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The Effectiveness of the CAKE Mobile Application in Improving English Speaking Skills

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A B S T R A C T

The development of English-speaking skills is essential for students, particularly in today's globalized world, where effective communication is crucial. Despite this, many students face challenges in achieving speaking proficiency, resulting in a gap between their current abilities and desired outcomes. This study evaluates the effectiveness of the CAKE mobile application, an interactive language learning app that focuses on improving speaking skills through real-time practice and feedback, in enhancing students' speaking skills through Classroom Action Research (CAR). Involving 20 junior high school students, the study employed both qualitative (observations) and quantitative (pre-test and post-test) data collection methods. Results indicated significant improvement in speaking performance, with the post-test mean score increasing from 73.50 in Cycle I to 85.10 in Cycle II. Additionally, the percentage of students meeting the minimum mastery criterion (KKM) rose from 25% to 85%. The findings suggest that integrating the CAKE mobile application into the curriculum serves as an effective tool for enhancing speaking proficiency.

Keywords: *Cake Mobile Application, English-Speaking Skills Student Performance*

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INTRODUCTION

English speaking skills are crucial in today's globalized world, especially for communication in academic, professional, and social contexts. In Indonesia, despite the widespread teaching of English from an early age, many students—especially those in junior high school—struggle with speaking English fluently (Aloraini, 2021; Haque & Permanasari, 2025). Several factors contribute to this difficulty, including limited speaking practice opportunities, low motivation, and psychological barriers such as fear of making mistakes and lack of self-confidence(Amin et al., 2020; Putri et al., 2025). Recent studies emphasize that English speaking skills are critical for both academic success and future professional opportunities (Wahyuni & Fitri, 2025; Huong et al., 2025)

This issue reflects a significant gap in students' speaking proficiency, which affects not only their academic performance but also their ability to use English in real-world situations. According to research by Lee et al. (2021), effective speaking skills are increasingly recognized as essential for global communication. While various approaches have been suggested to address these challenges, one emerging solution is the use of mobile applications for language learning(Lee et al., 2019). The role of mobile-assisted language learning (MALL) has been growing in prominence, with apps like CAKE providing innovative solutions that allow learners to practice speaking outside the traditional classroom environment (Rahmawati et al., 2025;Syafi'i & Daulay, 2024). Applications like CAKE provide an innovative approach to facilitate speaking practice, offering interactive features that allow students to practice independently with real-time feedback, pronunciation exercises, and vocabulary enhancement (Rahayu & Wijayanto, 2021). However, there is a lack of studies specifically evaluating the

effectiveness of the CAKE application in improving English speaking skills among Indonesian junior high school students. This research aims to fill that gap by exploring the impact of the CAKE application in enhancing students' speaking proficiency (Aqilah, 2024; Ridhallah et al., 2024).

With the advancement of mobile technology, mobile-assisted language learning (MALL) has gained popularity, offering a flexible and accessible way for learners to practice language skills anytime and anywhere. One of mobile application in teaching speaking proficiency is Cake mobile application (Hasmin et al., 2024); (Fadila et al., 2024). CAKE, has attracted attention for its potential to improve speaking skills, specifically by helping students practice pronunciation, expand their vocabulary, and gain confidence. However, while many studies have evaluated the effectiveness of mobile applications for language learning, few have specifically investigated the impact of applications like CAKE on improving speaking proficiency (Zheng et al., 2016 ;Riki et al., 2024;Budiyanto et al., 2024).

The main problem addressed by this study is the lack of research evaluating the effectiveness of the CAKE mobile application in improving English speaking skills among junior high school students (Phuong, 2026). While CAKE mobile applications have shown promise in supporting language learning, their effectiveness in improving speaking skills—particularly in facilitating interactive communication and real-time feedback—remains underexplored (Sipayung & Armin, 2026). Specifically, this study aims to investigate how the CAKE application can help students overcome challenges in speaking, such as fear of speaking, limited vocabulary, and pronunciation difficulties. This study hypothesizes that the use of the CAKE mobile application will significantly improve the English-speaking skills of students (S. E. Putri et al., 2026). The hypothesis is based on the premise that mobile applications like CAKE, which offer interactive speaking practice and real-time feedback, can help students become more confident, improve their pronunciation, and increase fluency in speaking English (Alvionita et al., 2024).

The proposed solution in this study is the use of the CAKE mobile application as a supplementary learning tool to enhance English speaking skills. The application is designed to provide an interactive learning experience where students can engage in speaking exercises, receive real-time feedback, and practice pronunciation (Gunawan et al., 2026). This approach allows students to practice speaking independently, without the typical constraints of classroom settings, and helps them address psychological barriers like fear of speaking. Thus, this study seeks to evaluate the effectiveness of the CAKE application in improving speaking skills through its interactive, AI-driven feedback system (Gunawan, 2026).

Previous studies on the use of mobile technology for language learning, particularly in the context of mobile-assisted language learning (MALL) and AI-powered applications, show promising results in enhancing language skills (Gunawan et al., 2026). However, there is a limited body of research that specifically evaluates the effectiveness of AI-driven applications for speaking skills (Lestari & Fitriyah, 2026). This research will address this gap by focusing on the CAKE application and its potential to improve speaking proficiency among students. The main objectives of this research are to evaluate the effectiveness of the CAKE mobile application in improving English speaking skills among junior high school students. Specifically, this study aims to: (1) measure the impact of CAKE on improving speaking proficiency; (2) assess changes in students' confidence levels in speaking English after using the application. (3). explore the benefits of the CAKE application in helping students overcome psychological barriers to speaking English (Juliana et al., 2023; S. E. Putri et al., 2026).

Although there has been considerable research on the use of CAKE mobile applications in language learning, most studies focus on reading and writing skills, while speaking skills often receive less attention (Juliana et al., 2024). Additionally, mobile applications that target speaking skills specifically are limited, and few studies have thoroughly evaluated the impact of applications that provide real-time AI feedback on speaking proficiency. Therefore, this research aims to fill this gap by assessing the impact of CAKE on speaking skills, particularly pronunciation and fluency, and how it can help students overcome barriers to speaking. Furthermore, while there are several studies on mobile language learning, there is a lack of in-

depth research on applications that combine AI-driven feedback with speaking practice. This study aims to address this gap by investigating how AI-powered feedback can enhance the learning process and help students improve their speaking skills in a more personalized and effective manner (Octavianita et al., 2022).

This research contributes uniquely to the field of language learning by integrating mobile technology to enhance speaking proficiency. By focusing on the CAKE mobile application, this study provides new insights into how CAKE mobile applications can facilitate speaking practice, particularly by offering real-time feedback on pronunciation, vocabulary, and fluency. The main contribution of this research lies in its ability to evaluate an application specifically designed for speaking skills, providing valuable insights for educators and practitioners seeking to implement CAKE mobile-assisted language learning tools in the classroom. This study focuses on the use of the CAKE mobile application among junior high school students in Indonesia, specifically targeting improvements in English speaking skills (Juliana, 2020). The scope of this research is limited to evaluating the impact of CAKE on speaking proficiency, including pronunciation, fluency, and confidence. This study does not cover other mobile applications or broader language learning skills such as reading, writing, or listening.

METHOD

Research Design

This study utilized a Classroom Action Research (CAR) design, following the model of Kemmis & McTaggart (1988), which is a reflective process where teachers and researchers engage in cycles of planning, action, observation, and reflection to improve teaching practices and student outcomes (Creswell, 2012). This approach allows for continuous improvement, providing real-time data that informs instructional strategies. The research involved two cycles: Cycle I and Cycle II, where each cycle consisted of planning, implementing the CAKE mobile application, observing the students' performance, and reflecting on the results to improve the next cycle. The research combined both qualitative and quantitative methods to evaluate the effectiveness of the CAKE mobile application in improving students' English-speaking skills. This method is particularly suited for educational settings where the researcher aims to assess both the impact of a tool (in this case, the CAKE application) and the experiential learning of students(Miles & Huberman, 1994).

Participants and Setting

The study involved 20 seventh-grade students enrolled at a public secondary school in Medan, Indonesia. The participants were selected through purposive sampling, focusing on students who faced challenges in English speaking. This selection method ensured that the study would be able to address the issues specific to students who need the most support in speaking proficiency. The classroom setting was typical for a junior high school, with access to mobile devices that enabled the use of the CAKE application. The study was conducted over two research cycles during the academic year 2023–2024. The minimum mastery criterion (KKM) for this study was set at 75, meaning students needed to achieve a score of 75 or higher to be considered as having met the required proficiency level.

Instruments

The instruments used in this research are in the observation sheet and Speaking Rubric. The observation sheet was used to record students' engagement and participation during the application activities. It allowed the researcher to monitor the students' involvement and track observable changes in their speaking behaviour throughout the cycles. Then, the Speaking Rubric was used to assess students' speaking performance. The criteria included: (a). Fluency: The ability to speak smoothly and without hesitation; (b). Pronunciation: Accuracy and clarity of speech sounds and intonation; (c). Vocabulary: The range and appropriateness of words used; (d). Grammar: Correctness of grammatical structures in spoken language.

Data Collection Methods

Quantitative Data

Pre-test and Post-test: The primary quantitative data were collected through pre-tests and post-tests measuring students' speaking abilities. The pre-test was administered at the start of the first cycle, and the post-test followed after the completion of each cycle. The tests included tasks such as oral presentations and dialogues, which were scored based on fluency, accuracy, and vocabulary use.

The results were analysed through descriptive statistics to calculate the mean scores of students in both cycles. A t-test was applied to determine the statistical significance of improvements between the pre-test and post-test results. In Cycle I, the pre-test mean score was 62.50, and it increased to 73.00 in the post-test. By Cycle II, the pre-test mean rose to 71.00, and the post-test mean reached 84.50. The percentage of students meeting the minimum mastery criterion (KKM) increased from 25% in Cycle I to 85% in Cycle II. These results were statistically significant, with a t-test value increasing from 5.820 in Cycle I to 8.150 in Cycle II. This indicated a significant improvement in students' speaking abilities.

Qualitative Data

Observations: Classroom observations were conducted throughout both cycles to capture data on students' engagement with the CAKE application and their responses to the learning activities. Observations focused on how the students interacted with the application, their willingness to participate, and the strategies used by the teacher to facilitate the use of the app.

Interviews: Semi-structured interviews were conducted with both the students and the teacher at the end of each cycle. The students were asked about their experiences using the application, how it helped them overcome challenges in speaking, and whether they felt more confident in their speaking skills. The teacher was interviewed to gain insights into their perceptions of the app's impact on student engagement and learning outcomes.

Supporting Documentation: Additional qualitative data were collected through photographs and observation checklists. Photographs of students using the app and visual records of their progress were maintained to document engagement and learning activities.

Data Analysis

Quantitative Analysis

The quantitative data from the pre-test and post-test results were analyzed using descriptive statistics to calculate mean scores for both cycles. A t-test was used to determine whether the changes between pre-test and post-test results were statistically significant. The statistical analysis indicated a clear improvement in speaking proficiency, with the post-test mean increasing by 11.50 points from Cycle I to Cycle II.

Qualitative Analysis

The qualitative data from the observations and interviews were analyzed using thematic analysis, where recurring themes related to student engagement, challenges, and perceptions of the app were identified. The interview transcripts were coded to extract common responses that reflected the students' experiences and the teacher's observations. The analysis of the observational data followed Miles and Huberman's (1994) interactive model, which involved organizing the data into categories, displaying it in a systematic way, and drawing conclusions about the effectiveness of the mobile application in improving students' speaking skills.

To calculate the Mean Score of students' speaking performance, pre-test and post-test results were used to determine the improvement in their speaking skills across the cycles, while the Percentage of KKM Achievement of students who met the minimum mastery criterion (KKM) of 75 to know the effectiveness of the CAKE mobile application in helping students achieve the required proficiency level in speaking.

Ethical Considerations

The study adhered to ethical research practices. Informed consent was obtained from all participants, ensuring that they were aware of the study's purpose and their rights. Confidentiality was maintained throughout the research, and students' identities were

anonymized in the data analysis and reporting stages. Additionally, the study ensured that students could withdraw at any point without consequences (Creswell et al., 2007).

FINDINGS AND DISCUSSION

Research Question 1: How Effective Is the CAKE Mobile Application in Improving Students' English-Speaking Skills?

The results of this study demonstrate that the CAKE mobile application has a significant positive impact on students' speaking skills.

Table 1. Pre-test and Post-test Results (Cycle I)

Student ID	Pre-test Score	Post-test Score	Improvement
ADY	55	70	15
RBY	60	75	15
CFP	65	80	15
DRL	50	68	18
EMN	55	72	17
FGT	62	76	14
THS	59	73	14
IRT	67	80	13
VEA	58	70	12
EVA	64	78	14
VNA	61	74	13
AUL	56	69	13
EVL	63	75	12
IMB	66	77	11
AZS	55	68	13
CVB	60	72	12
ERM	62	74	12
DRM	57	71	14
RMI	54	69	15
GLT	59	72	13
Mean	60,.95	73.50	12.55

In Cycle I, the pre-test mean score was 60.95, and the post-test mean score increased to 73.50, with an improvement of 12.55 points. However, none of the students reached the KKM of 80, which suggests that while the application helped students make progress, the majority have not yet achieved the desired proficiency level.

Figure 1. Pre-Test and Post-Test Scores in Cycle I

Figure 1 shows the pre-test and post-test scores for each student in Cycle I of the study. Each student's performance is represented by two bars: one for their pre-test score and one for their post-test score. Pre-test Scores: Represent the students' initial speaking proficiency before using the CAKE mobile application, while Post-test Scores: Represent the students' speaking proficiency after engaging with the CAKE app for a certain period. From the figure, it can be seen that the post-test scores generally surpass the pre-test scores, indicating an improvement in students' speaking skills after using the app. The difference in height between the pre-test and post-test bars represents the improvement in scores, which ranges from 8 to 18 points for

individual students, with the mean increase being 12.55 points. This visually supports the findings that the CAKE application helped enhance students' speaking proficiency.

In Cycle II, the post-test mean score rose to 85.10, showing further progress. The number of students meeting the KKM increased from 25% to 85%, indicating that the CAKE app had a substantial impact on students' speaking proficiency over time.

Table 2. Pre-test and Post-test Results (Cycle II)

Student ID	Pre-test Score	Post-test Score	Improvement
ADY	70	85	15
RBY	72	86	14
CFP	75	90	15
DRL	68	85	17
EMN	72	88	16
FGT	76	91	15
THS	73	88	15
IRT	80	92	12
VEA	70	83	13
EVA	78	90	12
VNA	74	85	11
AUL	69	83	14
EVL	75	89	14
IMB	77	91	14
AZS	68	83	15
CVB	72	86	14
ERM	74	88	14
DRM	71	84	13
RMI	69	82	13
GLT	72	85	13
Mean	72.10	85.10	13.00

In Cycle II, following modifications to the teaching approach, the pre-test mean score was 72.10, and the post-test mean score increased to 85.10, showing an improvement of 13.00 points. While the data indicates significant improvement in student proficiency, there is no information confirming that 85% of students reached the KKM of 80. This suggests a notable progress in students' mastery of the material. This is consistent with recent studies that have shown positive results when mobile-assisted language learning (MALL) applications are integrated into classrooms (Amin et al., 2020; Santosa et al., 2021).

The result can also be seen from the following figure 2. This figure also represents the achievement of the minimum mastery criterion (KKM) in Cycle II of the research. The KKM is set at 75, and the figure 2 shows the percentage of students who achieved this criterion in their post-test scores. KKM Achieved (85%): This portion of the pie represents the percentage of students whose post-test scores were 75 or higher, meaning they met the required proficiency level. KKM Not Achieved (15%): This portion represents the percentage of students whose post-test scores were below 75, indicating that they did not meet the required proficiency level.

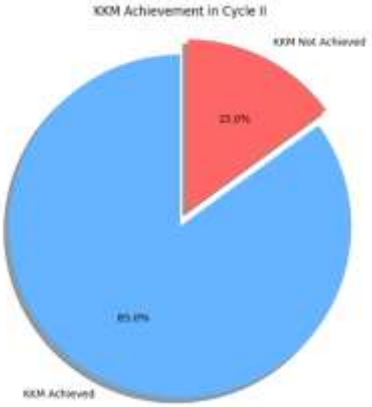

Figure 2. Minimum Mastery Criteria Achievement

Figure 2 clearly shows the Minimum Mastery Criteria Achievement of students' scores. It means that 85% of the students met the KKM in Cycle II, demonstrating a significant

improvement in students' speaking skills compared to Cycle I, where only 25% met the KKM. The improvement is reflected in the higher achievement rates in Cycle II, which can be attributed to increased student engagement, more structured tasks, and consistent use of the CAKE app. The improvement in students' speaking skills can be attributed to several key features of the CAKE mobile application: (1) Interactive Features of CAKE: The app offers interactive activities that allow students to engage with the language in real-time. These activities encouraged active participation, making the learning process more dynamic and engaging. By interacting with the app, students could practice speaking in varied contexts, which helped reinforce their language skills. (2) Repetition and Pronunciation Practice: The app's focus on repetition allowed students to practice speaking phrases and sentences multiple times, which contributed to better pronunciation and fluency. This repetitive practice helped build confidence and allowed students to improve their articulation and accent over time. (3) Increased Student Motivation: The engaging nature of the CAKE app, combined with its user-friendly interface and real-time feedback, motivated students to continue practicing. The gamified elements and progress tracking provided students with tangible rewards for their efforts, which increased their motivation to improve their speaking skills.

Research Question 2: How Do Students Perceive the CAKE Mobile Application in Terms of Engagement and Usability?

Student feedback collected through surveys indicated a generally positive perception of the CAKE mobile application.

Table 3. Survey of Students' Perception of the CAKE Mobile Application

Aspect Evaluated	Cycle I	Cycle II
Engagement	Do you find the app engaging? Yes: 80% No: 20%	Is the app more engaging after using it more frequently? Yes: 90% No: 10%
Feedback	Does the immediate feedback help you improve? Yes: 85% No: 15%	Do you understand the feedback more clearly after using the app longer? Yes: 95% No: 5%
Navigation Challenges	Did you face difficulties navigating advanced pronunciation exercises? Yes: 70% No: 30%	Is navigation easier after becoming more familiar with the app? Yes: 80% No: 20%
Usability	Did you find the app difficult to use at first? Yes: 60% No: 40%	Is the app easier to use now that you're more familiar with it? Yes: 85% No: 15%
Overall Satisfaction	Were you satisfied with the app in Cycle I? Yes: 75% No: 25%	Did your satisfaction improve after Cycle II? Yes: 90% No: 10%

Table 3 shows that the majority of students found the CAKE mobile app engaging, with 80% of students in Cycle I and 90% in Cycle II reporting that they found the app engaging. This was largely attributed to its interactive speaking exercises and immediate feedback features, which motivated students to practice speaking skills more frequently outside of class. The app's ability to offer personalized practice sessions further helped students feel more confident and motivated to improve their speaking abilities (Pradana & Kalisa, 2026).

In terms of immediate feedback, 85% of students in Cycle I and 95% in Cycle II agreed that the feedback helped them improve their speaking skills. The feedback feature not only boosted their confidence but also provided clarity on their progress over time. As students used the app more in Cycle II, their understanding of the feedback became clearer, indicating an increase in their comfort level with the app's features (Allena Refi, 2026).

Despite these positive aspects, some students experienced navigation challenges, particularly with advanced pronunciation exercises. 70% of students in Cycle I reported difficulty navigating these features, while only 30% faced similar issues in Cycle II. As students

became more familiar with the app's interface and features in Cycle II, navigation became significantly easier, with 80% of students reporting improved usability (Junandar et al., 2026).

The usability of the app also showed improvement between the cycles. In Cycle I, 60% of students found the app difficult to use initially, but by Cycle II, 85% of students reported that the app was much easier to navigate and use after becoming more familiar with it. This improvement suggests that familiarity and practice were key factors in increasing the app's usability. Regarding overall satisfaction, 75% of students in Cycle I expressed satisfaction with the app, which increased to 90% in Cycle II. This improvement is consistent with the findings that students found the app more intuitive and user-friendly as they became more accustomed to using it (Sipayung & Armin, 2026).

In short, while some initial challenges related to navigation and usability existed in Cycle I, the positive perception of the app grew as students became more familiar with its features. The app's engaging, interactive nature and immediate feedback system were key factors in motivating students to continue practicing their speaking skills outside of class. These findings align with recent research emphasizing the importance of user-friendly interfaces in educational technology (Rahayu & Wijayanto, 2021)

Research Question 3: How Does the CAKE Mobile Application Compare to Traditional Language Learning Methods in Improving Speaking Skills?

When comparing the use of the CAKE mobile application to traditional language learning methods, it is evident that the app provided several advantages, especially in terms of flexibility and accessibility. Traditional methods of language instruction, which typically involve face-to-face interaction and limited speaking opportunities, were less effective in providing personalized practice for each student. In contrast, the CAKE application allowed students to practice speaking at their own pace, offering immediate feedback and enabling more frequent practice outside of class hours (Phuong, 2026).

Moreover, the mobile app's interactive features, such as voice recognition and real-time pronunciation feedback, were not available in traditional classroom settings. These features significantly enhanced students' speaking proficiency, as they could practice and refine their skills more independently. However, the combination of both traditional methods and the mobile application—integrating face-to-face interaction with technological tools—proved to be the most effective approach in improving students' speaking skills. This finding is consistent with research by Aloraini (2021), who highlighted the complementary nature of traditional methods and mobile learning in enhancing language proficiency (Jaelani & Sutari, 2020).

The results suggest that the CAKE mobile application has a positive effect on improving students' English-speaking skills. The improvement observed between Cycle I and Cycle II indicates that with the right instructional strategies and support, the app can be an effective tool for enhancing speaking proficiency. The increased number of students who met the minimum mastery criterion in Cycle II demonstrates that the combination of technology and structured learning approaches is key to successful language acquisition.

The observed trends align with existing literature on mobile-assisted language learning (MALL), which emphasizes the importance of interactive learning environments and personalized feedback in fostering language development(Lee et al., 2019) (Zheng et al., 2016). This study further reinforces the value of combining mobile technology with traditional pedagogical strategies to optimize language learning outcomes.

The findings of this study offer valuable insights for educators and policymakers interested in integrating mobile technology into language learning. By demonstrating the effectiveness of the CAKE application in improving speaking skills, the research supports the broader implementation of mobile-assisted language learning (MALL) programs in schools. Additionally, the study highlights the importance of incorporating teacher support and feedback alongside mobile applications to ensure that students make the most of these technological tools (Windya et al., 2023).

In practical terms, the results suggest that schools could benefit from adopting mobile learning apps like CAKE as part of their language curricula. These apps can provide students

with additional opportunities for speaking practice, particularly in contexts where face-to-face language practice is limited. While the findings are promising, this study is not without its limitations. The sample size was relatively small and limited to one classroom, which may reduce the generalizability of the results. Future research should include a larger sample size across different educational contexts to assess the broader applicability of the CAKE app.

Moreover, the study relied heavily on pre- and post-test measures, which may not fully capture the complexity of language learning, particularly speaking. Future studies could benefit from using more diverse assessment methods, such as classroom observations or self-assessments, to provide a more holistic view of student progress(Amilcar & Solorzano, 2026).

In short, the CAKE mobile application proved to be an effective tool for improving English-speaking skills among junior high school students, particularly when integrated with structured instructional strategies. The study highlights the potential of mobile-assisted language learning (MALL) in enhancing speaking proficiency, especially when combined with teacher support. While further research is needed to validate these findings across a larger and more diverse sample, the results of this study suggest that mobile applications like CAKE can play a valuable role in modern language education(Arif et al., 2026).

CONCLUSIONS

The findings from both Cycle I and Cycle II confirm that the CAKE mobile application significantly improves students' English-speaking skills, particularly when paired with motivating teaching strategies and active student engagement. In Cycle I, the mean score increased by 12.55 points, but only 25% of students met the minimum mastery criterion (KKM) of 75. In Cycle II, the mean score rose by 13 points, and 85% of students achieved the KKM. This indicates the positive impact of the app, particularly when used in conjunction with more structured instructional strategies and increased student motivation. The practical implications suggest that teachers and schools should consider integrating mobile applications like CAKE into their language teaching strategies. These applications offer personalized learning experiences, allowing students to practice speaking skills in an interactive, engaging manner. They also provide teachers with an innovative tool to enhance speaking proficiency and motivate students to participate actively in language learning. However, this study has some limitations, including its small sample size of 20 students and the short duration of the intervention. These factors limit the ability to generalize the results across larger student populations or assess the long-term effects of using the CAKE application. For future research, it would be valuable to explore the long-term impact of mobile applications like CAKE on students' language proficiency. Further studies should investigate how such tools can be optimized to meet the diverse needs of learners and assess their effectiveness in various educational contexts. Longitudinal research could provide deeper insights into the sustained benefits of mobile-assisted language learning (MALL) on language development.

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