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PUZZLE BASED LEARNING THROUGH *FIGGERITS* APPLICATION TO ENRICH EFL STUDENT VOCABULARY: STUDENTS' PERCEPTIONS

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Abstract

Vocabulary acquisition remains a persistent challenge for English as a Foreign Language (EFL) learners, particularly in higher education settings where traditional methods often fail to engage students or promote long-term retention. In response, mobile puzzle-based learning tools such as the Figgerits application offer an alternative that integrates contextual learning and cognitive engagement. This study explores EFL university students' perceptions of using Figgerits for vocabulary enrichment within an Indonesian tertiary context. Using a qualitative case study design, 25 English Education students from a university in Medan participated in the study over a 2–4-week period. Participants were selected purposively and provided informed consent. Data were collected through structured questionnaires and follow-up in-depth interviews, then analysed using thematic analysis. Findings indicate that most students perceived Figgerits as effective across five interrelated dimensions: vocabulary breadth, depth, contextual understanding, retention and usage, and metalinguistic awareness. Students reported increased motivation and exposure to unfamiliar vocabulary through clues embedded in meaningful contexts, which encouraged repeated encounters and deeper word processing. Despite occasional difficulty with unfamiliar logic-based tasks, learners expressed strong preference for the app's interactive and autonomous nature. These findings highlight the potential of puzzle-based, mobile-assisted tools to enhance vocabulary learning in EFL environments. Future studies should explore long-term impacts and adaptation across diverse learner profiles.

Keywords: *EFL Learners, Vocabulary Acquisition, Mobile Learning, Figgerits, Students' Perceptions, Puzzle-Based Learning*

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INTRODUCTION

Vocabulary knowledge is a cornerstone of language proficiency, particularly for English as a Foreign Language (EFL) learners. As Nation (2022) emphasizes, students with broader vocabulary repertoires demonstrate stronger reading comprehension, oral fluency, and overall academic success. Without sufficient vocabulary, learners struggle to express ideas and interpret meaning effectively. In academic and professional contexts, the ability to use English with precision and confidence depends on vocabulary depth and breadth.

In the Indonesian university context, EFL students often face significant vocabulary learning challenges. These include limited exposure to authentic English input, low motivation, and difficulty retaining new words. Common classroom practices—such as memorizing word lists or relying heavily on dictionaries—are often seen as repetitive and disengaging. As a result, students may lack the deep processing needed for long-term vocabulary retention. Stahl & Fairbanks (1986) emphasized that vocabulary instruction is more effective when it includes repetition, meaningful context, and deep processing strategies. Similarly, (Graves 2006) notes that rich language input, strategy training, and development of word consciousness are essential components of successful vocabulary programs.

In response to these limitations, educational technology has introduced game-based and puzzle-based learning tools that blend language practice with entertainment. One such tool is *Figgerits*, a mobile application that presents users with cryptic word puzzles requiring logical deduction, vocabulary knowledge, and pattern recognition. Unlike apps that rely on rote memorization, *Figgerits* promotes engagement by embedding vocabulary in contextually meaningful and mentally stimulating tasks. Schmitt, (2008) and Webb and Webb & Nation (2021) argue that interactive puzzles improve vocabulary retention by encouraging active processing. Similarly, Liu (2021) and Wu & Chen (2023) suggest that mobile-assisted language learning (MALL) supports vocabulary development by providing authentic, flexible, and learner-controlled environments.

The *Figgerits* app exemplifies these principles by requiring learners to solve hidden phrases based on word clues and logic. Hung (2021) and Lee & Lin (2022) found that puzzle-based learning fosters attention, memory, and contextual guessing skills. Solin and Salmiah (2025) further observe that digital puzzles stimulate analytical reasoning and promote long-term recall. Bouzaiane and Youzbashi (2024) argue that *Figgerits* promotes autonomous learning, while Chakir and Lamjahdi (2024) highlight how it embeds vocabulary in meaningful, context-rich tasks. Moreover, Abdullah and Xe (2024) note the app's motivational power through its gamified, self-paced structure.

Although *Figgerits* has gained popularity, few empirical studies have explored how EFL learners, particularly in Indonesia, perceive its use for vocabulary development. Prior studies on game-based tools ((Kamila et al., 2024)) have shown improvements in motivation and lexical recognition. Hana and Ngui (2024) one of the few to focus on *Figgerits*, found increased vocabulary engagement—but stopped short of examining students' cognitive and metalinguistic responses. Most existing research prioritizes outcomes and enjoyment, rather

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than how learners reflect on their vocabulary strategies or develop awareness of word structure and meaning.

From a pedagogical standpoint, understanding students' perceptions of educational tools is essential for effective language instruction. According to the Technology Acceptance Model (TAM) proposed by Davis (1989), learners' perceived usefulness and ease of use strongly predict their adoption of digital technologies. Bandura (1997) concept of self-efficacy likewise emphasizes that students' confidence in learning tasks is shaped by how they perceive the relevance and accessibility of the tools used. When students view learning media as helpful, they are more likely to invest cognitive effort, adopt strategies, and persist through challenges (Schunk et al., 2008).

Recent work by Wiranda & Dewi (2025) on the Steller storytelling app shows how digital platforms can enhance EFL learning by supporting structured writing, creativity, and peer interaction. Although some students faced usability challenges, the app's multimedia and template features helped them engage more deeply with content. This supports the view that well-designed digital tools—like Figgerits—can foster active, autonomous learning through cognitively engaging tasks.

This study draws on both TAM and self-efficacy theory to frame student perceptions of vocabulary learning through *Figgerits*. It situates students not as passive users but as active interpreters of their digital learning experiences. Their perspectives provide insight into what features they find effective, what motivates them, and how they use such tools to build vocabulary knowledge—both in breadth and depth. It also explores how contextual learning, retention, and critical thinking are embedded in their engagement with the application.

Therefore, this study aims to explore EFL university students' perceptions of using the *Figgerits* application for vocabulary enrichment at a university in Medan, Indonesia. It focuses on five dimensions of vocabulary development: breadth, depth, contextual learning, retention and usage, and metalinguistic awareness. The research question formulated in this study is: *What are EFL university students' perceptions of using the Figgerits application to enrich their English vocabulary?*

METHOD

Research Design

This study employed a qualitative case study design to explore EFL students' perceptions of using the *Figgerits* application for vocabulary enrichment. A qualitative approach was chosen to enable an in-depth understanding of how students interpret and experience vocabulary learning through mobile puzzle-based tools. As (Creswell & Poth, 2021) note, qualitative methods are appropriate when the goal is to explore how individuals construct meaning around a phenomenon. A case study design, as described by (Yin, 2021), is suitable when a researcher seeks to understand a bounded system in a real-life educational context. In this

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study, the bounded case refers to a group of students who used the *Figgerits* app over a defined period within a specific academic program

Respondents

Participants were selected using purposive sampling, aiming to include individuals who had relevant experience with the *Figgerits* application. The sample consisted of 25 fourth-year undergraduate students (aged approximately 21–23) enrolled in the English Education program within the Faculty of Teacher Training at Universitas Islam Negeri Sumatera Utara (UINSU), Medan. The group was predominantly female, and all participants had used the app consistently over a 2–4-week period. Palinkas et al. (2021) emphasize that purposive sampling is effective for selecting information-rich cases in qualitative research.

Instruments

Two instruments were used to collect data: a structured questionnaire and a set of in-depth interview prompts. The questionnaire consisted of 15 Likert-scale items organized into five categories: vocabulary breadth, vocabulary depth, contextual learning, retention and usage, and word awareness. These items were developed by the researcher under the guidance of a supervising lecturer, following a review of relevant literature and discussion regarding vocabulary learning dimensions. The questionnaire was designed to identify general trends in students' perceptions regarding the usability, motivational impact, and vocabulary development potential of the app.

The interview guide was semi-structured and designed to allow flexible yet focused exploration of student experiences. Interviews included open-ended questions and follow-up prompts to probe deeper into participant reflections. While the interviews were not recorded, detailed written notes were taken during each session to document responses as accurately as possible.

Procedures

Data were collected in two phases. First, the structured questionnaire was administered to all 25 participants. Based on their responses, five participants with diverse viewpoints and levels of engagement were selected for in-depth, face-to-face interviews. These interviews were conducted in an informal, conversational manner to encourage reflection and honest feedback. Each interview lasted approximately 15–20 minutes and followed a semi-structured format, allowing the researcher to explore emerging topics through follow-up questions.

Data Analysis

The data from questionnaires and interviews were analysed using thematic analysis, guided by the six-phase framework of Braun and Clarke (2021). The researcher manually coded the responses, identifying recurring phrases and patterns, which were then organized into overarching themes. Descriptive analysis of questionnaire responses was conducted using percentage summaries to highlight general trends. The coding and theme development process was supported by feedback from a peer and supervised by an academic advisor to

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improve consistency and interpretation. Additional tools such as Microsoft Word and AI-supported assistants were used to support the organization and clarity of analysis; however, all final interpretations and thematic decisions remained the responsibility of the researcher. Triangulation was applied by comparing patterns across both questionnaire and interview data to enhance analytical credibility.

This research received ethical clearance from the university. Although formal written consent was not used, participants were verbally informed about the purpose of the study, their rights as voluntary participants, and the confidentiality of their responses. Anonymity was ensured throughout the data collection and reporting process. All participants were assured that their participation would not affect their academic standing and that they could withdraw at any time without consequence.

RESULTS AND DISCUSSION

This section presents the findings of the study based on data from both the questionnaire (n = 25) and in-depth interviews (n = 5), which were analyzed thematically and yielded five main themes representing students' perceptions of using the *Figgerits* application for vocabulary enrichment. These themes include vocabulary breadth, vocabulary depth, contextual learning, vocabulary retention and use, and word awareness and critical thinking. Each theme is explored through analysis of questionnaire responses, enriched with illustrative quotes from student interviews, and connected to relevant literature to underscore their significance and pedagogical implications in the context of EFL vocabulary development.

Vocabulary Breadth

Students found that *Figgerits* expanded their vocabulary by exposing them to unfamiliar English words through repeated gameplay. Vocabulary breadth was enhanced as most students in Questionnaire 1–3 agreed or strongly agreed that they encountered new words, expanded their word lists, and learned vocabulary beyond classroom materials. This suggests the app effectively enriched word knowledge in an engaging way. n a way that felt both engaging and valuable. The result can be viewed in *Figure.1* below:

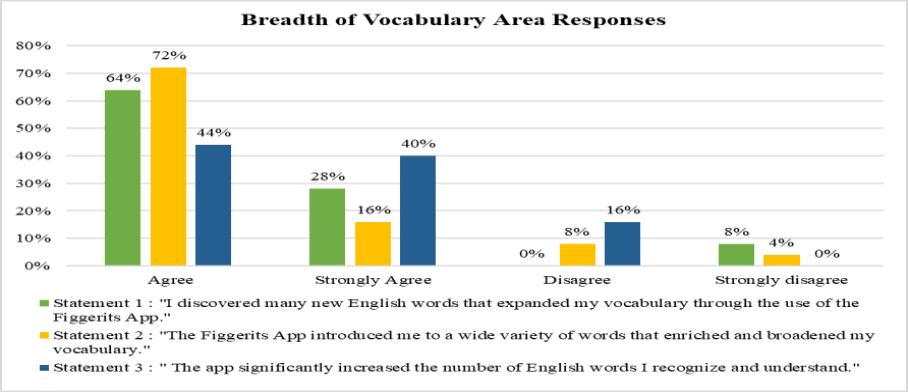

Figure 1. Students' perception of vocabulary breadth in using *Figgerits* app for enriching vocabulary

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Based on Figure 1, twenty-three students responded with "agree" and "strongly agree" to Statement 1. Similarly, this trend continued in Statements 2 and 3, with twenty-two students and twenty-one students respectively expressing agreement. Meanwhile, two students responded with "disagree" to Statement 1. For Statement 2, two students selected "disagree" and one responded with "strongly disagree." In Statement 3, four students expressed disagreement. These results demonstrate that the majority of students perceived the *Figgerits* app as helpful in enriching their vocabulary. The consistently high number of agreement responses across all three statements reflects a strong recognition of the app's contribution to vocabulary breadth, while the small number of disagreeing responses suggests only minor resistance or differing experiences among a few participants. These results were also supported by students' responses in interviews below:

> *"I learned words that I never saw in my modules. Some of them came back in other puzzles, which helped me remember. The repetition didn't feel boring like memorizing—it just stuck in my head. For example, I saw the word 'travel' in one puzzle, and it showed up again later with a different clue." (P1)*
>
> *"The app kept introducing new vocabulary in every level. I felt like each time I played; I was collecting more words. It made my vocabulary grow without me realizing it. I remember learning words like 'strong' and 'kind,' which felt easy but useful." (P2)*
>
> *"I noticed I could understand and recognize more English words after using the app regularly. Matching clues with the right words made me pay attention to word forms I had ignored before. For example, I started to remember words like 'happy' or 'helpful' because I had to guess them from the clues, and later I saw them again in other puzzles. That made me feel like I was actually learning without trying too hard." (P3)*

The interview findings reinforce the results from Statements 1, 2, and 3 in the questionnaire, where the majority of students agreed that the *Figgerits* app introduced them to unfamiliar words, helped them expand their vocabulary, and exposed them to a broader range of English terms. Participants shared experiences of learning new words that were not found in classroom materials and encountering those words repeatedly across different puzzles. This repetition, delivered through varied and engaging clues, was perceived as effective and enjoyable. For instance, students recalled learning simple yet meaningful words like *travel*, *strong*, *kind*, *happy*, and *helpful*, which they remembered more easily due to the contextual and repeated exposure. These insights demonstrate how the app supported vocabulary enrichment in a way that aligned with students' preferences for interactive, non-repetitive learning experiences.

Vocabulary Depth

Beyond increasing vocabulary quantity, students perceived that *Figgerits* deepened their understanding of word meanings and usage. This vocabulary depth includes recognizing nuances, connotations, and contextual appropriateness. The app's clue-based format

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encouraged deeper analysis and interpretation. Questionnaire items 4–6 showed strong agreement that *Figgerits* enhanced students' lexical competence by promoting a more meaningful engagement with words. The result can be viewed in Figure 2 below:

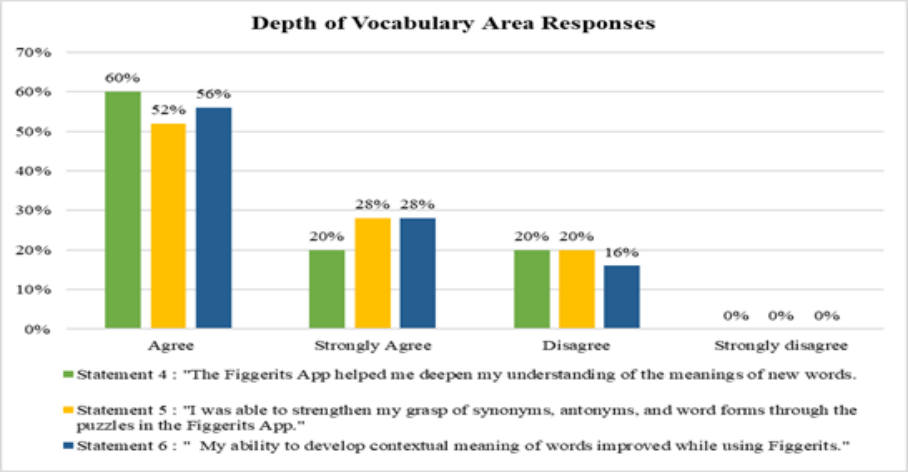

Figure 2. Students' perception of vocabulary depth in using *Figgerits* app for enriching vocabulary

Based on Figure 2, responses showed a strong pattern of agreement. In Statement 4, 15 students selected "agree" and 5 selected "strongly agree," totalling 20 positive responses, while 5 disagreed. For Statement 5, 13 students agreed and 7 strongly agreed, again amounting to 20, with 5 disagreements. Statement 6 showed the highest level of endorsement, with 14 agreeing and 7 strongly agreeing, totaling 21 positive responses, while 4 students disagreed. These results highlight that the majority of students believed that the clues in *Figgerits* challenged them to think more critically about the meaning and use of words, going beyond surface-level memorization. The consistent pattern of agreement across all three items indicates a perceived cognitive engagement with the vocabulary content that enhanced not only recognition but also interpretation and discernment. These findings were also supported by students' responses in interviews below:

> *"Some of the clues in Figgerits App really made me think. I couldn't just guess—I had to understand what the word truly meant in the situation. Like, sometimes the clue had double meaning, and I had to choose the word that fit both the surface and deeper sense." (P4)*
>
> *"There were times I had two words in mind, but I had to stop and consider which one matched the specific idea in the clue. Figgerits App helped me notice subtle differences between words. For example, between 'brave' and 'confident,' I had to analyse which one actually matched the clue's intention." (P2)*
>
> *"It wasn't like looking up a word in the dictionary. I had to figure out the clue, relate it to possible meanings I knew, and pick the most fitting word. That process in Figgerits App made the word stick and helped me understand it better in different contexts." (P5)*

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Interview findings reinforced the results from Questionnaire Statements 4–6, showing that students felt *Figgerits* deepened their understanding of word meanings. Participants reported that solving clues required them to analyze, compare, and reflect on multiple word options before selecting the correct one. This cognitive engagement—such as distinguishing between similar meanings, interpreting figurative clues, and making context-based decisions—was seen as both challenging and valuable. Students appreciated how the app encouraged problem-solving rather than rote memorization, which led to stronger retention and refined vocabulary awareness. They also noted that this approach helped develop critical vocabulary skills that traditional methods often failed to foster. Overall, *Figgerits* supported vocabulary depth by promoting active, meaningful interaction with language, helping students internalize word meanings through engaging and thoughtfully structured gameplay.

Contextual Learning

Students perceived that *Figgerits* supported contextual vocabulary learning by helping them infer word meanings from situational clues rather than memorization. This approach enabled them to understand when and how words are used appropriately. Questionnaire items 7–9 reflected strong agreement, indicating that the app's clue-based format effectively fostered meaning-making through context and inference, as shown in Figure 3.

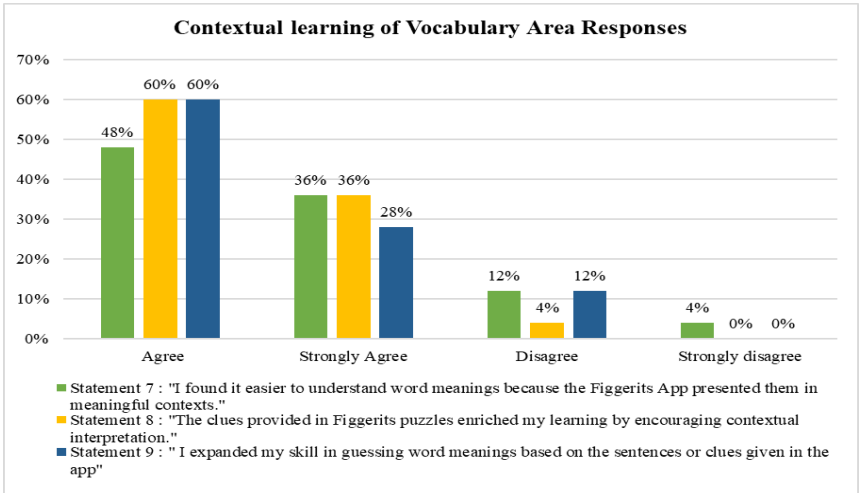

Figure 3. Students' perception of contextual learning in using *Figgerits* app for enriching vocabulary

As shown in Figure 3, Statement 7 received 21 positive responses (12 agree, 9 strongly agree), with only 4 students expressing disagreement. Statement 8 had the highest agreement, with 15 students selecting "agree" and 9 selecting "strongly agree," totaling 24, and only one student disagreeing. For Statement 9, 22 students responded positively (15 agree, 7 strongly agree), while 3 students disagreed. These results clearly indicate that most students perceived *Figgerits* as effective in helping them understand words based on how they are used in context, which supports their ability to apply vocabulary in authentic and meaningful ways. Students

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elaborated further on this aspect during interviews, as reflected in the following interviews below:

> *"The clues in the Figgerits app were like mini situations. They made me imagine what was happening, and then the word made more sense. I didn't just memorize—I understood why the word fits." (P3)*
> *"I liked how I had to guess based on the meaning of the sentence. The Figgerits app made me think carefully. Like, I didn't know the word 'confident' at first, but the clue helped me figure it out because it described a situation that showed confidence." (P1)*
> *"When I saw how a word was used in one puzzle in the Figgerits app, it helped me remember it later. I started to learn not just the word, but when to use it properly in similar contexts." (P6)*

The interview findings reinforce the results from Statements 7, 8, and 9 in the questionnaire, where students overwhelmingly indicated that they learned words more effectively through contextual understanding. Participants described how clues provided narrative hints or descriptive scenarios that helped them infer the intended meaning. They found that this approach made vocabulary learning more intuitive and memorable, as words were tied to mental images or familiar situations. This kind of contextualized exposure aligns with vocabulary acquisition theories that emphasize inference-based learning and usage-based memory. Therefore, *Figgerits* appears to enhance contextual vocabulary learning by embedding words within meaningful linguistic environments that promote deeper comprehension and appropriate application.

Vocabulary Retention and Use

Students believed that *Figgerits* helped them retain and use newly learned vocabulary in communication, especially in writing and speaking. This vocabulary retention and use involve recalling words over time and applying them productively. The app's repeated exposure through varied clues supported long-term memory. Questionnaire items 10–12 showed positive responses, indicating *Figgerits*' role in supporting practical vocabulary use, as seen in Figure 4.

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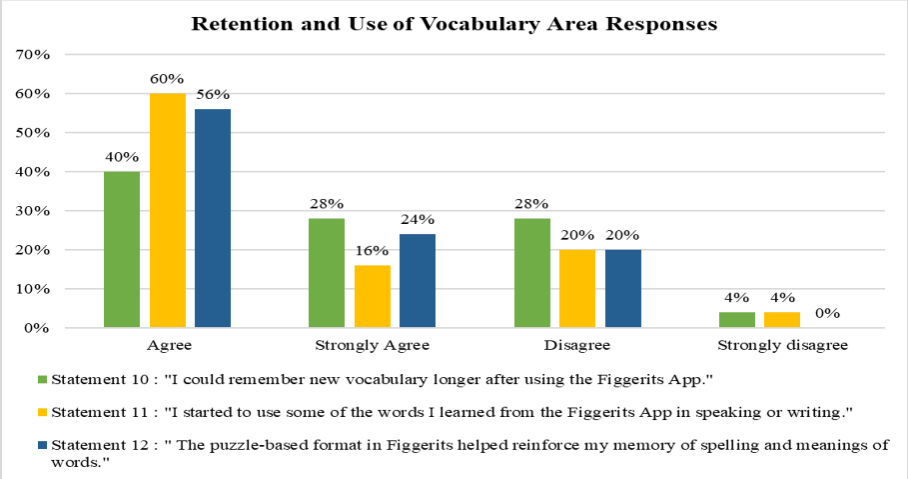

Figure 4. Students' perception of retention and use in using *Figgerits* app for enriching vocabulary

Figure 4 shows that in Statement 10, 17 students agreed (10 agree, 7 strongly agree), while 8 disagreed (7 disagree, 1 strongly disagree). Statement 11 received slightly higher endorsement, with 15 students selecting "agree" and 4 selecting "strongly agree," totaling 19, while 6 disagreed. Statement 12 was the most positively received in this set, with 14 agreeing and 6 strongly agreeing (totaling 20), and 5 students disagreeing. Despite some variation, the overall pattern indicates that a clear majority of students felt the app aided their ability to recall and use vocabulary effectively. This perception was echoed in students' interview responses:

> *"I was doing a writing task, and I actually used a word I saw in the Figgerits app without even thinking. It just came out naturally because I had seen it many times in the puzzles." (P2)*
>
> *"Because the words came up again in different puzzles in the Figgerits app, I remembered them more easily. I didn't need to go back to my notes—it just stayed in my memory." (P4)*
>
> *"The game in the Figgerits app helped me use new words in my speaking. Like 'kind' or 'useful'—I started using those in class discussions because they kept repeating in the app." (P6)*

These comments align with the questionnaire 10,11, and 12 indicating that the *Figgerits* app facilitated memory reinforcement through repeated but varied exposure. Students described how the game structure encouraged natural vocabulary recycling, which helped embed the words into their long-term memory. More importantly, they reported that this retention translated into actual language use—both written and oral—suggesting that the app supported not just recognition but active command of vocabulary. This shows that game-based learning tools like *Figgerits* can effectively bridge the gap between passive learning and real-world language application, enhancing both retention and communicative performance.

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Word Awareness and Critical Thinking

The final theme explores how students perceived the app's contribution to developing word awareness and critical thinking skills—particularly their understanding of word formation (such as prefixes, suffixes, and root words) and their ability to apply logical reasoning when solving challenging vocabulary puzzles. This dimension reflects both metalinguistic awareness and cognitive engagement, two factors known to support advanced vocabulary development. Questionnaire items 13 to 15 addressed this domain, and the results were notably consistent. The result can be viewed in Figure 5 below:

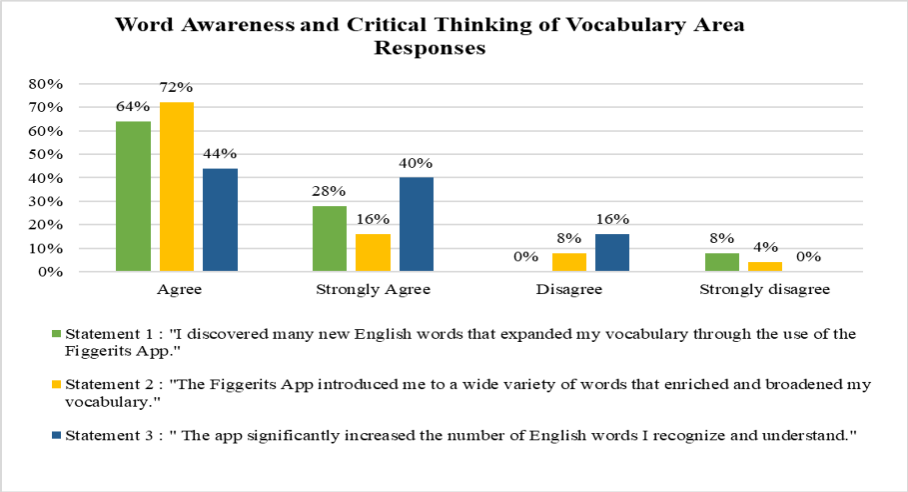

Figure 5. Students' perception of word awareness and critical thinkinh in using *Figgerits* app for enriching vocabulary

As presented in Figure 5, Statements 13 to 15 each received 21 positive responses, with a breakdown of 17 students agreeing and 4 strongly agreeing per item. The remaining 4 students expressed disagreement across all three statements. This level of consistency suggests that most students recognized the value of *Figgerits* in enhancing their attention to word structure and promoting analytic thinking in vocabulary tasks. Interview data provided further insights into this perception:

> *"Sometimes I didn't know the word, but I guessed it by breaking down the prefix or suffix in the Figgerits app. That really helped me understand how words are built and what they might mean." (P5)*
> *"The clues in the Figgerits app weren't always clear, but if I thought step by step and looked at the word parts, I could figure them out. It made me think logically." (P3)*
> *"It made me notice how words are built when using the Figgerits app. I started seeing patterns, like how 'un-' changes the meaning. I use that in reading now too, not just in the game." (P1)*

The interview findings reinforce the results from Statements 13, 14, and 15, where the majority of students agreed that the app encouraged them to examine how words are

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constructed and apply reasoning skills to decipher clues. Participants reported that they became more attentive to morphemes—such as common prefixes and suffixes—and began using this awareness to decode unfamiliar vocabulary. Additionally, the puzzle format prompted students to approach language tasks analytically, enhancing their ability to process language patterns. These insights indicate that *Figgerits* not only supports lexical knowledge but also fosters critical language awareness, making it a tool that strengthens both linguistic and cognitive competencies in vocabulary learning.

Overall, the findings suggest that *Figgerits* fosters vocabulary growth not just in quantity, but also in quality—through cognitive engagement, inferencing, and reflective learning. This supports Nation (2001; 2022) distinction between vocabulary breadth and depth and expands on Schmitt (2008) argument that meaningful exposure strengthens retention. Compared to studies such as Arini and Suwarso (2024), which focused on affective benefits, this study provides a deeper insight into the cognitive aspects of vocabulary learning through puzzles. Likewise, Kamila et al. (2024) reported flexibility in app use but did not explore critical thinking outcomes. (Hana & Ngui, 2024) noted the app's value but lacked thematic exploration and qualitative depth, which this study adds. Furthermore, although most students responded positively, the presence of disagreement highlights the importance of learner variability. Differences in prior knowledge, motivation, and strategy use affect how effectively the app supports learning.

Figgerits can be effectively integrated into EFL vocabulary instruction as a supplementary tool that enhances vocabulary depth, retention, and critical reasoning. Teachers may need to support students who struggle with the clues or game mechanics to ensure meaningful engagement. For curriculum designers, puzzle-based apps like *Figgerits* offer potential for integration into vocabulary modules that balance entertainment with structured language input. To optimize learning transfer, pairing game sessions with classroom discussions or reflective writing activities is recommended.

This study is limited by its small sample size and the specificity of its context, which may affect the generalizability of the findings. Additionally, self-reported data may be influenced by social desirability or the novelty effect. Future studies could adopt longitudinal or mixed-method approaches to examine vocabulary development over time and compare the effectiveness of *Figgerits* with other mobile applications used in language learning.

CONCLUSION

This study aimed to explore EFL students' perceptions of using the *Figgerits* application for vocabulary enrichment. The findings demonstrate that the app was perceived to support vocabulary learning across five key dimensions: vocabulary breadth, depth, contextual learning, retention and use, and word awareness with critical thinking. Students reported that the app not only introduced them to unfamiliar words and contextual usage but also encouraged analytical thinking and awareness of word structures. These insights reflect a shift from passive vocabulary acquisition to more engaged, cognitively driven learning.

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While the results are promising, the study is limited by its small sample size and its focus on a single institutional context. Moreover, reliance on self-reported data may not fully capture long-term retention or actual language performance. Future research could address these limitations by using larger, more diverse participant groups, longitudinal approaches, or comparative studies with other mobile vocabulary tools to assess sustained outcomes. Investigating how different learner levels respond to puzzle-based formats may also reveal adaptive potential for broader curriculum use.

Theoretically, this study contributes to the growing literature on mobile-assisted language learning (MALL) by emphasizing the value of puzzle-based applications in fostering metalinguistic awareness and deeper vocabulary processing. Practically, the findings suggest that educators can incorporate tools like *Figgerits* to create engaging, inference-driven vocabulary instruction. In conclusion, *Figgerits* offers not only motivational appeal but also cognitive depth, making it a meaningful asset in developing robust vocabulary knowledge for EFL learners

AUTHOR CONTRIBUTION

Author 1: Conceptualization and writing; **Author 2**.: Reviewing and Guiding.

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