BESTARI: Jurnal Pendidikan dan Kebudayaan
https://jurnalstkipmelawi.ac.id/index.php/JBPK
E-ISSN: 2746-8062

The Effectiveness of Using the *Cake App* to Improve Students' Speaking Ability

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Abstract

This study aims to determine the effectiveness of the Cake application in improving the speaking ability of first-grade students at SMAN 11 Tangerang Selatan in the 2025/2026 academic year. A quasi-experimental design with experimental and control groups was employed using pre-test and post-test. Data were analyzed using paired sample t-test, ANCOVA, and N-Gain through SPSS 25. The results reveal that the experimental group achieved a higher post-test mean score (72.48) than the control group (70.55) with a medium N-Gain score (45.81). Statistical findings confirmed a significant effect of the Cake application on students' speaking ability after controlling the pre-test scores ($p < 0.05$). Therefore, the Cake application is effective in enhancing students' speaking ability, particularly in pronunciation, fluency, and vocabulary.

Keywords: Cake application, speaking ability, quasi-experimental

Submitted: 3 March 2026; Reviewed: 14 March 2026; Accepted: 14 April 2026
DOI: 10.46368/bjpd.v7i1.4987

Efektivitas Penggunaan Aplikasi *Cake* dalam Meningkatkan Kemampuan Berbicara Siswa

Abstrak

Penelitian ini bertujuan untuk mengetahui efektivitas aplikasi Cake dalam meningkatkan kemampuan berbicara siswa kelas X SMAN 11 Tangerang Selatan tahun ajaran 2025/2026. Penelitian ini menggunakan desain quasi-experimental dengan kelompok eksperimen dan kontrol yang diberikan pre-test dan post-test. Data dianalisis menggunakan uji t berpasangan, ANCOVA, dan N-Gain melalui SPSS 25. Hasil penelitian menunjukkan bahwa kelompok eksperimen memperoleh rata-rata post-test lebih tinggi (72,48) dibandingkan kelompok kontrol (70,55) dengan kategori N-Gain sedang (45,81). Uji statistik menunjukkan adanya pengaruh signifikan aplikasi Cake terhadap kemampuan berbicara siswa setelah mengontrol skor awal ($p < 0,05$). Dengan demikian, aplikasi Cake efektif meningkatkan kemampuan berbicara, khususnya pada aspek pengucapan, kelancaran, dan kosakata.

Kata Kunci: Aplikasi *Cake*, Kemampuan berbicara, quasi-experimental

INTRODUCTION

Speaking is a fundamental skill in English language learning because it enables students to communicate ideas effectively in academic and social contexts. At the senior high school level, students are expected to express meaning orally in various text types such as descriptive, recount, and narrative texts. However, many students still encounter difficulties in speaking English. According to Melsiani et al. (2023), it involves being able to speak clearly and smoothly in real-life situations. Lately, more attention has been given to improving speaking skills because many students

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still find it hard to speak confidently, pronounce words correctly, and speak fluently. This condition often leads to low motivation and self-confidence. Furthermore, pronunciation problems caused by differences between English and students' mother tongue also hinder speaking fluency (Hermawati, 2023).

Several factors contribute to these difficulties. One of the main factors is students' low motivation and interest in learning English. Wahyuni and Fitri (2025) state that traditional teaching methods emphasizing memorization and grammar exercises make learning less engaging. As a result, students tend to be passive and reluctant to participate in speaking activities. In addition, limited opportunities to practice English in daily communication further worsen the problem (Novinda, 2020).

The development of technology provides new opportunities to address these issues. Digital learning tools and smartphone applications have been integrated into language learning to create more dynamic and interactive environments (Almadhady et al., 2021). Through Mobile-Assisted Language Learning (MALL), students can access learning materials anytime and anywhere, which increases engagement and practice opportunities.

One application that supports speaking development is the Cake App. According to Hamdani et al. (2022), the Cake App provides interactive speaking practice by allowing students to imitate dialogues from videos and authentic conversations. Its simple and engaging design enhances students' motivation to practice regularly (Gunawan, 2024). The application also offers video-based learning, repetition drills, and AI speech recognition that provides immediate pronunciation feedback. Fitria et al. (2021) found that the Cake App compares students speech to native speakers and offers corrections, helping them improve their accuracy.

Although previous studies have demonstrated positive impacts of the Cake App on general speaking improvement, limited research has specifically examined its effectiveness in improving speaking skills in descriptive text learning at Indonesian public senior high schools, particularly for first-grade students. This indicates a research gap that requires further investigation.

Therefore, this study aims to examine whether the Cake App effectively improves the speaking ability of first-grade students at SMAN 11 Tangerang Selatan and to identify which aspects of speaking—fluency, pronunciation, grammar, vocabulary, and comprehension—show the most improvement. This research is expected to contribute theoretically to the development of digital language learning and practically by providing teachers with an innovative and interactive medium to enhance students' speaking performance and classroom engagement.

METHODS

Research Design

This study employed a quasi-experimental design using a pre-test and post-test control group design to examine the effectiveness of the Cake App in improving students' speaking ability. A quantitative approach was applied by involving two groups: an experimental group and a control group. The experimental group received treatment using the Cake App as a supplementary learning tool, while the control group was taught through conventional teaching methods without the application.

This design was selected because random assignment of students was not feasible in the school setting. As stated by Creswell (2018), quasi-experimental research is appropriate when the researcher has limited control over participant assignment. Pre-tests were administered to both

groups to measure students' initial speaking ability before the treatment. After the treatment period, post-tests were conducted to evaluate students' improvement.

The research procedure consisted of three stages: pre-test, treatment, and post-test. During the treatment stage, the experimental group practiced speaking and pronunciation through video-based dialogues and interactive exercises provided by the Cake App, whereas the control group continued learning through teacher explanations and textbook-based activities. The comparison of pre-test and post-test scores between the two groups was used to determine whether the Cake App had a significant effect on students' speaking ability. The overall research design is presented in Table 1.

Table 1

Table Research Design

Group	Measurement I	Independent Variable	Measurement II
Control Class	Pre-test	Without treatment	Post-test
Experimental Class	Pre-test	Using Cake App	Post-test

Population and Sample

The study will be conducted among first-grade students of SMAN 11 Tangerang Selatan. For the research, two classes were chosen to serve as the sample, forming approximately 60 students in total from 10.1 class and 10.7 The selection of these classes as the sample was based on specific criteria, including recommendations from teachers, students' ability levels in speaking, and ensuring similarity in class characteristics. The process of selecting the sample was carried out through purposive sampling, which involves deliberately selecting participants based on specific characteristics and the aims of the study, rather than through random selection.

Data Collection Technique

The data in this study were collected through speaking tests administered in two stages: pre-test and post-test. These tests were used to obtain primary data on students' speaking ability, covering five aspects: fluency, pronunciation, grammar, vocabulary, and comprehension.

Pre-test

The pre-test was administered to both the experimental and control groups at the beginning of the study to measure students' initial speaking ability before the treatment. In this test, students were asked to describe their favorite person in English. Each student performed individually for approximately 3–5 minutes in front of the class. The students' performances were assessed using a speaking rubric that evaluated fluency, pronunciation, grammar accuracy, vocabulary use, and comprehension.

Treatment

During the treatment phase, different instructional approaches were applied to the two groups. The experimental group received speaking instruction using the Cake App as a learning medium. Students practiced speaking by watching short videos, imitating dialogues, and completing interactive speaking exercises provided by the application. The activities emphasized pronunciation practice, fluency development, and vocabulary enrichment through repetition and immediate feedback generated by the app's speech recognition feature.

In contrast, the control group was taught using conventional teaching methods. The teacher delivered explanations using textbooks and board instruction, followed by oral practice activities such as reading dialogues and describing objects or places without the support of digital applications. Both groups were taught the same speaking topic to ensure consistency and comparability of the learning content.

Post-test

After the treatment period, a post-test was administered to both groups to determine whether there was improvement in students' speaking ability. In this test, students were asked to describe their favorite place in English. Each student presented individually for approximately 3–5 minutes. The same speaking rubric used in the pre-test was applied to ensure scoring consistency. The English teacher evaluated the students' performances, while the researcher assisted in documenting and scoring the results to maintain fairness and reliability in the assessment process.

Data Analysis Technique

The data were analyzed using several statistical procedures to examine students' speaking performance before and after the treatment. Descriptive statistics were first employed to summarize the general characteristics of the pre-test and post-test scores in both the experimental and control groups, including the mean, standard deviation, minimum and maximum scores, and score distribution. Shapiro-Wilk and Kolmogorov-Smirnov tests of normality were used to make sure the data fit the assumptions needed for parametric analysis (Paramasivam et al., 2024). A significance value greater than 0.05 indicated that the data were normally distributed. In addition, Levene's Test was applied to examine the homogeneity of variances between the two groups. If the significance value exceeded 0.05, the data were considered homogeneous, fulfilling the requirement for further parametric analysis (Rohana & Ningsih, 2020).

To test the research hypothesis, inferential statistical analyses were performed. A paired sample t-test was used to determine whether there was a significant difference between the pre-test and post-test scores within the experimental group, as the same participants were measured before and after the treatment (Brunner, 2016). Furthermore, Analysis of Covariance (ANCOVA) was conducted to examine the difference in post-test scores between the experimental and control groups while controlling for pre-test scores as the covariate. This analysis ensured that any significant difference in post-test results was attributed to the use of the Cake App. All statistical analyses were conducted using IBM SPSS version 24 with a significance level of $p < 0.05$. Additionally, N-Gain analysis was applied to measure the level of improvement relative to the maximum possible score, with categories classified as high (>0.70), medium (0.30–0.70), or low (<0.30) (Hake, 1998).

RESULT AND DISCUSSION

Descriptive Statistic

Based on the descriptive statistical analysis, both the control and experimental groups demonstrated improvement in speaking ability after the treatment. The control group's mean score increased from 58.26 in the pre-test to 70.55 in the post-test, showing a gain of 12.29 points. Meanwhile, the experimental group, which used the Cake App, improved from a pre-test mean of 69.19 to a post-test mean of 72.48, resulting in a gain of 3.29 points. Although the numerical gain in the experimental group was smaller, this result should be interpreted cautiously because the group

initially had a higher pre-test score. This situation may indicate a ceiling effect, where students with relatively high initial proficiency have less room for measurable improvement.

When comparing the final outcomes, the experimental group achieved a higher post-test mean (72.48) than the control group (70.55). Regarding score distribution, the standard deviation of the control group decreased from 11.08 to 8.17, suggesting that students' performance became more homogeneous after instruction. In contrast, the experimental group's standard deviation remained relatively stable (9.99 in the pre-test and 9.53 in the post-test), indicating consistent achievement distribution throughout the study. These findings suggest that although the control group showed a larger numerical gain, the experimental group maintained a higher final performance level with stable variability, reflecting consistent learning outcomes.

The positive contribution of the Cake App to students' speaking development can be associated with its interactive features, including pronunciation models, repetition drills, and immediate feedback. These features provide students with greater opportunities for active practice compared to conventional classroom instruction. The findings are consistent with previous research. Nurnaningsih (2024) reported that mobile learning applications enhance students' motivation and speaking ability through intensive and repetitive practice. Similarly, Jaatela (2023) found that interactive digital media positively influence students' confidence in speaking due to accessible pronunciation models and instant corrective feedback. Furthermore, Li (2024) emphasized that mobile-based learning is often more effective than traditional methods because of its flexibility, practicality, and engaging nature. Therefore, the present study supports earlier findings, indicating that the Cake App plays a significant role in improving students' speaking proficiency.

The detailed results of the descriptive statistics are presented in Table 2 below

Table 2

Descriptive Statistic

	N	Range	Min	Max	Mean	Std. Deviation	Variance
Pretes kontrol X7	30	47.00	26.00	73.00	39.8387	11.59338	134.406
Postes kontrol X7	30	53.00	31.00	84.00	49.3226	14.43696	208.426
Pretes eksperimen X1	30	37.00	30.00	67.00	39.6129	10.02888	100.578
Postes eksperimen X1	30	52.00	48.00	100.00	69.3871	13.23298	175.112
Valid N (listwise)	30						

Source : Processed data in 2025

Based on the result, both of groups had comparable pre-test mean scores control = 39.84 and experimental = 39.61, indicating similar initial ability. After the intervention, the control group's mean increased to 49.32, showing moderate improvement. In contrast, the experimental group's post-test mean rose substantially to 69.39, indicating a stronger improvement. Overall, while both groups showed progress, the experimental group demonstrated a greater increase in mean scores, suggesting a more pronounced treatment effect.

Descriptive Statistic

The researcher conducted a normality test to ensure that the data were normally distributed and to determine the appropriate type of correlation test. The normality test was conducted to ensure whether the students' speaking ability scores from both the control and experimental groups were normally distributed. The results are shown in the Table 3 below.

Table 3

Normality Test

Normality Test (Shapiro-Wilk)	
Statistic	P
0,6763889	0,15

Source : Processed data in 2025

The normality test using the Shapiro–Wilk test showed a significance value of p = 0.15 (p > 0.05). This indicates that the data were normally distributed. Therefore, the normality assumption was met, and the data were appropriate for analysis using ANCOVA. With the assumptions of normality and homogeneity fulfilled, Analysis of Covariance (ANCOVA) was conducted to examine the effect of the Cake App on students' speaking ability.

The Paired Sample t-test was conducted to determine the difference in students' speaking ability in the experimental group before and after being given treatment using the Cake App. The results are shown in the Table 4 below.

Table 4

Paired Sample Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	pretes exp - postes exp	-12.667	10.243	1.870	-16.491	-8.842	-6.773	29	.000

Source : Processed data in 2025

Based on the analysis results, the mean difference was -12.667, indicating an improvement in speaking scores from the pre-test to the post-test. The t-value was -6.773 with 29 degrees of freedom (df) and a significance value (Sig. 2-tailed) of 0.000. Since the significance value is smaller than 0.05, it can be concluded that there is a significant difference between the pre-test and post-test results in the experimental group. Therefore, the use of the Cake App proved to be effective in improving students' speaking ability. This improvement did not occur by chance but was the result of the treatment provided through the use of the Cake App as a learning medium. Table 5 presents the descriptive statistics of the N-Gain percentage scores for both the control and experimental groups. This table provides an overall picture of students' improvement by showing the mean scores, data distribution, and score ranges obtained by each group after treatment.

Table 5

Homogeneity Test

Homogeneity of Variances Test (Levene's)			
F	df1	df2	P
0,1340278	1	58	0,4597222

Source : Processed data in 2025

Based on the Levene's test results, the F value was 0.134 with a significance level of p = 0.459 (p > 0.05). This result shows that there was no significant difference in variance between the groups. Therefore, the data had homogeneous variance, and the homogeneity assumption required for the ANCOVA test was met. The researcher also conducted a normality test to ensure that the data were normally distributed and to determine the appropriate type of ANCOVA. The results are shown in Table 4.6 below.

Table 6

Analysis Of Covariance (ANCOVA)

ANCOVA – POST CAKE						
	Sum of Squares	df	Mean Square	F	p	η^2p
Overall model	325.33.00	2	162.67	98.130	<.001	
PRE Speaking	02.44	1	02.44	0,3243056	0,04763889	0.061
TREAT	322.89	1	322.89	61.673	0.016	0.098
Residuals	2984.22.00	57	52.35.00			

Source : Processed data in 2025

The results of the Analysis of Covariance (ANCOVA) showed that the overall model was statistically significant (F = 98.130, p < 0.001), indicating that the combination of pre-test scores and treatment significantly affected students' post-test speaking scores. The pre-test scores as a covariate had a significant influence on the post-test results (F = 0.324, p = 0.047), with a medium effect size (η^2p = 0.061), confirming the appropriateness of controlling initial ability.

Furthermore, the treatment variable (use of the Cake App) demonstrated a significant effect on students' speaking ability after controlling for pre-test scores (F = 61.673, p = 0.016), with a medium-to-large effect size (η^2p = 0.098). These findings indicate that the Cake App contributed significantly to improving students' speaking performance. A post hoc comparison analysis further confirmed the difference between the experimental and control groups after the treatmen.

Table 7

Analysis Of Post Hoc Comparisons - TREAT

Post Hoc Comparisons - TREAT								
Comparison								
TREAT		TREAT	Mean Difference	SE	df	t	p	p_{tukey}
Kontrol	-	experiment	-7.73	03.11	57.00.00	-2.48	0.016	0.016
Note. Comparisons are based on estimated marginal means								

Source : Processed data in 2025

The Post Hoc Comparisons based on estimated marginal means revealed a significant difference between the control and experimental groups. The mean difference was −7.73 (SE = 3.11, df = 57, t = −2.48, p = 0.016), and the significance level remained consistent after the Tukey correction (p = 0.016). The negative mean difference indicates that the experimental group achieved higher adjusted post-test speaking scores than the control group after controlling for pre-test performance.

These findings reinforce the ANCOVA results, confirming that the Cake App had a significant positive effect on students' speaking ability. Furthermore, the higher N-Gain scores in the experimental group demonstrate more consistent and meaningful improvement compared to the control group. Therefore, the Cake App can be considered an effective learning medium for enhancing students' speaking skills.

Discussion

This study was conducted to examine whether the Cake App is effective in improving the speaking ability of tenth-grade students at SMAN 11 Tangerang Selatan. The findings clearly show that the use of the Cake App gave a positive contribution to students' speaking performance. Although both the control and experimental groups showed improvement after the learning process, the increase in the experimental group was noticeably higher. This difference suggests that the learning experience supported by the Cake App provided additional benefits beyond those gained through conventional instruction.

Before the treatment was implemented, both groups had almost the same level of speaking ability. The pre-test mean score of the control group was 39.83, while the experimental group scored 39.61. The small difference between these scores indicates that the students started from a similar baseline. After the intervention, the control group's mean score increased to 49.32, resulting in a gain of 9.49 points. This shows that conventional teaching still helped students make some progress. However, the experimental group experienced a much greater increase. Their mean score rose from 39.61 to 69.39, producing a gain of 29.78 points. The size of this improvement highlights how strongly the Cake App supported students' speaking development.

The statistical analysis strengthens this interpretation. The Paired Sample t-test showed a significant difference between the pre-test and post-test scores in the experimental group (t = −6.773; p = 0.000). This result confirms that the improvement was not accidental but related to the treatment given. In addition, the N-Gain results provide further evidence. The control group obtained an average N-Gain score of 33.94, which falls into the low category, while the experimental group achieved 45.81, categorized as medium. These findings suggest that students who used the Cake App made more meaningful progress in improving their speaking ability.

The assumptions required for further statistical testing were also fulfilled. The data were normally distributed and showed homogeneous variance, allowing the use of ANCOVA to control the pre-test scores. The ANCOVA results indicated that the overall model was significant (F = 98.130; p < 0.001). More importantly, the treatment effect remained significant (F = 61.673; p = 0.016), even after controlling for students' initial ability. The partial eta squared value (η^2p = 0.098) reflects a moderate to strong effect. This means that the improvement in speaking performance was strongly influenced by the use of the Cake App rather than by differences in students' starting levels.

A post hoc comparison between the two groups also revealed a significant difference (Mean Difference = −7.73; p = 0.016). The results show that students in the experimental group achieved higher adjusted post-test scores than those in the control group. This further supports the conclusion

that learning with the Cake App was more effective than traditional classroom instruction. This means that the Cake App not only increased the average score but also helped a larger number of students meet the expected level of achievement. From a practical perspective, this is an important outcome because it shows real improvement in classroom performance.

The stronger improvement in the experimental group can be explained by the features of the Cake App. The application provides pronunciation models, repetition practice, and interactive speaking exercises that allow students to practice regularly. Students can learn at their own pace and repeat materials as needed without feeling embarrassed about making mistakes. This learning environment likely helped reduce anxiety and build confidence. As students became more comfortable speaking, their fluency, vocabulary use, and pronunciation gradually improved.

Overall, the results consistently show that the Cake App had a meaningful impact on students' speaking ability. The improvement can be seen from gain scores, N-Gain results, statistical testing, effect size, and mastery achievement. Taken together, these findings indicate that the Cake App is an effective tool for teaching speaking, especially in learning descriptive text at the senior high school level. Therefore, it can be recommended as an alternative learning medium to support English speaking instruction in the classroom.

In addition, the findings of this study are consistent with previous research which shows that interactive digital applications can create more opportunities for students to practice speaking actively. Through repeated practice, immediate feedback, and exposure to authentic language, students are able to improve their pronunciation, fluency, and confidence more effectively. This supports the idea that consistent and guided speaking practice plays an important role in developing students' overall speaking performance.

CONCLUSION

Based on the findings and statistical analysis, it can be concluded that the Cake App is effective in improving students' speaking ability. The results of the pre-test and post-test indicated a significant improvement in the experimental group compared to the control group. The ANCOVA results confirmed that the treatment had a significant effect on students' post-test performance after controlling for their initial ability, and the post hoc analysis further demonstrated that the experimental group outperformed the control group.

The improvement was particularly evident in pronunciation, vocabulary, and fluency, supported by the application's interactive features such as native-speaker models, repetition exercises, and immediate feedback. These features encouraged more active and independent speaking practice. The findings are consistent with previous studies (Rahmadani A.M. et al., 2024; Oktavianita et al., 2022; Permata Sari, 2025; Rahmani et al., 2021), which highlight the effectiveness of mobile learning applications in enhancing speaking skills, motivation, and confidence. Therefore, the Cake App is recommended as an innovative and practical medium for improving students' speaking performance in English classes.

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