

Indonesian EFL Students' Experiences in Using Alef Education For Vocabulary Learning

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Abstract

Mobile game-based learning presents a potential avenue for vocabulary acquisition in English language learning, yet research on students' perceptions of specific platforms is limited. This study focuses on investigating Grade 9 students' perceptions of using Alef Education, an AI-based digital platform, for English vocabulary learning in North Sumatra, Indonesia. The purpose is to explore how gamification and multimodal approaches affect learning motivation and vocabulary retention. Using a descriptive qualitative method with a phenomenological perspective, data were collected through participatory observation and semi-structured interviews with ten students aged 14–15. Findings reveal that gamified features significantly enhance motivation, and the multimodal approach combining text, audio, and visuals improves vocabulary retention and application. However, technical issues and limited teacher interaction hinder effectiveness. This study highlights the importance of addressing both motivational and practical barriers in digital platforms. These insights inform strategies to optimize game-based learning for vocabulary acquisition in EFL contexts. The study contributes to the field by providing empirical evidence on students' lived experiences with AI-based gamified learning platforms, offering a nuanced understanding of how digital multimodal approaches can be effectively integrated into EFL vocabulary instruction while identifying critical implementation challenges.

Keywords: Game-based learning; Learning Motivation; Multimodal approach; Digital Platforms.



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Introduction

The Words are the basic elements of language, so without vocabulary, it is difficult for someone to communicate. Vocabulary mastery is very important for academic success, because it affects comprehension and language fluency. Wilkins in Thornbury emphasized that without vocabulary, nothing can be conveyed. You can say very little with grammar, but you can say almost anything with words (Wilkins., 2002). In addition, students with limited vocabulary often lose ideas due to the lack of terms to formulate new concepts (Conderman et al, 2013). Muttaqiyyah (2024) emphasized that memorization alone is not enough in vocabulary learning; appropriate strategies and media are needed. In order to help extending the vocabulary knowledge, mobile applications are one of the most popular aids available to students. Students may use various mobile applications to access educational resources, to connect with the peers and teachers, as well as to generate evidences for the learning that occurs by activating mobile assessment (Kukulska-Hulme., 2009).

MGBL has been applied in various educational fields, particularly in EFL teaching and learning. Some researches proved the promising parts of MGBL. Schwabe and Göth (2005) detailed that college students find excitement and fun when learning in MGBL circumstances. Meanwhile, secondary students are more inquisitive about the amusement subject after being locked in MGBL exercises (Huizenga et al., 2019). In the English learning context, Chen et al. (2019) unveiled that the integration of MGBL promotes EFL students' English vocabulary. According to Alhebshi & Gamlo (2022), this method increases student motivation and understanding. It is one of the required instructional methods to stimulate students' learning interests and improve teaching effectiveness (Zhang, 2018). This technology can unite various types of media

in the learning model (Ilmiani et al., 2020). MGBL apps can be effective, useful and suitable learning tools for the retention and practicing of new vocabulary when being implemented appropriately (Klimova., 2021). Owing to features of portability, interactivity, and ubiquity, these apps enable students to learn words anytime and anywhere, to select learning contents according to their preferences, and to customize their learning processes (Pikhart., 2021). One of the MGBL apps in English language learning that can be used is Alef Education, which utilizes multimedia such as text, audio, and visuals to provide users with a rich and immersive learning experience. Alef is an artificial intelligence-based education platform founded by Alef Education in United Arab Emirates (Education 2021). The platform is conceptualized as a technology-based learning method that can be used to meet the needs of school systems by incorporating digital education transformation around the world (Education, 2021).

Most studies have examined the overall impact of Alef from the perspective of educators rather than students themselves. Alyammahi and De Oliveira (2019) investigated teachers' observations of Alef implementation, noting that educators perceived increased student interest and engagement, and believed the platform helped students become more independent and confident in their academic abilities. Some other studies such as Abujaja and Abukari (2019) exclusively explored teachers' perceptions and concerns, finding that some educators rely too much on Alef to deliver lessons, which affected their pedagogical approaches. Al-Nasseri and Al-Maamari (2020) explored teachers' perceptions of using Alef Education for vocabulary instruction, finding that teachers valued the platform's gamified elements but expressed concerns about monitoring authentic vocabulary usage outside the application. This predominant focus on teacher perspectives over student voices represents a critical oversight in educational technology research. Students' perceptions have been less studied than teachers' for several reasons: first, traditional educational research has historically privileged adult perspectives, assuming that educators can adequately represent student experiences; second, there are methodological challenges in capturing authentic student voices, particularly regarding their ability to articulate complex learning processes; and third, institutional gatekeepers often prioritize teacher feedback as more "reliable" or "professional" than student input. However, this approach overlooks a fundamental reality—students are the primary users and direct beneficiaries of educational applications like Alef Education. Their firsthand experiences, motivations, challenges, and learning outcomes provide irreplaceable insights that cannot be fully captured through teacher observations alone. Based on these findings, we can conclude that Alef Education has the potential to enhance student's English language skills, specifically to improve their English vocabulary as an MGBL app. However, although previous studies have examined the impact of using Alef, they have been limited to the perceptions of teachers and the features offered by Alef. We review that very few studies have focused on the perceptions of students as the actual clients and primary users of Alef Education after using this application, despite the fact that understanding student experiences is crucial for optimizing digital learning platforms.

Student perceptions are types of metacognitive processes. Two types of metacognitive processes are involved in learning (Shuell, 1986). Two types of student perceptions consist of outcome expectations and perceived self-efficacy (Bandura, 1986). Current learning research explores the importance role of student perceptions in the acquisition, retention, and use of knowledge. Researchers are showing that learning is a complex process affected by personal and contextual variables and that students' perceptions of themselves, teachers, and peers are influential during learning (Pintrich et al., 1986). The perceptions of students are key components and valuable indicators of that classroom climate (Freiberg and Stein, 1999; Fraser, 1999). Despite the potential benefits of mobile game-based learning apps, some significant challenges have emerged during the implementation of Alef Education apps among students. These challenges include inconsistent engagement levels, technical accessibility issues, varying digital literacy skills among students, and potential distraction from learning objectives while using the app. These issues require thorough investigation to ensure these apps provide the intended educational benefits rather than being another technological barrier to effective language acquisition. This study will provides valuable insights into the potential of mobile game-based learning, specifically the Alef Education app, as a tool to enhance vocabulary instruction in EFL contexts. This study will explores the perceptions, experiences and learning outcomes of Grade 9 students which have not been addressed in previous research. The findings aim to help uncover factors that can maximize the effectiveness of MGBL in vocabulary acquisition, ultimately leading to a more engaging and effective language learning experience for students in the digital age. Therefore, focusing on this significance, this study seeks to answer the following two research questions:

1. How do students rate their experience of using the Alef Education app for English vocabulary

- learning?
2. What factors do students identify as facilitating or hindering their vocabulary acquisition through mobile game-based learning using Alef Education?

Method

Research Design

This study uses a descriptive qualitative approach with a phenomenological perspective to investigate students' experiences in using mobile game-based learning through Alef Education. Theoretically, phenomenology is a philosophical and methodological approach that focuses on the subjective lived experiences of individuals, as conceptualized by Husserl (1970), who emphasized the importance of understanding phenomena as directly experienced by research subjects. Moustakas (1994) developed the transcendental phenomenology method that emphasizes deep reflection on subjective experiences, allowing researchers to explore the essence of students' experiences in the context of mobile learning. Van Manen (2016) further asserts that phenomenology aims to uncover the essential meaning of an experience through rich and in-depth descriptions. In the context of this study, the phenomenological approach enables a comprehensive understanding.

Participants

The participants of this study is students who are studying at one of the public high schools in North Sumatra, Indonesia. Ten students participated in grade 9 (9 girls and 1 boy), aged 14-15 years. The selection of participants used purposive sampling criteria with attention to diversity of perspectives. The selection criteria referred to Patton's (2015) theory on purposive sampling, namely having direct experience with Alef Education, being able to express experiences in depth, and being willing to be fully involved in the research.

Data Collection and Data Analysis

Data were collected through participatory observation and semi-structured interviews. Participatory observation, suggested by Marshall and Rossman (2016), was used to collect direct data on students' behavioral patterns and interactions while using Alef Education. The researcher observed and recorded students' level of engagement, non-verbal responses, interactions between students, and overall classroom dynamics during the implementation of Alef Education, which were then recorded in field notes to capture phenomena that may not be revealed through other methods. As a supplement, semi-structured interviews were conducted with participants for about 30 minutes, following Giorgi's (1997) phenomenological interview theory. The interview protocol was validated through expert judgment by three experienced qualitative researchers in educational technology and EFL instruction, ensuring content validity and appropriateness for the target age group (Creswell & Poth, 2018). A pilot interview was conducted with two students from a similar demographic background but not included in the main study to test the clarity and effectiveness of the questions (Kvale & Brinkmann, 2015). The interview protocol demonstrated reliability through member checking, where participants reviewed their transcribed responses to ensure accuracy and completeness of their expressed experiences (Lincoln & Guba, 1985). The interview protocol consisted of five open-ended questions that explored students' experiences of using Alef Education for vocabulary learning, allowing participants to convey their experiences without the constraints of the researcher's perspective or previous findings (Creswell, 2014). The interview questions focused on understanding students' perceptions of Alef Education's effectiveness, useful features, challenges in learning, comparative advantages over traditional methods, and motivation to learn vocabulary. Research documentation includes audio recordings of interviews, field notes, screenshots of student activity on the Alef Education platform, and student progress records and achievement data from the app.

Data analysis uses Interpretative Phenomenological Analysis (IPA) as developed by Smith and Osborn (2003). IPA is particularly well-suited because it explores participants' lived experiences and how they make sense of them (Smith et al., 2009), providing a robust framework for understanding students' perceptions and experiences with Alef Education for vocabulary learning. The analysis followed the iterative stages outlined by Smith and Osborn (2003), beginning with repeated readings of interview transcripts to become deeply immersed in the participants' accounts. This initial immersion was crucial for capturing the nuances of their experiences, as emphasized by Pietkiewicz & Smith (2014). Initial coding involved identifying descriptive,

Indonesian EFL Students' Experiences in Using Alef Education For Vocabulary Learning

linguistic, and conceptual comments within the transcripts (Smith, 2004), which were then used to develop emergent themes that captured the essence of the students' experiences with Alef Education. For example, field notes from classroom observations revealed instances where students initially struggled with a particular feature of Alef Education but then overcame the challenge through peer collaboration. This observation directly informed the development of a theme related to the role of social interaction in overcoming learning barriers.

The process of identifying emergent themes was directly informed by data collected through participatory observation and semi-structured interviews. Discrepancies and alignments between observational data and students' self-reported experiences were carefully considered (Glaser & Strauss, 1967). After identifying emergent themes in each case, the analysis focused on connecting these themes to reveal overarching patterns and relationships across participants' experiences (Eatough & Smith, 2008), which then informed an in-depth interpretation of patterns, considering vocabulary learning and Alef Education's potential impact. The analytical steps included: (1) initial reading and note-taking, (2) developing emergent themes, (3) looking for connections between themes, (4) moving on to the next case, and (5) looking for patterns among cases. Throughout the analysis, a reflexive stance was maintained, acknowledging preconceptions and biases (Finlay, 2002). The rich data collected, including audio recordings, field notes, screenshots, and student progress records, served as a comprehensive basis for this rigorous analysis.

Table 1. Stages of Science Analysis

IPA Analysis Stage	Description
Initial Reading & Note-Taking	Repeated reading of interview transcripts to become deeply immersed in participants' accounts and capture experience nuances.
Initial Coding	Identifying descriptive, linguistic, and conceptual comments within transcripts
Developing Emergent Themes	Using initial notes to develop emergent themes that capture the essence of students' experiences.
Looking for Connections Between Themes	Connecting identified themes to reveal overarching patterns and relationships across participants' experiences.
Moving to the Next Case	Repeating the process for each subsequent participant individually.
Looking for Patterns Among Cases	Comparing and synthesizing themes across all cases to identify shared patterns.
Reflexive Interpretation	Maintaining a reflexive stance, acknowledging researcher preconceptions and biases during interpretation.

Results and Discussion

Result

To answer the research questions, concerning students' experiences using the Alef Education program, focusing on their perceptions of its effectiveness for English vocabulary learning and the factors that facilitating or hindering their vocabulary acquisition through this mobile game-based approach, an investigation was conducted through semi-structured individual interviews with students based on five key questions. Each theme that emerged from the qualitative data analysis is presented separately.

1. Students' Learning Experience with Alef Education

The first data analysis shows how students perceive their experience of using Alef Education to learn English vocabulary. The focus is on the aspects of Engaging Learning, User Friendly Platform, and perceived impact on Vocabulary Mastery.

a. Engaging Learning

The analysis of the data shows that one of the learning experiences that students reported in using Alef Education is motivated and enjoy the vocabulary learning process using Alef Education. Motivation and enjoyment contribute to higher engagement and better learning outcomes. The data shows positive responses regarding the engaging nature of Alef Education. This is reflected in the interview data:

Indonesian EFL Students' Experiences in Using Alef Education For Vocabulary Learning

The game features really make this platform enjoyable! It doesn't feel like studying, because there are interesting and constructive game features that make me want to learn more (Student 5).

Students 5 highlight the structured approach in Alef Education, noting the progression from basic concepts to exercises, games, and self-assessment. Students emphasize that elements like games transform the learning process, making it feel unlike traditional learning. This directly supports this theme, showing how the platform's design enhances motivation and enjoyment. another student added:

The Alef application teaches English very easily and makes it very simple to understand English. Its features include provided languages, making it quick to find answers, and there are many cute characters inside, which makes us more enthusiastic about learning with this application (Student 9).

Student 9 demonstrate the ease of use and accessibility of Alef Education, along with the presence of engaging visual elements such as "cute characters." These features contribute to a more engaging and enjoyable learning atmosphere, fostering enthusiasm and a positive attitude towards learning English. This further reinforces the theme, illustrating how user-friendly design and appealing aesthetics can enhance student motivation.

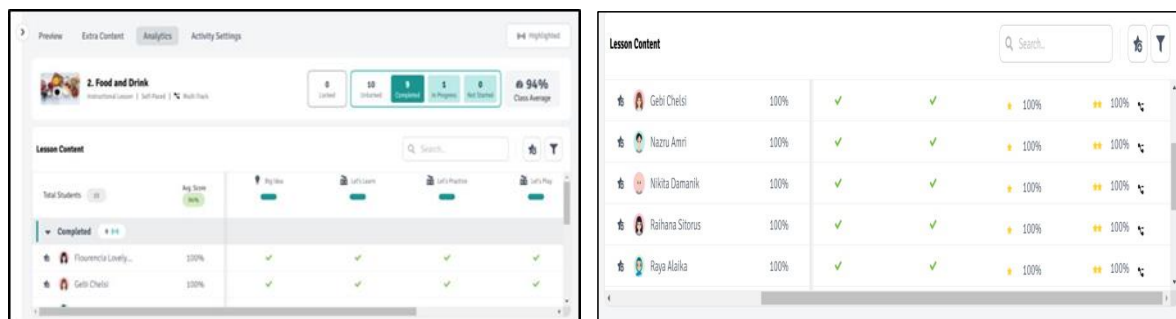


Figure 1. Positive Feedback Learning Experience

Classroom observations also show that students are not only playing games but are also actively engaged in the learning process, demonstrating a better understanding of concepts. As seen in Figure 1. during the learning session about food and beverages, students actively selected the correct answers in the interactive quiz and provided positive feedback about the gamification elements.

Alef Education has successfully created a positive and engaging learning environment for students. The combination of game elements and structured learning materials seems effective in enhancing students' learning motivation. The presence of cute characters, interactive features, and positive feedback provides additional appeal that makes students feel more enthusiastic and less stressed when learning English vocabulary. This is very important because intrinsic motivation is a key factor in the success of long-term learning. Statements from Student 5 and Student 9 clearly highlight how gamification features and engaging characters can change students' perceptions of learning, from something boring to an enjoyable and motivating experience.

b. User Friendly Platform

The second learning experiences that students reported in using Alef Education was the ease of use of the Alef Education platform. Ease of use is an important factor as it affects accessibility and students' ability to learn independently. Most students felt that Alef Education was easy to use for learning English vocabulary. This highlights the accessibility and intuitive design of the platform, which helps in the understanding and application of new words. This was reflected in the interview data:

I can use Alef Education anywhere, anytime." It is very good for quickly reviewing vocabulary. In addition, the Alef platform is very flexible because I can do it anytime and anywhere if I have a little free time (Student 2).

Student 2 emphasize the flexibility and accessibility of Alef Education, highlighting the ability to use it "anywhere, anytime" for quick vocabulary reviews. This underscores the ease of use of the platform, as students can seamlessly integrate it into their schedules and learning routines. The fact that it facilitates quick reviews further demonstrates its user-friendliness, directly supporting this theme.

The features are very helpful, such as the task feature where we can complete existing tasks, the group feature, and the game feature that makes learning enjoyable and exciting, not boring (Student 4).

Student 4 demonstrate the benefits of various features in Alef Education, including task completion, group collaboration, and gamified learning. These features, when considered "very helpful," indicate that the platform is designed in an intuitive and easy-to-navigate manner. Student comments about features that make learning "fun and exciting, not boring" reinforce the idea that the user-friendly design of the platform contributes to a positive and engaging learning experience, further supporting this theme.

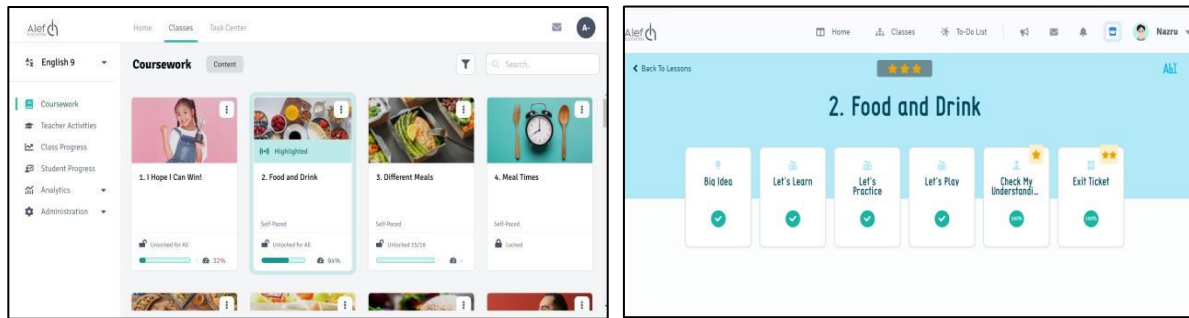


Figure 2. Features in the Alef Education platform

Classroom observations also show that students appear to navigate the platform easily, demonstrating an understanding of the features provided by the platform. As seen in figure 2. there are many interesting features for students so that they can quickly access lessons, complete exercises, and review vocabulary without significant assistance.

The ease of use of the Alef Education platform is one of the important factors contributing to the success of vocabulary learning. The intuitive design and high accessibility allow students to learn independently without requiring significant assistance. Well-structured features, such as assignments, groups, and games, also help students stay engaged and motivated in the learning process. The ability to access the platform anytime and anywhere also provides greater flexibility for students to learn at their own pace and in their own learning style. Statements from Student 2 and Student 4 affirm that the flexibility and features available on the Alef Education platform greatly support the process of self-directed learning and enhance student engagement.

c. Vocabulary Mastery

The third learning experience reported by the students in using Alef Education was the extent of its impact on vocabulary acquisition.

After using Alef, the vocabulary that I didn't know before became more memorable because it was often repeated in the exercises. Now, when making sentences, there are more word choices that can be used (Student 7).

Student 7 directly link their improved vocabulary retention to the use of Alef Education. Repetition of vocabulary in exercises was identified as a key factor in making new words "easier to remember." Furthermore, students noted an improvement in their ability to use a variety of words ("more word choices") when constructing sentences. This clearly demonstrates an improvement in vocabulary retention and application, directly supporting this theme. Another student added:

At first, it was difficult to write English texts, but now it's smoother because my vocabulary has increased and I remember more. So, I'm more confident to write (Student 4).

Student 4 highlighted the improvement in ease and fluency in writing English texts as a result of using Alef Education. Students attribute this improvement to an increase in vocabulary knowledge and enhanced word retention. This increase in confidence in writing further indicates an improvement in vocabulary retention and application. The students' ability to write more "fluently" indicates a deeper understanding and more effective use of vocabulary, directly supporting this theme.

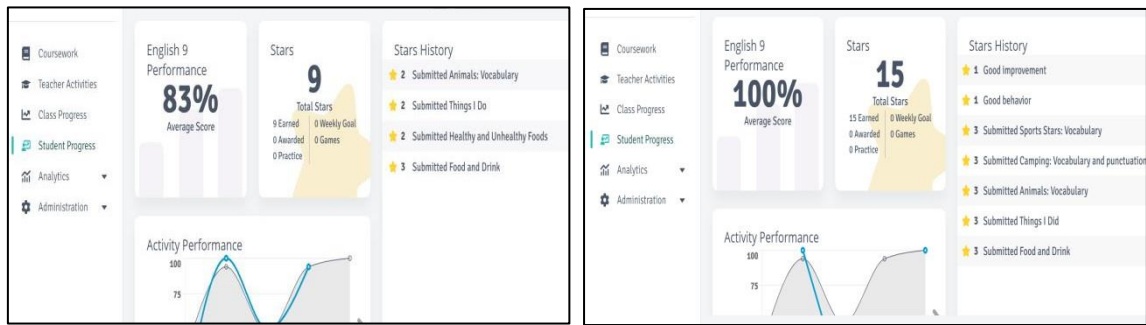


Figure 3. Student Progress in Alef Platform

Classroom observations also show that students appear to navigate the platform easily, demonstrating an understanding of the features provided by the platform. As seen in figure 3, which shows student progress in learning vocabulary, there are many interesting features for students so that they can quickly access lessons, complete exercises, and review vocabulary without significant assistance.

The use of Alef Education shows a positive impact on vocabulary retention and application. Repetition of vocabulary in various exercises helps students remember new words for a longer period of time. In addition, the increase in the number of vocabulary words mastered allows students to use a variety of words in speaking and writing. This shows that Alef Education not only helps students memorize vocabulary but also understand how to use it in meaningful contexts. Statements from Student 7 and Student 4 clearly indicate that increased vocabulary retention contributes to the improvement of students' ability to actively use English, both in speaking and writing.

2. Facilitating and Hindering Factors in Vocabulary Acquisition

The second data analysis shows what are the Facilitating and Hindering Factors in Vocabulary Acquisition using Alef Education. Understanding these factors is important for optimizing the use of the platform and overcoming potential challenges that may arise.

Facilitating Factors

a. Interactive Multimedia Features

The analysis of the data shows that one of the facilitating factors reported by students in using Alef Education is Interactive Multimedia Features. The analysis focuses on how these interactive features work together to create an engaging learning environment that facilitates vocabulary acquisition and retention.

The most helpful feature was the inclusion of images in the Big Idea section, which made it easier for me to understand (Student 1).

Student 1 experience highlights the significant impact of visual elements in the learning process, particularly the images in the "Big Idea" section. This testimonial strongly supports this theme by demonstrating how visual aids directly enhance comprehension of new vocabulary concepts.

Features with voice recordings to make it easier to pronounce sentences and there are image features that help me learn new vocabulary (Student 6).

Student 6 feedback reinforces the theme by illustrating the synergistic benefits of combined audio-visual features. The student's description of how voice recordings and images work together demonstrates that the multimedia approach effectively supports both pronunciation learning and vocabulary acquisition, validating the platform's integrated feature design. another student added:

Very helpful because there are images and also voice notes for each section, making it easier to learn (Student 8).

Student P8 response provides additional evidence for the theme's validity by emphasizing how the combination of images and voice notes creates a more accessible learning experience. This

testimony confirms that the multimodal approach effectively facilitates learning by providing multiple pathways for understanding new vocabulary.

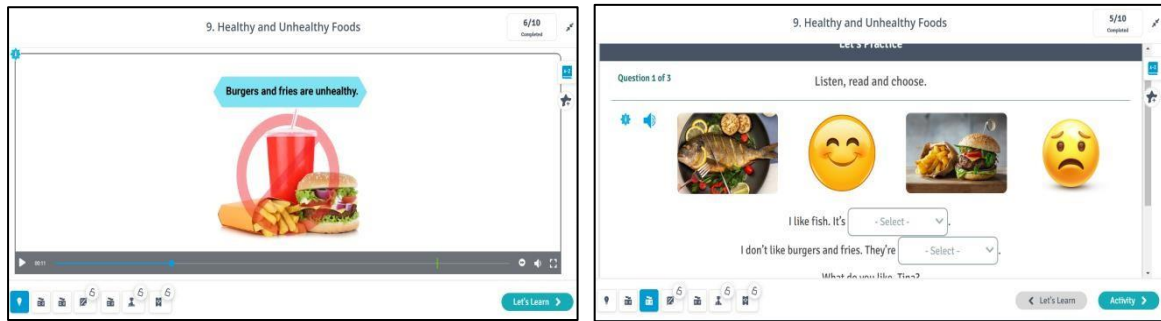


Figure 4. Visual and Audio Elements in Alef Education

As seen in Figures 4., the Alef Education platform incorporates various multimedia elements, including clear visuals and audio components, that work together to create an engaging learning environment. These features provide students with multiple ways to interact with and understand new vocabulary.

The multimedia features in Alef Education play a crucial role in enhancing vocabulary acquisition through a comprehensive approach that combines visual and auditory learning. The integration of images, illustrations, and voice recordings helps students make connections between words and their meanings while providing accurate pronunciation models. This multimodal approach supports different learning styles and creates a more immersive learning experience. Statements from Student 1, Student 6, and Student 8 consistently emphasize that the combination of visual and audio features significantly enhances their vocabulary learning process by providing multiple pathways for understanding and retaining new words.

b. Learning Flexibility

The second facilitating factor reported by students in using Alef Education is the accessibility and flexibility of the platform, which supports students' independent learning.

Besides that, I can learn anytime and anywhere. So, if I have a little free time, I can just open Alef and learn new vocabulary (Student 9).

Student 9 emphasizes the ability to learn "anytime and anywhere" using Alef Education. The student notes that even with limited free time, they can easily access the platform and learn new vocabulary. This highlights how the accessibility and flexibility of Alef Education support independent learning by allowing students to learn at their own pace and on their own schedule, directly supporting the theme.

Because we can learn anywhere and it is easy to access as long as there is a stable internet connection (Student 4).

Student 4 also highlights the ability to learn "anywhere" due to the platform's accessibility, given a stable internet connection. This underscores how the platform's design allows students to learn independently, regardless of their physical location. The ease of access is a crucial element in enabling self-directed learning, directly supporting this theme.

Alef Education provides a personalized learning experience by allowing students to adjust the difficulty level according to their abilities and offering recommendations based on their learning progress. This personalized approach helps students stay motivated and focus on areas that need more practice. Statements from Student 5 and Student 9 confirm that the personalized learning experience provided by Alef Education helps them learn more effectively and efficiently. In short, the personalization features available in Alef Education provide valuable support for students to optimize their learning process.

Hindering Factors

a. Technical Issues

The analysis of the data shows that one of the Hindering factors reported by students in using Alef Education is Technical issues, namely how technical problems in the Alef Education application can interfere with the learning process of students.

The difficulty I face when using Alef education is that the finish button sometimes disappears and is hard to press (Student 5)

Student 5 identifies a specific technical issue: the "finish button" sometimes disappearing or being difficult to press. This highlights how a seemingly minor technical problem can directly impede a student's ability to complete a task and progress, disrupting the learning process. This clearly supports this theme.

What hinders and becomes a challenge is the end part of the button which is hard to press and also the network is sometimes unstable, thus hindering learning time (Student 9).

Student 9 highlights the "button which is hard to press" as a hindrance, as well as unstable network connectivity. This reinforces the issue of technical difficulties disrupting the learning process. The student directly links these technical issues to "hindering learning time," emphasizing the negative impact on their ability to engage with the platform effectively, directly supporting this theme.

During the observation, it was noted that students' enthusiasm for using Alef Education was very high at the beginning of the learning process. However, when network or technical issues arise, the level of enthusiasm tends to decrease. Students who experience technical issues appear more frustrated and less motivated to continue learning. On the other hand, students who do not experience technical issues continue to show high engagement and enjoy the learning process. This underscores the importance of ensuring the technical stability of the platform to maintain student motivation and engagement. Additionally, it is observed that students tend to help each other when facing technical issues, indicating collaboration and social support in the learning process.

Technical issues, such as freezing applications, slow performance, and unstable internet connections, can hinder students' vocabulary acquisition by disrupting the learning process and reducing their motivation. Addressing these technical issues is crucial to ensure a smooth and effective learning experience.

b. Lack of Interaction with Teachers

The second hindering factor reported by students in using Alef Education is the lack of direct interaction with the teacher when using Alef Education. Direct interaction with teachers can provide additional support and guidance to students, which may be lacking in a fully digital learning environment.

I miss getting direct feedback from the teacher. It feels different when you study alone (Student 4).

Student 4 expresses a desire to receive direct feedback from the teacher, emphasizing that learning alone is different. This highlights the potential value of teacher interaction and the absence of such interaction in this digital learning environment. Another student added:

Sometimes I have questions that I can't answer myself, and there is no teacher to ask (Student 6).

Student 6 indicates the need for teacher assistance when facing unanswered questions. This further emphasizes the importance of teacher support in answering students' questions and facilitating a deeper understanding.

The lack of direct interaction with teachers can be a drawback in using Alef Education. Direct feedback and support from teachers can provide additional guidance and clarification to students, which may be lacking in a fully digital learning environment. The lack of interaction with teachers can be a challenge for students who need additional support and guidance.

Discussion

This study provides a detailed analysis of students' experiences and perceptions using mobile game-based learning through Alef Education for vocabulary acquisition in Indonesia. The results show four main categories: engagement (eagerness to learn), user-friendly platform, and vocabulary acquisition. This shows that MGBL has many positive sides in helping students master English vocabulary (Klimova, 2021). MGBL

could be a preference for students to enhance vocabulary acquisition learning which has various supporting features (Kukulska-Hulme, 2009). These findings are in line with previous research that emphasizes the importance of interactive features and immediate feedback from MGBL subsequently increasing their enthusiasm through others (Alhebsi & Gamlo, 2022) and also multimodal learning approaches in vocabulary learning, especially in technology-supported learning environments (Chen et al., 2019).

Student engagement was the most prominent positive outcome (Huizenga et al., 2019). The participants enjoyed using the gamification features of the platform. This high level of engagement is consistent with previous research by Alhebsi & Gamlo (2022) which showed that MGBL can increase student motivation and comprehension. The gamification element in Alef Education successfully creates an engaging learning environment that transforms traditional vocabulary learning into a fun experience. This supports Zhang's (2018) assertion that this kind of teaching method is essential to foster students' interest in learning and improve teaching effectiveness. As Schwabe and Göth (2005) found, college students feel happy and excited when learning under MGBL conditions.

The user-friendly nature and accessibility of the platform were also frequently emphasized by participants. They found Alef Education easy to use for vocabulary learning (Alkhalisi, 2019). This accessibility feature allows students to learn at their own pace and comfort, in line with Kukulska-Hulme's (2009) research on the benefits of mobile learning applications. This is particularly evident in our findings where students reported using the platform in various locations. The flexibility of the platform allows students to integrate vocabulary learning into various aspects of their daily lives, reinforcing Chen et al. (2019) observation on the advantages of mobile apps in accessing educational resources. Due to the features of portability, interactivity, and ubiquity, these apps allow students to learn words anytime and anywhere, to select learning content according to their preferences, and to customize their learning process (Pikhart., 2021).

Regarding the ability to recall and apply vocabulary, students reported improved ability to recall and use new vocabulary effectively (Schwabe and Göth, 2005). This success can be attributed to Alef Education's multi-modal approach that combines text, audio, and visual elements, as Ilmiani et al. (2020) revealed that technology can effectively integrate different types of media in learning models. This was evidenced in our study through improved student performance metrics and positive feedback on the platform's various learning methods. The comprehensive approach of the platform is in line with Muttaqiyyah's (2024) statement emphasized that memorization alone is not enough in vocabulary learning; appropriate strategies and media are needed. In order to help extending the vocabulary knowledge, mobile applications are one of the most popular aids available to students (Kukulska-Hulme., 2009).

The study identified several key facilitating factors that enhanced vocabulary acquisition through the Alef Education platform. The integration of interactive multimedia features emerged as a primary facilitating factor, aligning with Mayer's (2014) principles of multimedia learning and Moreno's (2006) cognitive-affective theory of learning with media. Students particularly valued the combination of visual and audio elements, as evidenced by statements such as "The most helpful feature was the inclusion of images in the Big Idea section, which made it easier for me to understand" (Student 1) and "Features with voice recordings to make it easier to pronounce sentences and there are image features that help me learn new vocabulary" (Student 6). This multimodal approach to vocabulary learning supports findings by Sydorenko (2010) and Yanguas (2009) regarding the effectiveness of combined visual and auditory input in language acquisition. The importance of multimedia integration is further reinforced by research from Jones & Plass (2002) on the benefits of multiple modalities in vocabulary retention, and Lee & Mayer's (2015) work on the cognitive benefits of synchronized visual and auditory presentation.

Learning flexibility emerged as another significant facilitating factor, supporting Huang et al.'s (2016) research on the importance of adaptable learning environments. The platform's accessibility "anytime and anywhere" (Student 9) aligns with research by Crompton & Burke (2018) on the benefits of ubiquitous learning opportunities in mobile-assisted language learning. This flexibility in learning approach is supported by studies from Wong & Looi (2011) on seamless learning environments and Pegrum's (2014) work on mobile learning affordances. The ability to personalize learning paths and pace, as noted by students, corresponds with findings from Chen et al. (2019) on adaptive learning systems and Hwang et al. (2017) on personalized mobile learning environments. Additional support comes from research by Steel (2012) on learner-centered approaches in mobile language learning and Yang (2020) on the role of learner autonomy in digital environments. The integration of multimedia features with flexible learning options created what Reinders & Benson (2017) describe as an optimal environment for autonomous language learning, while supporting what Oxford & Lin (2011) identify as essential conditions for successful vocabulary acquisition in digital contexts.

However, the study also identified significant challenges that affected the effectiveness of MGBL implementation. Reliance on a stable internet connection emerged as a major issue. Students are frustrated by connectivity issues that often disrupt their learning process (Giannakas et al., 2017). In our study, this was particularly evident through students' complaints about connection difficulties. Technical issues, such as application lag, crashes, and glitches are also consistently reported as barriers to effective learning (Abujaja & Abukari, 2019). The presence of teachers in the online learning environment has a crucial role in motivating and enhancing student engagement, as emphasized by Zhao et al. (2012). Correspondingly, Dede (2008) argues that effective technology integration should not eliminate the role of the teacher, but rather transform it into a provider of personalized support and guidance. These findings highlight that teacher-student interaction remains essential in providing individualized support and promoting deeper understanding of the material, even though MGBL offers flexibility. Furthermore, Richardson et al. (2017) emphasized that a strong instructor presence not only improves learning outcomes, but also strengthens the sense of social and emotional connection among students, which is crucial to overcome potential isolation in online learning. Meaningful interactions with teachers have also been shown to significantly increase students' motivation and engagement with learning materials (Dixson, 2010). The challenges that consistently emerge suggest that this is a systemic problem that requires a multifaceted approach to address.

In conclusion, these findings contribute to the understanding of how MGBL through platforms like Alef Education can enhance vocabulary acquisition while highlighting areas that require attention for optimal implementation. The research findings on student perceptions reinforce Pintrich et al.'s (1986) research on the importance of student perceptions in the learning process. The positive perceptions reported by students regarding the effectiveness of Alef Education support Freiberg and Stein's (1999) and Fraser's (1999) assertion that student perceptions are valuable indicators of the quality of the learning environment. Our study provides concrete evidence of this through qualitative interview responses consistently indicating positive engagement with the platform.

Conclusion

This study indicates that mobile game-based learning using Alef Education has the potential to be an effective approach in improving English vocabulary. However, challenges related to internet dependency, technical issues, and the need for meaningful teacher interaction must be addressed to ensure all students benefit fully. The results highlight the importance of accessible and engaging digital tools, while also emphasizing that success depends not only on technological features but also on infrastructure readiness and teacher support. Considering students' real needs, experiences, and challenges is crucial for maximizing the positive impact of digital learning applications like Alef Education in the context of learning English as a foreign language. Limitations such as the sample scope and reliance on self-reported data restrict the generalizability of these findings.

For future research, several recommendations can be made. First, a longitudinal study with a larger sample size across various grade levels and schools would provide more comprehensive insights into the effectiveness of Alef Education. Second, a comparative study between traditional vocabulary learning methods and Alef Education will help measure the impact of the platform on vocabulary acquisition. Third, research on the role of teacher training and support in implementing Alef Education will be very valuable, as teacher facilitation emerges as an important factor in the success of the implementation. Finally, research on how Alef Education can be optimized for various learning styles and proficiency levels will help enhance its effectiveness for a diverse student population. These findings and recommendations contribute to the growing body of research on mobile game-based learning and provide valuable insights for educators and developers working to enhance vocabulary acquisition through digital platforms. The success of Alef Education in this context demonstrates promising potential for similar educational technology initiatives in language learning.

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Indonesian EFL Students' Experiences in Using Alef Education For Vocabulary Learning

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