

**Kata Kunci:** *Media Augmented Reality (AR), kemampuan speaking siswa*

## INTRODUCTION

English is a lingua franca and essential language that have to be mastered by the people from various countries particularly students. The primary goal of the English learning is to use it effectively as a tool for human communication (Dhivya et al., 2023). To communicate properly in English, learners must develop proficiency to four fundamental skills: writing, speaking, listening, and reading. All these fundamental skills are very important. In reality, however, speaking is the difficult skill to be mastered among the other skills (Pratolo et al., 2019).

Speaking is a crucial skill in the English teaching and learning process. As stated by Islam et al., (2022), speaking involves a process interactively in developing meaning within producing, receiving, and processing information. To develop strong speaking skills, students are expected to speak English either in their daily lives or during communication of the learning activities (Sinurat & Saragih, 2014). Additionally, learners should engage in frequent practice and drills to build good speaking habits. The goal of learning English is to build proficiency in both spoken and written communication, aiming to reach a functional level of literacy (Rosyidi et al., 2022). This process should encompass all language skills, including listening, speaking, writing, and reading, utilizing effective language learning strategies (Dewi et al., 2023). Speaking skills, in particular, help students express their ideas and emotions verbally. To support this, using learning media based on the information and communication technology can be as a valuable alternative (Zhang et al., 2022).

According to Park, et al., (2019), learning media that incorporate information and technology are proven to be more valid, effective, and practical compare to those that do not utilize such technology. Integrating both of them into the learning processes related to the students' needs can significantly increase their interests in English. Technologically integrated medium are increasingly being used in education (Bereczki & Kárpáti, 2021).

In this study, the researchers focused on utilizing the Augmented Reality (AR) as the English media in teaching speaking; especially in exploring the local wisdom about the Acehese tradition such as; *Khanduri Blang* and *Uroe Meugang* traditions. AR refers to a contemporary computer-aided learning environment that integrates real condition virtually enhanced information or images (Belda-Medina & Calvo-Ferrer, 2022). On the other hand, according to (Mozaffari & Hamidi, 2023), AR is a technology that offers a real-time visual experience, either directly or indirectly, of physical environments in the real world, enhanced with virtual, computer-generated elements. It enables virtual images and information to be superimposed onto the real-world environment in real time.

In this case, through AR, the researchers seek to address the issue of local wisdom by highlighting Acehese traditions, such as the *Khanduri Blang* and *Uroe Meugang* ceremony. *Khanduri Blang* is a celebration performed by the Acehese community as an expression of gratitude to Allah for the abundant rice harvest. Similarly, *Uroe Meugang* is another significant tradition in Aceh, making the beginning of ramadhan. This celebration is characterized by a communal feast, where meals are shared to foster community spirit and charity. Both traditions highlight the importance of gratitude, unity, and community in Acehese culture.

The researchers chose local wisdom because it embodies more moral value than material value. Hakim et al. (2023) emphasize the importance of local wisdom as a filter in the era of globalization, while Ramang et al. (2020) define it as the fundamental knowledge acquired through a balanced relationship with nature and culture, which is passed down within a community. It serves as a foundation for building the nation and strengthening society. In addition, preserving the noble culture of the Acehnese will also help build the *Profil Pancasila* students who embrace global diversity.

Based on observations conducted at SMAN 1 Gandapura, the researchers found that students, particularly those in the second grade, have low speaking skills. These are caused by several factors. The first factor is the students' limited English vocabulary, which it makes them difficult speaking in front of the class. The second factor is the lack of self-confidence when speaking in English. Another issue identified by the researchers is the insufficient use of engaging and interactive learning media by teachers during the learning activity, which leads to the low of motivation and causes the students become quickly bored during lessons.

To address the issues mentioned above, the researchers aim to utilize digital media, specifically AR, a system that integrates three key features: the combination of real and virtual worlds, real-time interaction, and accurate 3D registration of virtual and real objects, to enhance students' speaking abilities. The researchers have also chosen the topic of local wisdom, specifically the *Khanduri Blang* tradition, as the theme for students' discussions. This approach aims to engage students by helping the students more familiar with their own culture, making it easier for them in expressing their experiences. The chosen theme is closely related to activities that students commonly encounter in their everyday lives.

The researchers also referenced findings from previous studies to support the selected solution in addressing the issues mentioned earlier. The first study, conducted by Syafryadin et al. (2019), demonstrated that students' speaking ability improved through the storytelling technique. The second study, conducted by Anggreini et al. (2023), found that the use of digital media, specifically the Cake application, could improve students' speaking skills. The last study, conducted by Hwang et al. (2019), revealed that students' speaking performance improved after the researcher applied the shadowing technique in the learning process. In accordance with the previous studies, the researchers were interested in implementing digital media, specifically the AR application, in speaking instruction.

## **METHOD**

The research method used in this study was quasi-experimental, combining both quantitative and experimental approaches. The quantitative component aimed to analyze a specific population or sample using statistical instruments to test the relevant hypothesis (Hahs-Vaughn & Lomax, 2020). The experimental approach specifically required to determine the effectiveness of using AR media applications in enhancing students' speaking performance.

This study was conducted at SMAN 1 Gandapura, located on Medan-Banda Aceh Road, in Lapang Timu Village, Gandapura Subdistrict, Bireuen Regency. The researchers selected this school based on initial observations, which revealed that students have low speaking skills. Additionally, the teachers do not fully utilize

media, especially digital media, in their teaching activities, particularly in the instruction of speaking skills.

The population of this study consisted of second-grade students, totaling 140 students across four classes. The researcher selected two classes as the samples, each consisting of 35 students. These samples were divided into two groups: class XI Merdeka 1 as the control group and class XI Merdeka 2 as the experimental group.

In this study, a test was selected to collect the data. The researchers used a pretest to examine the students' speaking skills before applying AR in the speaking class. The pretest aimed to gather baseline data on students' speaking abilities in both groups. A posttest was given after the treatment to both the experimental and control groups, with the aim of determining the effect of AR on students' speaking performance. In the experimental class, the students were taught speaking skills by exploring the local wisdom of the *Khanduri Blang* and *Uroe Meugang* tradition, using AR as an interactive medium. Additionally, the researchers showed the videos about those traditions, designed within the AR application on the tablet. Students were then guided to discuss the activities of *Khanduri Blang* as if they were present at the event.

In contrast, in the control class, the researcher only played a regular video about *Khanduri Blang* and *Uroe Meugang* and asked the students to discuss and retell the activities they had watched. After the treatment, both groups were given a posttest to evaluate their speaking abilities. The data collected from the pretest and posttest were analyzed using the speaking performance proficiency rating proposed by Patty et al. (2023) and Weaver & Oller (1981). The data were tabulated into tables and analyzed using descriptive statistics (mean and standard deviation), followed by inferential statistics (independent samples T-test). For this analysis, the researcher used SPSS Version 16 statistical software. The goal of the data analysis was to compare the students' speaking proficiency in the experimental and control groups and to investigate the effectiveness of using AR to enhance students' speaking skills (Suharsimi, 2006).

## FINDINGS

The research was carried out at SMAN 1 Gandapura on 20<sup>th</sup> and 22<sup>th</sup>, August, 2024. In this study, the researchers collected the data from the students' pre-test and post-test score in control and experimental class. The pre-test was given before the treatment, while the post-test was given after the treatment. After conducting the research, the research findings were discussed in detail below.

### 1. The Result of the Students' Pre-test Score of Control Class and Experimental Class

Table 1 showed that in the control group, the lowest score achieved by the students was 63, while the highest score was 85. In contrast, the experimental group had a lowest score of 60 and a highest score of 82. The mean score of the pre-test for the control group was 69.1, while the experimental group had a slightly higher mean score of 69.7. These results indicate a relatively similar performance between the two groups before the treatment, with only a minor difference in their average scores. This baseline data provides a foundation for comparing the effects of the treatment after the intervention. The students' pre-test scores, as shown in the following table, highlight the initial distribution of speaking abilities across both

groups, offering a clear starting point for the analysis.

**Table 1. The Students' Pre-test Score of Control and Experimental Groups**

| No                   | Initial of Students' Name | Pre-test of Control Group | No                   | Initial of Students' Name | Pre-test of Experimental Group |
|----------------------|---------------------------|---------------------------|----------------------|---------------------------|--------------------------------|
| 1                    | AM                        | 70                        | 1                    | AY                        | 72                             |
| 2                    | AS                        | 64                        | 2                    | US                        | 67                             |
| 3                    | ASY                       | 68                        | 3                    | MH                        | 60                             |
| 4                    | AN                        | 79                        | 4                    | ADR                       | 71                             |
| 5                    | AR                        | 63                        | 5                    | FN                        | 65                             |
| 6                    | CNF                       | 63                        | 6                    | EL                        | 65                             |
| 7                    | FK                        | 67                        | 7                    | HF                        | 78                             |
| 8                    | HK                        | 68                        | 8                    | CUT                       | 72                             |
| 9                    | HA                        | 65                        | 9                    | BD                        | 65                             |
| 10                   | IN                        | 65                        | 10                   | JN                        | 61                             |
| 11                   | JL                        | 68                        | 11                   | RM                        | 65                             |
| 12                   | KA                        | 74                        | 12                   | ZA                        | 77                             |
| 13                   | KHA                       | 69                        | 13                   | MK                        | 74                             |
| 14                   | LJ                        | 76                        | 14                   | MU                        | 76                             |
| 15                   | MH                        | 72                        | 15                   | MH                        | 74                             |
| 16                   | MA                        | 63                        | 16                   | DF                        | 65                             |
| 17                   | MS                        | 82                        | 17                   | AM                        | 74                             |
| 18                   | MAR                       | 85                        | 18                   | NR                        | 82                             |
| 19                   | MG                        | 72                        | 19                   | MZ                        | 70                             |
| 20                   | MV                        | 66                        | 20                   | AF                        | 63                             |
| 21                   | NB                        | 66                        | 21                   | RA                        | 65                             |
| 22                   | NF                        | 64                        | 22                   | SU                        | 63                             |
| 23                   | NT                        | 65                        | 23                   | YS                        | 63                             |
| 24                   | RA                        | 68                        | 24                   | ZR                        | 65                             |
| 25                   | RZ                        | 66                        | 25                   | FN                        | 69                             |
| 26                   | RD                        | 74                        | 26                   | AN                        | 78                             |
| 27                   | RN                        | 79                        | 27                   | MR                        | 77                             |
| 28                   | RS                        | 72                        | 28                   | ID                        | 72                             |
| 29                   | SR                        | 67                        | 29                   | LS                        | 72                             |
| 30                   | SF                        | 72                        | 30                   | APR                       | 72                             |
| 31                   | TZ                        | 63                        | 31                   | DV                        | 75                             |
| 32                   | UR                        | 65                        | 32                   | IK                        | 64                             |
| 33                   | ZZ                        | 66                        | 33                   | IM                        | 70                             |
| 34                   | ZF                        | 66                        | 34                   | RZ                        | 72                             |
| 35                   | RAU                       | 68                        | 35                   | WA                        | 65                             |
| <b>Average Score</b> |                           | <b>69.1</b>               | <b>Average Score</b> |                           | <b>69.7</b>                    |

Based on the pre-test result conducted in control and experimental groups, a descriptive analysis could be made as follows:

**Table 2. Descriptive analysis of pre-test result in control and experimental groups**

|                                | N  | Minimum | Maximum | Mean | Std. Deviation |
|--------------------------------|----|---------|---------|------|----------------|
| Pre-test of Control Group      | 35 | 63      | 85      | 69.1 | 6.672          |
| Pre-test of Experimental Group | 35 | 60      | 82      | 69.7 | 6.681          |
| Valid N (listwise)             | 35 |         |         |      |                |

Based on Table 2, it could be described that the pre-test score of control group, consisted of 35 students, the average score was 69.1 by the standard deviation was 6.67. The minimum score in control class pre-test was 63.00, and the maximum score was 85.00. Meanwhile, the average of pre-test score of the

experimental class was 69.7 by the standard deviation was 6.68. The minimum score of the experimental class pre-test was 60.00, and the maximum score was 82.00. Based on these results, it is clear that the average of experimental class score was higher than the average of control class score. The difference between the average of pre-test score of control and experimental class was 0,6.

The result above should be measured by the test normality. The normality test was to determine whether the sample was taken comes from the population that follows a normal distribution. The results of the normality test can be shown in the "Tests of Normality" table after being processed using software SPSS version 16.0. The normality test used was the Shapiro-Wilk method. The results of the data processing for the normality test could be seen in Table 5 below:

**Table 3. The Result Test of Normality of Control and Experimental Groups Pre-test**

| Score | Group              | Shapiro-Wilk |    |      |
|-------|--------------------|--------------|----|------|
|       |                    | Statistic    | df | Sig. |
|       | Control Group      | .925         | 35 | .125 |
|       | Experimental Group | .967         | 35 | .695 |

The table above showed us the significance of the students' pretest speaking score of control group was 0.125 and in experimental group was 0.695. Both of the score showed that the significance value  $> 0.05$ . it means that  $H_0$  was accepted. Based on result above, it can be explained that the data from both groups are distributed normally.

The next phase was to examine the homogeneity pretest scores for both data. The homogeneity test was presented to calculate whether the variances come from the same population or not. In this study, the homogeneity test used the Levene's test. The data was considered homogeneous if the significance value was higher than 0.05, whereas the data was considered not homogeneous if the significance value was lower than 0.05. The result of the homogeneity test data processing could be seen in Table 4.

**Table 4. The Results of the Homogeneity Test of Pre-test in Control and Experimental Groups**

| Levene Statistic | df 1 | df 2 | Sig. |
|------------------|------|------|------|
| .073             | 1    | 38   | .789 |

Based on Table 4, the significance value of the speaking pre-test in experimental group and the control group was 0.789 (greater than 0.05), which means  $H_0$  was accepted. Therefore, it could be concluded that both of groups come from populations with the same variances, indicating they are homogeneous.

The final step in analyzing the pre-test speaking scores of the control and experimental groups was the mean difference test. To achieve this, an independent samples T-test was applied. Independent samples T-test is applied to get a comparison of the means from two groups of two different independent samples. However, before conducting the independent samples T-test, a normality test of the

population is undertaken as a prerequisite, as well as a homogeneity test of population variance to determine the appropriate independent samples T-test to use. Hypothesis testing was measured by comparing of two samples using independent samples T-test with a significance value was 0.05. If the significance value was greater than 0.050, it means that both classes have balance means. The result of mean difference tests could be obtained in Table 5.

**Table 5. The Independent Samples T- test of Control and Experimental Groups Pre-test**

|       |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |        |                |                 | 95% confidence interval of the Difference |          |         |
|-------|-----------------------------|---|------|------------------------------|--------|----------------|-----------------|---|----------|---------|
|       |                             | F                                       | Sig  | t                            | df     | Sig (2-tailed) | Mean Difference | Std.Error Difference                      |          |         |
| Score | Equal variances assumed     | .312                                    | .578 | -.383                        | 68     | .703           | -.51429         | 1.34420                                   | -3.19659 | 2.16802 |
|       | Equal variances not assumed |   |      | -.383                        | 68.000 | .703           | -.51429         | 1.34420                                   | -3.19659 | 2.16802 |

Table 5 displayed the significance value of the students' speaking pre-test was 0.703, it was greater than 0.050 ( $0.703 > 0.050$ ). This indicates that, at the initial condition (before treatment), both sample groups had balanced speaking abilities.

## 2. The Result of Students' Speaking Post-test from the Control Group and Experimental Group

The second finding was found from the post-test score results in control and experimental groups. The data analysis were clearly discussed. The students' speaking post-test score were shown on the Table 6. The table indicates that, based on the post-test results of the control class, which had a total of 35 students, the average score was 54.5 with a standard deviation of 10.15. The minimum post-test score in the control class was 37, while the maximum score was 85. Meanwhile, the average post-test score of the experimental class was 72.3, with a standard deviation of 6.12. The minimum post-test score in the experimental class was 60, and the maximum score was 85. Based on these results, it is apparent that the average post-test score of the experimental class was higher than that of the control class. The difference between the average post-test scores of the control and experimental classes was 17.2. This significant difference suggests that the intervention, which involved the use of AR technology, may have had a positive effect on the students' speaking skills in the experimental class. Additionally, the smaller standard deviation in the experimental class indicates a more consistent improvement in speaking scores among the students, suggesting that AR may have had a more uniform impact across different students.

**Table 6. The Students' Post-test Score of Control and Experimental Groups**

| No                   | Initial of Students' Name | Post-test of control group | No                   | Initial of Students' Name | Post-test of Experimental Groups |
|----------------------|---------------------------|----------------------------|----------------------|---------------------------|----------------------------------|
| 1                    | AM                        | 50                         | 1                    | AY                        | 75                               |
| 2                    | AS                        | 51                         | 2                    | US                        | 68                               |
| 3                    | ASY                       | 60                         | 3                    | MH                        | 60                               |
| 4                    | AN                        | 74                         | 4                    | ADR                       | 76                               |
| 5                    | AR                        | 43                         | 5                    | FN                        | 74                               |
| 6                    | CNF                       | 43                         | 6                    | EL                        | 65                               |
| 7                    | FK                        | 52                         | 7                    | HF                        | 74                               |
| 8                    | HK                        | 46                         | 8                    | CUT                       | 82                               |
| 9                    | HA                        | 45                         | 9                    | BD                        | 70                               |
| 10                   | IN                        | 45                         | 10                   | JN                        | 63                               |
| 11                   | JL                        | 65                         | 11                   | RM                        | 65                               |
| 12                   | KA                        | 69                         | 12                   | ZA                        | 70                               |
| 13                   | KHA                       | 49                         | 13                   | MK                        | 74                               |
| 14                   | LJ                        | 59                         | 14                   | MU                        | 85                               |
| 15                   | MH                        | 54                         | 15                   | MH                        | 74                               |
| 16                   | MA                        | 49                         | 16                   | DF                        | 60                               |
| 17                   | MS                        | 75                         | 17                   | AM                        | 74                               |
| 18                   | MAR                       | 85                         | 18                   | NR                        | 76                               |
| 19                   | MG                        | 56                         | 19                   | MZ                        | 74                               |
| 20                   | MV                        | 48                         | 20                   | AF                        | 72                               |
| 21                   | NB                        | 44                         | 21                   | RA                        | 74                               |
| 22                   | NF                        | 45                         | 22                   | SU                        | 85                               |
| 23                   | NT                        | 39                         | 23                   | YS                        | 70                               |
| 24                   | RA                        | 50                         | 24                   | ZR                        | 60                               |
| 25                   | RZ                        | 56                         | 25                   | FN                        | 69                               |
| 26                   | RD                        | 67                         | 26                   | AN                        | 78                               |
| 27                   | RN                        | 68                         | 27                   | MR                        | 77                               |
| 28                   | RS                        | 50                         | 28                   | ID                        | 76                               |
| 29                   | SR                        | 53                         | 29                   | LS                        | 74                               |
| 30                   | SF                        | 54                         | 30                   | APR                       | 75                               |
| 31                   | TZ                        | 37                         | 31                   | DV                        | 74                               |
| 32                   | UR                        | 38                         | 32                   | IK                        | 82                               |
| 33                   | ZZ                        | 51                         | 33                   | IM                        | 70                               |
| 34                   | ZF                        | 45                         | 34                   | RZ                        | 60                               |
| 35                   | RAU                       | 62                         | 35                   | WA                        | 75                               |
| <b>Average Score</b> |                           | <b>54.5</b>                | <b>Average Score</b> |                           | <b>72.3</b>                      |

Based on the post-test scores from both classes, the following descriptive analysis was conducted:

**Table 7. Descriptive Analysis of Post-test Result in Control and Experimental class**

|                                 | N  | Minimum | Maximum | Mean | Std. Deviation |
|---------------------------------|----|---------|---------|------|----------------|
| Post-test of Control Group      | 35 | 37      | 85      | 54.5 | 10.159         |
| Post-test of Experimental Group | 35 | 60      | 85      | 72.3 | 6.126          |
| Valid N (listwise)              | 35 |         |         |      |                |

Next, the post-test scores were analyzed using a normality test. The normality test was involved to measure whether the samples came from a normally distributed population. The results of the normality test are presented in the 'Test of Normality' table, which was processed using SPSS Statistics version 16.0. The



Shapiro-Wilk test was used for the normality assessment. The results of the normality test are shown in Table 8. This test is particularly appropriate for small sample sizes, as it helps determine whether the data deviates significantly from a normal distribution. If the significance value from the Shapiro-Wilk test is greater than 0.05, it shows that the data follows a normal distribution, which is a key assumption for conducting further statistical analyses, such as T-tests. These results highlight the potential of AR as an effective tool for enhancing speaking skills in the classroom.

**Table 8. The Normality Test Result of Control and Experimental Groups Post-test**

| Score | Group              | Shapiro-Wilk |    |      |
|-------|--------------------|--------------|----|------|
|       |                    | Statistic    | df | Sig. |
|       | Control Group      | .955         | 35 | .443 |
|       | Experimental Group | .917         | 35 | .008 |

Based on Table 8, the significance value of the students' speaking post-test score for experimental class was 0.088 and for control class was 0.443. Both showed the significance value was >0.050, which means  $H_0$  was received. Based on these test results could be said that the datum from both groups are distributed normally.

The next step was analyzing the homogeneity test of the post-test score of both the control and experimental groups. The homogeneity test is applied to obtain if the variances come from the same population or not. In this study, the homogeneity test used the Levene method. The data was considered homogeneous if the significance value  $\alpha$  was >0.05, while the data was considered not homogeneous if the significance value was <0.05. The result of the homogeneity test data processing could be shown in Table 9.

**Table 9. The Homogeneity Test of Post-test Result in Control and Experimental Groups**

| Levene Statistic | df 1 | df 2 | Sig. |
|------------------|------|------|------|
| .360             | 1    | 38   | .552 |

The table above displays that the significance value of the post-test speaking scores for both the experimental and control groups was 0.552 (which is greater than 0.05), meaning that  $H_0$  was accepted. Therefore, it can be concluded that both groups come from populations with the same variances, indicating they are homogeneous.

The final step was to conduct a mean difference test using independent samples T-test. Independent samples T-test is presented to compare the means of two groups of two different independent samples. However, before conducting the independent samples T-test, a normality test of the population was administered as a prerequisite, as well as a homogeneity test of population variance to determine the appropriate independent samples T- test. Hypothesis testing was done to compare two samples by using independent samples T- test with a significance level was 0.05. If the significance value was greater than 0.050, it means both of the classes have balance means. The mean difference test results could be drawn in table below:

**Table 10. The Independent Samples T-test of Control and Experimental Groups Post-test**

|       |                             | Independent Samples Test                |      |                              |        |                |                 |                      |   |         |
|-------|-----------------------------|---|------|------------------------------|--------|----------------|-----------------|----------------------|---|---------|
|       |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |        |                |                 |                      | 95% confidence interval of the Difference |         |
|       |                             | F                                       | Sig  | t                            | df     | Sig (2-tailed) | Mean Difference | Std.Error Difference |   |         |
| Score | Equal variances assumed     | .647                                    | .424 | -2.135                       | 68     | .036           | -3.14286        | 1.47227              | -6.08073                                  | -.20498 |
|       | Equal variances not assumed |   |      | -2.135                       | 66.187 | .036           | -3.14286        | 1.47227              | -6.08219                                  | -.20353 |

The average of post-test score in experimental class was 72.3 by a standard deviation was 6.649. There is a mean difference of -3.143. The probability value or Sig (2-Tailed) was 0.036, where it was smaller than 0.050 ( $0.036 < 0.050$ ). Based on the data above, there was a significant difference in speaking scores between the post-test results of the control class and the experimental class. This indicates that the use of AR application as interactive media in speaking lessons was effective to enhance students' speaking abilities in the classroom.

## DISCUSSION

This study aimed to determine whether the AR was effective in improving students' speaking skills in the classroom. Based on the research findings, there was a significant improvement in students' speaking abilities, as evidenced by the difference in post-test speaking scores between the control and experimental groups. The first improvement was that the use of the AR as a teaching tool made students more active in the learning process. Students were also encouraged to express their ideas verbally through technology and digital media. This aligns with the views of Beardsley et al. (2021) and Rosyidah et al. (2024), who stated that learning through digital media increases students' motivation in the classroom. The second improvement was that the AR helped students expand their English vocabulary, allowing them to speak more confidently in English, especially when discussing local wisdom, such as Acehese traditions like *Khanduri Blang* and *Uroe Meugang*. This approach not only facilitated language learning but also encouraged students to engage in preserving and sharing their cultural heritage.

This statement aligns with the opinion of Jamrus & Razali (2019), Solak & Catir (2015), and Shaumiwaty et al. (2022), who stated that AR provides a highly effective contribution to students in enriching their vocabulary and helping them speak English with confidence. Furthermore, AR applications create an immersive and interactive learning environment, allowing students to engage with the content in a dynamic way that enhances retention and understanding. By visualizing vocabulary and concepts in real-time, AR bridges the gap between theoretical knowledge and practical application, enabling students to communicate more effectively in real-world scenarios.

## CONCLUSION

Speaking is a critical productive skill in English because it allows students to express their ideas and engage actively in learning activities. By developing speaking skills, students are reinforced to express themselves, especially when exploring local wisdom, such as the Acehnese tradition of *Khanduri Blang* and *Uroe Meugang*. To support students in improving their speaking abilities, teachers must implement effective teaching techniques and interactive media, such as AR. This study found that the use of AR significantly improved students' speaking skills. By utilizing AR, students can interact with virtual elements, making it easier for them to express and describe what they observe, thereby improving their speaking fluency. In other words, AR helps students expand their English vocabulary, facilitating more confident communication. In the future, it is expected that AR will not only improve speaking skills but also encourage the development of other essential language skills such as writing, reading, and listening.

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