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From Screens to Skills: The Effect of the Cake App on Junior High Students' Vocabulary Achievement

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ABSTRACT

This study aims to determine whether there is a significant effect of using the Cake application on students' vocabulary achievement at the eighth grade of Junior High School 23 Kendari. The research employed a quasi-experimental design with two groups: an experimental class (VIII A) consisting of 25 students, which received treatment using the Cake application, and a control class (VIII B), which followed conventional teaching methods. A vocabulary test consisting of 45 items was used as the research instrument. The treatment was conducted over four weeks, with three sessions per week, each lasting approximately 30 minutes, combining in-class guided activities and independent practice at home. Data were analyzed using SPSS 20, including tests for normality, homogeneity, and an independent sample t-test. The results showed that the mean score of the experimental class increased significantly from the pre-test 47.88 to the post-test 81.88, and the gain score was 34.00. Meanwhile, the mean score of the control class was 44.08 and become 75.00 in the post-test. It creates 30.92 for the gain score. The independent samples t-test indicated a statistically significant difference between the groups ($p = 0.021 < 0.05$), indicating a significant difference in vocabulary achievement between the two groups. The null hypothesis (H0) was rejected and H1 is accepted. Therefore, these findings demonstrate that mobile-assisted vocabulary learning through the Cake application can effectively enhance students' vocabulary acquisition when integrated into classroom instruction.

Keywords : Cake Application, Learning Media, Vocabulary Achievement

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INTRODUCTION

Education has undergone significant transformation in the past few decades due to technological advancements. One of the latest innovations is the use of smartphone applications in the learning process, offering various interactive features to enrich students' learning experiences, including vocabulary enrichment.

Vocabulary is a key element in language proficiency. A strong grasp of vocabulary not only expands students' understanding of the texts they read but also enhances their ability to express ideas and communicate more effectively. Some experts even argue that vocabulary holds greater significance than grammar in communication, as a listener can understand someone's message even if the grammar used is not perfect. According to the definition provided by Hornby (2006) vocabulary encompasses "all the words a person knows or uses, as well as all the words in a specific language."

Many people know that vocabulary presents a significant challenge in language acquisition, as the incorrect usage of words can result in misunderstandings. Effective communication hinges on individuals' familiarity with the necessary vocabulary. It is essential for individuals to possess a substantial lexicon to articulate their thoughts accurately. In essence, a broad understanding of appropriate vocabulary enhances one's ability to construct meaningful sentences.

The acquisition of vocabulary serves as the cornerstone of language learning. Wilkins (1972) emphasized the vital role of vocabulary by stating, "while grammar facilitates communication to some extent, vocabulary is indispensable; lacking vocabulary renders communication impossible." Thus, to engage in effective communication, students must cultivate an extensive vocabulary. Sufficient vocabulary empowers individuals to express their thoughts, emotions, and opinions, underscoring its indispensable role in interactive language use.

Nearly all students today own smartphones, as indicated by statistics. Through the abundance of learning applications readily accessible on these devices, students have the opportunity to acquire English language skills, leveraging the rapidly advancing technology of the industry 4.0 era. Among the array of learning apps available, such as Busuu, Duolingo, Hello English, Hello Talk, and Cake, the Cake application is selected by the researcher to enhance students' vocabulary due to its perceived effectiveness and ease of implementation.

The Cake application is a well-known online resource for learning English, offering engaging videos featuring brief and entertaining English conversations. Additionally, it provides grammatical explanations for utilized sentences, along with common idioms and terminology contextualized to aid English learners. Furthermore, the application offers features for recording, analyzing, and checking pronunciation. The researcher aims to determine whether this application can assist students in comprehending the English taught in the classroom and whether it can enhance students' vocabulary achievement, given the challenge many face with limited vocabulary.

The researcher's curiosity lies in the potential benefits of integrating this application into the process of English teaching and learning, particularly regarding its effectiveness in improving students' vocabulary. Addressing the significant challenge of poor vocabulary among students, the researcher seeks to ascertain whether the application can expedite vocabulary acquisition, a crucial component in developing proficiency in other language skills.

In the educational context, teaching English in schools involves facilitating the development of four language skills: listening, speaking, reading, and writing. Mastery of these skills necessitates mastery of the foundational aspect of language, namely vocabulary. Vocabulary plays a pivotal role in language acquisition, enabling students to comprehend what they read and hear, as well as express their ideas effectively in communication. Moreover, possessing a sufficient vocabulary facilitates ease of communication in both written and spoken forms.

During observations conducted in the eighth grade at Junior High School 23 Kendari, researcher encountered issues related to vocabulary. It was noted that some students possessed limited vocabulary, while a majority exhibited low interest in learning English. While the teaching method employed by the instructor was deemed adequate, there was a recognized need for incorporating technological media to introduce variations into the teaching and learning process. This approach aims to enhance student’s engagement, prevent boredom, and ultimately boost motivation.

When individuals lack interest in a subject, their learning endeavors become significantly challenging. Moreover, employing monotonous techniques may lead students to perceive English as complex, especially considering the inherent difficulty in mastering vocabulary. This perception, in turn, may deter students from actively engaging in learning activities. To address the vocabulary

learning issue, integrating supportive media or tools is recommended to enhance student interest and motivation. Gairns and Redman (1986) contend that educators who utilize engaging media and techniques in their instruction are more likely to captivate students' interest in vocabulary acquisition.

This research tries to solve students' problem in memorizing the vocabulary by applying Cake application on the teaching and learning process. There are several reasons why the Cake application is chosen: First, Cake is an application specifically designed to improve students' vocabulary through various interactive features and interesting games. Neelen and Kirschner (2020) have highlighted the importance of design tailored to learning objectives. Appropriate use of technology must be tailored to specific learning needs and learning objectives. This application has the potential to make the learning process become more interesting and fun for students, thereby increasing their motivation to learn vocabulary.

Second, Cake offers flexibility in how students learn vocabulary. With various activities provided, such as word games, puzzles, and quizzes, students have the opportunity to choose the way of learning that best suits their learning style. In line with Mayer (2009), an expert in multimedia learning design, emphasizes the importance of giving students choice in the way they learn. This can help increase learning effectiveness because students can be actively engaged in the learning process according to their individual preferences.

Third, Cake provides immediate feedback to students about their progress in learning vocabulary Mayer (2009) highlights the importance of feedback in learning. With evaluation and progress tracking features integrated in the app, students can see how well they have understood new vocabulary and where they need to improve their understanding. This allows students to identify areas that need improvement and take active corrective action.

Fourth, Cake is an application that is easy to access and can be used by students anywhere and anytime via their mobile devices. Hattie (2007), an expert in learning size effects, has highlighted the importance of facilitating independent learning outside the classroom. Thus, the app facilitates independent learning outside the classroom and allows students to continue learning vocabulary even outside the school environment.

Experts like Kirschner and Mayer has observed the importance of technology in learning. Their research highlights that appropriate use of technology can increase learning effectiveness. The use of mobile applications in vocabulary learning has succeeded in increasing students' vocabulary achievement.

Several studies have been carried out on English learning applications available on the internet. To address some, a research had been conducted by Sabektu (2020) entitled "The Effectiveness of Line WEBTOON on Students Vocabulary Mastery of The First Grade at MAN Kota Blitar". This research focused on the effectiveness of Line WEBTOON and such application is proven effective to improve students' vocabulary achievement.

Another research was conducted by Fatin (2021) entitled "The Effectiveness of Using Cake Application Toward Students' Vocabulary Mastery of the Seventh Grade at MTs S PSM Rejotangan". This research focused on evaluating the effectiveness of the cake application, but does not compare the cake application with traditional teaching of English vocabulary, meaning the method used in the form of a pre-experimental which only used one class without any comparison as well.

The next relevant research was from Tiamanda (2022) entitled "The Use of Cake Application to Improve Students' Vocabulary". The research centered on tenth-grade students attending SMA Negeri 1 Mayong, offering specific insights into how the Cake Application can effectively improve vocabulary in a high school environment.

Although numerous studies have examined the use of mobile applications in English vocabulary learning, most previous research has relied on pre-experimental designs or focused solely on describing students' improvement without comparison to conventional instruction. Studies investigating the Cake application, in particular, have largely examined its effectiveness within a single group or at different educational levels, such as senior high school, without directly comparing its impact to traditional vocabulary teaching methods at the junior high school level. Consequently, there is limited empirical evidence demonstrating whether the Cake application produces significantly better vocabulary achievement than conventional instruction when both methods are applied under comparable classroom conditions. To address this gap, the present study employs a quasi-experimental design to compare vocabulary learning outcomes between students taught using the Cake application and those taught using traditional methods, thereby providing stronger evidence of the application's effectiveness in junior high school contexts.

LITERATURE REVIEW

Theoretical Framework on Vocabulary Achievement

This research utilizes cognitive theory and constructivism to explore the impact of using technology applications such as Cake in enhancing vocabulary. Cognitive theory, as developed by Jean Piaget and Richard E. Mayer, emphasizes that learning involves internal mental processes where individuals actively process and organize information. Piaget (1955) highlights that children not only receive knowledge from external sources but also construct their understanding through processes of assimilation (integrating new information into existing mental frameworks) and accommodation (adjusting mental frameworks to incorporate new information). Mayer (2009), in his multimedia learning theory, suggests that multimedia design, including images, audio, and animations, can enhance understanding and retention by providing varied symbolic representations.

On the other hand, constructivism, developed by Vygotsky (1986), underscores the significant role of social interaction in knowledge formation. Vygotsky's concept of the zone of proximal development (ZPD) explains the gap between what individuals can achieve independently and what they can achieve with the assistance of more knowledgeable others. In the context of Cake application, constructivism highlights how this app can provide an interactive and contextual environment for vocabulary learning, where learners engage through word games, vocabulary challenges, or discussions with other users.

The Importance of Learning Vocabulary

Understanding the significance of the elements involved is crucial for effective learning of something new. In the context of language acquisition, acknowledging the importance of vocabulary is essential for students aiming to master a target language. Language learning involves not only the acquisition of linguistic material but also the development of skills to apply that knowledge, whether through oral or written communication.

Vocabulary is a basic of learning English, without vocabulary students cannot understand and express their self in English (Trifonov, 2011). Vocabulary plays a crucial role in language acquisition, serving as the foundation for understanding and communicating effectively in a new language. It is essential for learners to develop vocabulary achievement to comprehend words and sentences, which is particularly important when learning English. Moreover, vocabulary is also vital for mastering various English skills such as writing, reading, and speaking. Students must prioritize learning vocabulary to enhance their English abilities and build confidence in using the language for effective communication.

Vocabulary is the cornerstone of language skills, and its mastery is necessary to improve listening, speaking, reading, and writing skills.

Each student has a unique vocabulary achievement and can adapt vocabulary learning techniques according to their individual strengths to enhance language learning. As students' vocabulary expands, they become more effective in communicating in English and can also learn new words that they may not have known before (Holidazia & Rodliyah, 2020).

The importance of vocabulary in language learning cannot be overstated, as it is a fundamental aspect of language mastery. Holidazia & Rodliyah (2020) state that students who struggle with vocabulary may face difficulties in expressing themselves in English and communicating effectively, which can hinder their overall language learning progress. Therefore, it is crucial for students to develop effective vocabulary learning strategies tailored to their individual abilities to overcome these challenges and improve their language skills.

It can be inferred that a solid foundation in language learning, particularly in mastering vocabulary, significantly facilitates the process of acquiring a language, especially English. By developing a strong vocabulary in English, students can effectively convey their thoughts and ideas, making it easier to express themselves in the language.

The Problem of Learning Vocabulary

The learning of a target language like English can be challenging for students, particularly when it comes to mastering vocabulary. Firstly, the scarcity of English materials can significantly hinder a student's vocabulary development, leading to a lack of exposure to new words and phrases. Additionally, the limitation in language learning, particularly the heavy reliance on rote learning and examination-oriented teaching, can negatively impact the learner's progress. According to Musa, Lie, & Azman (2012), students often face a lack of exposure to diverse texts, audio, or visual aids, as well as limited opportunities to use English outside the classroom. As a result, they may struggle to improve their vocabulary achievement and may not be able to fully grasp the nuances of the English language.

Secondly, the effectiveness of a student's learning in English is significantly influenced by the teacher's role in shaping their understanding and proficiency. A key factor that can hinder a learner's progress is the reliance on the teacher as the primary authority figure (Musa et al., 2012). This can lead to a lack of autonomy and initiative in the learner, as they may not feel empowered to explore and learn beyond what the teacher directly teaches. Students often tend to only engage in learning English when explicitly directed by their teacher, failing to take initiative without external encouragement. This behavior may stem from a lack of intrinsic motivation to learn the language well. Motivation plays a crucial role in driving learners to acquire new knowledge and skills, as it provides the impetus to persevere through the learning process. Without sufficient motivation, students may not be sufficiently inspired to develop their English skills, leading to a lack of progress.

Lastly, the media used by teachers plays a crucial role in stimulating students during the learning process. According to Gagne (1977), media is a component of the learner environment that can enhance engagement. However, many teachers often use uninteresting media, which can lead to boredom among students. This boredom can negatively impact students' focus on the learning process. To counter this, teachers should aim to capture students' attention by using engaging media. Kuo (1991) emphasizes that the importance of media in education, stating that it is essential to coordinate teaching with learning through the use of media. In summary, students require materials presented through interesting and fun media to increase their motivation in learning.

General Concept of Cake Application

Anxiety is a basic human emotion that consists of fear and uncertainty, and usually it occurs when an individual believes that the event is a threat to self or self-esteem and is not the only student with academic anxiety (Ajmal and Ahmad, 2019). Students experience problems during their studies and feel anxious when taking exams or making significant life decisions. Ordinary students with learning disabilities may also suffer from anxiety disorders. Katagami and Tsuchiya (2016)studied how perfectionism and achievement motivation affect gifted students. Perfectionist students may undergo academic anxiety because of unrealistic expectations set by themselves or others.

The pace of technological advancement is currently accelerating, and it is affecting people worldwide. Today's technology is every aspect of human existence. From birth to old age, modern technology may make life easier for people. Technology has greatly improved human lives.

Digital media, the most recent iteration of media technology, spans various multimedia elements and operates on computer platforms, as outlined. Furthermore, renowned educator Prensky (2001) posits that digital natives, today's students who have grown up surrounded by digital technology, require a fundamentally different approach to education, one that integrates technology seamlessly into the learning process. Adding to this research, Selwyn (2011), a scholar in digital education, suggests that while digital media offers immense potential for enhancing learning experiences, its effectiveness hinges on how well it aligns with pedagogical objectives and instructional practices. Thus, a comprehensive understanding of digital media's role in education involves synthesizing perspectives from multiple experts in the field. As a teacher can benefit from employing media in vocabulary instruction to expand the students' vocabulary and awareness of it.

The Cake application is one of the various media we may utilize to broaden our vocabulary. Cake application is an English learning that can be downloaded on *Play Store* for android users and *Apple Store* for iOS users. "The Cake application is an app that may be used to learn English," they explain on their website. Cake-Learn English for Free was created by Playlist Corporation in the Education category, and it offers a variety of appealing features such as video conversations with subtitles, speaking practice with native speakers, and the Al Speech Recognition feature (which is used to check pronunciation). Cake application is rarely used in Indonesia for learning English, but there are many applications to learn English such as Duolingo, My Dictionary and U Dictionary which is often used to learning English.

In today's digital era, various applications have been developed to enhance language learning through interactive and engaging methods. "Cake English learning Application" is helpful in English language learning with fun way (Fitria, Dwimaulidiyanti, & Sapitri, 2021). This application allows learners to learn English from videos, short English dialogues and conversations which are daily updated thus learners can learn rapidly and continuously. Users can also play a slower version of the video than the original. This will make it easier for users to grasp and retain terms, allowing them to enjoy, be interested in, and enjoy the learning process.

To communicate effectively in English, one must have a sufficient vocabulary to express thoughts and ideas clearly. Teaching and learning vocabulary can be done by managing a conversation (Mccarten, 2007). From this statement, it can be said that vocabulary can be sharpened and improved through a conversation. But before that, to have a conversation, we must first know what we are going to say, of course in English. Therefore, students need to learn the conversation. In this case, while listening to an example of conversation, students try to find the difficult words that they don't understand yet and get the meaning and try to memorize them. After those students can try to practice

that conversation. This is what we can find in this Cake-Learn English application. It provides many examples of conversations as well as exercises related to vocabulary achievement.

Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) is first introduced by Davis (1986) as a framework for understanding how technology supports vocabulary learning. TAM suggests that the effectiveness of a technology-based vocabulary learning tool can be determined by its usefulness and ease of integration into the learning process. In educational settings, TAM has been widely used to evaluate how digital applications enhance vocabulary achievement.

This research examines the effect of using the Cake application on students' vocabulary achievement, aligning with TAM's principle that technology facilitates vocabulary learning when it provides meaningful educational benefits. The Cake application integrates multimedia learning, interactive exercises, and structured vocabulary lessons, which align with the core aspects of TAM in supporting students' vocabulary achievement.

This research evaluates the effectiveness of Cake application in enhancing students' vocabulary achievement through technology-enhanced vocabulary learning**.** By applying TAM, the research aims to determine whether the structured and interactive features of the application contribute to measurable improvements in students' vocabulary achievement. Educational applications designed with structured vocabulary content and interactive features lead to better vocabulary learning outcomes**.** Therefore, incorporating TAM in this research provides a strong theoretical basis for examining how Cake Application can effectively support vocabulary development in an English learning context.

METHODS

In this research, a quantitative approach was used with an experimental research design. According to Ary et al. (2009), experimental research design examines how deliberately changing one variable affects another. Additionally, experimental research serves as a method to test hypotheses, beginning with inquiries about the relationship between two or more variables.

The researcher used one type of experimental research, namely quasi-experimental. was applied to examine how the use of the Cake application influences students' vocabulary achievement. In this quantitative research, the researcher provided treatment to the research sample. This research was conducted at SMPN 23 Kendari in the eighth grade, which had three classes: VIII A, VIII B, and VIII C. This research consisted of two different groups, namely the experimental class for VIII A (applying the Cake application) and the control class for VIII B (applying conventional methods or without the Cake application). There were three procedures to conduct the data: pre-test, treatment, and post-test. Both groups received a pre-test and a post-test using the same material and the same set of questions.

The research instrument used in this study was a vocabulary test consisting of 45 multiple-choice items. The same test was administered as both the pre-test and the post-test to measure students' vocabulary achievement before and after the treatment. The test items were developed based on the vocabulary materials taught during the instructional period and were designed to assess students' understanding of word meaning, usage, and contextual application. Prior to implementation, the test was reviewed by an English teacher to ensure content validity and alignment with the curriculum.

The treatment was conducted over a four-week period. Students in the experimental class used the Cake application three times per week, with each session lasting approximately 30 minutes. During classroom sessions, the teacher acted as a facilitator by guiding students in accessing specific Cake videos, vocabulary exercises, and pronunciation features aligned with the lesson objectives. Students

were encouraged to watch short video clips, repeat modeled sentences, complete quizzes, and practice pronunciation using the application's feedback tools. In addition to in-class activities, students were assigned independent practice at home using the same application. Meanwhile, the control class received vocabulary instruction through conventional teaching methods, including textbook-based exercises, teacher explanations, and written assignments, without the use of mobile applications.

In this research, the data collected from the pre-test and post-test were analyzed using SPSS (Statistical Package for Social Sciences) version 20.0. The analysis aimed to measure students' vocabulary achievement and determine whether the use of the Cake application had a significant effect on their learning outcomes. The data were analyzed using descriptive statistics, normality and homogeneity tests, followed by hypothesis testing through an independent samples t-test.

RESULT AND DISCUSSIONS

Result

There are four kinds of result in pre-test and post-test; result of pretest and post-test in experimental class, result of pre-test and post-test in control class.

1. The Result of Pre-test on Vocabulary in Experimental Class

The pretest in experimental class was held on January. This class had 25 students and all of them followed the pretest. After analyzing the result, it was found various scores as follows:

Table 1. Students' Vocabulary Score on Pre-test in Experimental Class

No.	Score	Category	Frequency	Percentage (%)
1.	90 – 100	Very Good	3	12,0
2.	70 – 89	Good	2	8,0
3.	50 – 69	Fair	6	24,0
4.	30 – 49	Poor	6	24,0
5.	10 – 29	Very Poor	8	32,0
Total			25	100,0
Mean Score			47,88	
Standard Deviation			26,066	
Minimum Score			16	
Maximum Score			93	

The table above shows the score of students' scores in the pre-test. It indicates that 8 students (32%) fell into the very poor category, while another 6 students (24%) received a poor score. The largest portion of students, also 6 individuals (24%), achieved a fair score. Meanwhile, 2 students (8%) performed at a good level, and only 3 students (12%) attained a very good score. Overall, the results reveal that students' vocabulary achievement in the pre-test varied from very poor to very good, with most students falling within the fair and poor categories. These results reflect students' initial vocabulary achievement before using the Cake application, emphasizing the need for improvement.

2. The Result of Pre-test on Vocabulary in Control Class

The pretest in control class was also held on January 30, 2025 at class VIII B. This class had 24 students and all of them followed the pretest. After analyzing the result, it was found various scores as follows:

Table 2. Students' Vocabulary Score on Pre-test in Control Class

No.	Score	Category	Frequency	Percentage (%)
1.	90 – 100	Very Good	1	4, 17
2.	70 – 89	Good	1	4, 17
3.	50 – 69	Fair	6	25, 00
4.	30 – 49	Poor	9	37, 50
5.	10 – 29	Very Poor	7	29, 17
Total			24	100,0
Mean Score				44,08
Standard Deviation				20,782
Minimum Score				12
Maximum Score				90

The table above presents the distribution of students' scores. It indicates that one student (4.17%) achieved a very good score, while another student (4.17%) performed at a good level. The fair category includes six students (25.00%), making it one of the larger groups. Meanwhile, nine students (37.50%) scored in the poor range, which represents the highest frequency among all categories. Additionally, seven students (29.17%) fell into the very poor category. These results suggest that students' vocabulary achievement varied significantly, with most students falling into the poor and very poor categories.

3. The Result of Post-test on Vocabulary in Experimental Class

The post-test for the experimental class was conducted on February 17, 2025, in class VIII A, with 25 students participating. The results showed a range of scores, which were categorized into very high, high, fair, poor, and very poor, as presented in the table below.

Table 3. Students' Vocabulary Score on Post-test in Experimental Class

No.	Score	Category	Frequency	Percentage (%)
1.	90 – 100	Very Good	8	32,0
2.	70 – 89	Good	14	56,0
3.	50 – 69	Fair	3	12,0
4.	30 – 49	Poor	0	0
5.	10 – 29	Very Poor	0	0
Total			24	100,0
Mean Score				81, 88
Standard Deviation				10,576
Minimum Score				61
Maximum Score				100

The table presents the post-test scores of the students after receiving treatment. It shows that most students were classified in the good category, with 14 students (56%) achieving scores within this range. Additionally, 8 students (32%) demonstrated very good performance. Only 3 students (12%) fell into the fair category, while no students were categorized as poor or very poor. These results suggest that the implementation of treatment contributed to a notable improvement in students' vocabulary achievement. Compared to the pre-test, there was a significant increase in scores, with all students performing within the fair to very good categories. This indicates that the instructional approach applied had a positive impact on students' learning outcomes.

4. The Result of Post-test on Vocabulary in Control Class

The post-test for the control class was conducted on February 19, 2025, in class VIII B, with 24 students participating. The results showed a various score which were categorized into very high, high, fair, poor, and very poor, as presented in the table below.

Table 4. Students' Vocabulary Score on Post-test in Control Class

No.	Score	Category	Frequency	Percentage (%)
1.	90 – 100	Very Good	3	12,5
2.	70 – 89	Good	14	58,3
3.	50 – 69	Fair	7	29,2
4.	30 – 49	Poor	0	0
5.	10 – 29	Very Poor	0	0
Total			24	100,0
Mean Score			75,00	
Standard Deviation			10,550	
Minimum Score			58	
Maximum Score			93	

The table presents the post-test scores of students in the control class. The results indicate that students' scores were distributed across three categories. A considerable proportion of students, 3 students (12.5%), achieved a very good score. The majority, 14 students (58.3%), fell into the good category, showing a strong grasp of vocabulary. Meanwhile, 7 students (29.2%) obtained a fair score, indicating moderate proficiency. Notably, no students were classified in the poor or very poor categories.

5. Analysis Result of Score N-Gain of Pre-test and Post-test in Experimental and Control Class

The table below presents the results of the independent sample t-test analysis on students' N-Gain scores between the pre-test and post-test in both the experimental and control classes.

Table 5. Independent Sample t-test Analysis

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
N-gain	Equal variances assumed	0.192	0.663	2.391	47	0.021	0.10711	0.045	0.017	0.197
	Equal variances not assumed			2.395	46.871	0.021	0.10711	0.045	0.017	0.197

To measure students' vocabulary improvement, N-gain scores were calculated based on the difference between pre-test and post-test scores relative to the maximum possible score. Preliminary analyses confirmed that the data met the assumptions for parametric testing. Normality tests indicated that the score distributions for both groups were normally distributed, and Levene's test showed homogeneity of variances ($p = 0.663 > 0.05$). An independent samples t-test conducted on the N-gain scores revealed a statistically significant difference between the experimental and control groups ($t = 2.391$, $p = 0.021$). These results indicate that students who learned vocabulary using the Cake application experienced greater improvement than those who received conventional instruction, supporting the effectiveness of mobile-assisted vocabulary learning.

Discussion

The results of this research indicate that the Cake application significantly enhanced students' vocabulary achievement compared to traditional instructional methods. The improvement observed in the experimental group can be attributed to the application's pedagogical affordances, including multimodal input, repeated exposure to vocabulary in authentic contexts, and immediate feedback on pronunciation and usage. Unlike conventional instruction, which often emphasizes memorization, the Cake application enables students to encounter vocabulary through videos, contextualized sentences, and interactive practice, thereby supporting deeper lexical processing. These results are consistent with previous studies highlighting the effectiveness of mobile-assisted language learning in increasing student engagement and vocabulary retention. However, the findings also indicate that without appropriate instructional scaffolding, some students may rely excessively on repetition rather than actively applying new vocabulary. Therefore, integrating guided tasks such as sentence construction, discussions, and contextual usage exercises is essential to maximize learning transfer.

One of the key advantages of the Cake application is its engaging and interactive nature. The app provides various features, including video-based learning, quizzes, and so on, which make learning more enjoyable for students. Unlike traditional methods that rely heavily on textbooks and teacher explanations, Cake allows students to learn vocabulary in a more dynamic way. This approach not only enhances their understanding but also increases their motivation to practice regularly. The findings of Fadila, Amminuddin, and Ali (2024) support this notion, as her study revealed that students who utilized the Cake application experienced a significant improvement in their vocabulary retention due to its interactive features. The research emphasized that students became more engaged with the learning process because Cake offered various activities that encouraged active participation, such as video-based exercises and interactive quizzes. Furthermore, the gamification elements, such as rewards and progress tracking, encourage students to stay committed to improving their vocabulary. The interactive components of Cake helped sustain students' interest, making them more motivated to practice vocabulary beyond the classroom setting. As a result, students in the experimental group demonstrated greater enthusiasm for learning English, which contributed to their overall improvement in vocabulary achievement.

Similarly, a systematic research by Putri et al.(2023) found that the Cake application facilitated students in acquiring new vocabulary and improving their learning motivation. This research highlighted that the interactive features of Cake, such as instructional videos, quizzes, and voice recognition, enabled students to learn in a more enjoyable and dynamic way. Therefore, the research recommended the use of the Cake application as a teaching aid that could meet students' needs in enriching their vocabulary. Supporting this, a research by Ramadhani, Munir, and Aeni (2023) at SMPN 29 Makassar showed that the Cake application was effective in enhancing the vocabulary mastery of eighth-grade students. This research confirmed that the use of the application in learning resulted in a significant improvement in students' vocabulary comprehension, attributed to its technology-based approach that made learning more engaging and interactive. In line with this, a critical review by Momeni (2022) highlighted the potential of the Cake application as a mobile-based language learning tool. Although this research did not directly measure the application's effectiveness, the review indicated that Cake's interactive features could enhance students' engagement in the learning process and support more flexible self-directed learning.

However, despite its effectiveness in enhancing vocabulary learning, the implementation of the Cake application in the classroom presented several challenges. During classroom teaching in the eighth grade (VIII) at Junior High School 23 Kendari, the researcher identified obstacles related to

students' vocabulary proficiency. Some students had a limited vocabulary, while others displayed minimal interest in learning English. Although the teaching strategies used by the instructor were generally effective, incorporating technology was necessary to introduce more variation in the learning process. Cake helped address this issue by making learning more interactive. However, some students became overly dependent on the examples provided by the app, which made it difficult for them to apply newly learned vocabulary in different contexts. This aligns with the findings of Wahyuningsih (2024), who highlighted that while mobile language learning applications can enhance engagement, technical limitations and student dependency on structured input may hinder their ability to internalize vocabulary effectively. Additionally, external factors such as unstable internet connections and restricted access to mobile devices occasionally disrupted the learning process. Wahyuningsih (2024) further emphasized that such technical limitations pose significant challenges in mobile-assisted language learning, potentially affecting students' overall vocabulary acquisition and learning outcomes.

Another challenge encountered was the varying levels of digital literacy among students. While some students adapted quickly to the app's interface and features, others required more time to understand how to navigate and use the learning tools effectively. This discrepancy sometimes led to delays in classroom activities, as teachers had to provide extra guidance to students who were less familiar with digital learning platforms. To address this issue, additional training or introductory sessions on how to use the Cake application efficiently could be integrated at the beginning of the learning process.

Moreover, while the app significantly increased student engagement, some students tended to use it passively rather than actively engaging with the material. For example, instead of attempting to construct their own sentences with new vocabulary, some learners relied only on repeating words and phrases from the app. This passive learning behavior could hinder long-term vocabulary retention and limit students' ability to use new words in real-life communication. To overcome this limitation, teachers should encourage students to apply their vocabulary knowledge through interactive activities such as discussions, role-playing, or writing exercises.

Despite some challenges, the benefits of using the Cake application in English learning outweighed its drawbacks. The app provided a flexible and enjoyable learning experience, allowing students to access materials anytime and anywhere. This flexibility was particularly useful for students who needed additional practice beyond classroom hours. Zakian et al. (2022) found that mobile-based learning applications with interactive features can enhance students' comprehension of language concepts, especially since they can learn at their own pace without the pressure of a traditional classroom setting.

Moreover, the integration of technology in language learning fosters a more student-centered learning environment. Instead of relying solely on teacher explanations, students have the opportunity to explore learning materials independently. This approach can boost their confidence in using English in various contexts. Teymouri (2024) emphasized that technology-based learning encourages student autonomy and increases engagement in the learning process, ultimately contributing to a deeper understanding of the language. However, to maximize the app's potential, it is essential to combine it with other instructional strategies, such as collaborative learning and group discussions, to ensure a more balanced and comprehensive approach to language acquisition.

The findings of this research contribute both practically and theoretically to the field of English language learning, particularly in vocabulary instruction through digital applications. Practically, the research highlights the effectiveness of the Cake application as a supplementary learning tool,

demonstrating how its interactive features can enhance student engagement and motivation. This suggests that educators can integrate mobile-assisted learning strategies to create a more dynamic and student-centered classroom environment. Additionally, the research underscores the need for blended learning approaches, where digital applications are complemented with collaborative activities to maximize vocabulary retention and usage in real-life communication. Theoretically, this research adds to the growing body of literature on technology-enhanced language learning by reinforcing the role of gamification and interactivity in improving language acquisition. The research aligns with constructivist learning theories, which emphasize active student participation in the learning process, and supports existing research on mobile-assisted language learning (MALL) by providing empirical evidence of its impact in a junior high school setting. By addressing both the advantages and challenges of using Cake in vocabulary learning, this research offers valuable insights for future research and pedagogical innovations in digital language education.

In conclusion, the use of the Cake application was both effective and practical in improving students' vocabulary achievement at Junior High School 23 Kendari. While challenges such as technological limitations, and passive learning behaviors were observed, these issues could be minimized through proper instructional support and integration with other teaching methods. Overall, Cake proved to be a valuable tool that significantly contributed to students' vocabulary achievement.

CLOSING

Conclusions

This research has explored the implementation of the Cake application in teaching vocabulary and its impact on students' vocabulary achievement. The findings indicate that using the Cake application had a significant positive effect on students' vocabulary learning at Junior High School 23 Kendari. This conclusion is supported by the students' pre-test and post-test scores, which showed noticeable improvement after learning vocabulary through the Cake application. Based on the descriptive statistical analysis, the average score in the post-test was higher than in the pre-test. In other words, the null hypothesis H_0 was rejected, and the alternative hypothesis H_1 was accepted. Thus, it can be concluded that the Cake application had a significant effect on students' vocabulary achievement.

Despite the positive findings, several limitations should be acknowledged. This study focused exclusively on vocabulary achievement and did not examine students' perceptions, motivation, or the application's impact on other language skills. Additionally, the quasi-experimental design, while appropriate for classroom research, limits the generalizability of the findings. Future studies are encouraged to employ mixed-method designs that combine quantitative measures with qualitative data, such as interviews or questionnaires, to explore students' learning experiences in greater depth. Further research could also examine the long-term effects of using the Cake application and its effectiveness across different educational levels and proficiency groups.

Suggestions

Based on the results of this research, the researcher suggests the following

1. Since this research and previous study, focused on improving students' vocabulary achievement, it is recommended that this technique be applied to other language skills, such as listening, speaking, reading or writing.
2. As this research was conducted using a quasi-experimental design, future studies are encouraged to use different research designs to explore its impact from a broader perspective.
3. Since this research focused on two levels of English vocabulary, the researcher suggests implementing the Cake application as a learning medium for students at different educational

levels, such as elementary or senior high school, to further examine its effectiveness across various student groups.

4. Additionally, future researchers could explore students' perceptions after using the Cake application. Understanding students' experiences, engagement levels, and challenges when learning vocabulary through the app could provide deeper insights into its effectiveness. This perspective would complement the quantitative findings, offering a more comprehensive evaluation of the application's role in language learning.

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