

HARNESSING WORDWALL FOR ENHANCED VOCABULARY ACQUISITION AND ENGAGEMENT IN NON-FORMAL ELEMENTARY EDUCATION

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Article Info	Abstract
Article History Received: June 2024 Revised: August 2024 Published: October 2024	<i>This study explored the effectiveness of the Wordwall application in enhancing vocabulary acquisition and engagement among students in non-formal educational settings. A qualitative case study approach was employed, involving semi-structured interviews with 16 students. The research investigated students' perceptions of Wordwall, focusing on its interactive features and their impact on motivation and learning outcomes. Findings revealed that Wordwall significantly increases student engagement by providing a dynamic and visually stimulating learning environment. Wordwall features and multimedia elements make vocabulary learning more enjoyable, which helps maintain student interest and facilitates better vocabulary retention. However, challenges such as difficulties with longer questions and unfamiliar vocabulary were noted, indicating areas where instructional design could be improved. This study highlighted the importance of incorporating interactive digital tools in non-formal education to enhance vocabulary learning. It suggested that Wordwall innovative approach can address the unique challenges faced by students, promoting more effective and engaging vocabulary acquisition. The research contributed valuable insights into the role of digital technologies in non-traditional educational contexts, emphasizing the need for adaptive learning tools that cater to diverse learning styles and cognitive levels, ultimately fostering a more inclusive and effective learning environment.</i>
Keywords Vocabulary Acquisition; Interactive Learning; Elementary Education; Wordwall application; Student Engagement;	
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INTRODUCTION

A crucial aspect of English learning is the comprehension of words, sentences, and texts, achievable through robust vocabulary development. vocabulary as the essential words for effective communication, encompassing both expressive (speaking) and receptive (listening) vocabularies (Allen, 2023). Vocabulary encompasses all the words necessary to convey ideas and meanings (Schmitt & Schmitt, 2020). Vocabulary is a fundamental component of language acquisition and is the basic element that students need in order to master the four language skills. (Sari & Aminatun, 2021). According to Ariffin (2021) vocabulary as the cornerstone of language skills, essential for excelling in reading, listening, writing, and speaking. Vocabulary is crucial for anyone aiming to achieve language proficiency, and vocabulary significantly boosts students' overall language development (Zaytseva et al., 2021). A comprehensive understanding of vocabulary enables students to articulate concepts clearly, comprehend written information, and interpret spoken language accurately. It also facilitates the effective expression of their thoughts, ideas, and intentions.

Considering the significance of vocabulary in learning English, it must be introduced to students at an early age or to young learners. The term young learners refers to students

between the ages of 5 and 12 (Garton & Copland, 2019). Teaching vocabulary is crucial at this stage since children experience a "golden age" period where they can easily absorb new information. Currently, they show high brain intelligence, which allows them to easily understand and learn new situations, including language (Botirova, 2020). In this context, English teachers of young learners play a pivotal role in enhancing students' competencies. They are instrumental in providing strategies, resources, and learning media to maximize students' abilities in learning English. Moreover, it is important to offer meaningful learning activities to help students expand their vocabulary effectively.

Despite young learners' ability to rapidly absorb new information, teachers encounter several challenges when instructing young learners. One significant issue is that young learners struggle with understanding abstract concepts due to their limited vocabulary (P. Nation, 2019). Teachers often use repetitive vocabulary teaching methods and consistently use the same instructional strategies. Consequently, students become disengaged and lose interest in the learning process (Schnitzler et al., 2021). Additionally, some elementary school students require considerable time to memorize vocabulary provided by the teacher (Tiing et al., 2021). This difficulty most likely arose from students' limited concentration during the lesson. Garton & Copland (2019) supported this view, noted that while young learners can quickly acquire new information, they have a short attention span and easily become bored during the learning process.

Similarly, vocabulary acquisition in non-formal education settings presents several challenges that educators must address to achieve effective learning outcomes. One major issue is the distinct characteristics of young learners, who typically exhibit shorter attention spans. This trait makes it difficult to maintain their engagement and interest during traditional, often monotonous vocabulary lessons, leading to a lack of motivation and decreased learning effectiveness (Riyanti & Rustipa, 2024). Moreover, young learners often struggle to apply new vocabulary in real-life contexts, which is crucial for deepening their understanding and retention of the language. Phong (2024) highlighted that this difficulty in contextual application further complicates vocabulary acquisition, as students may memorize words temporarily but fail to use them meaningfully in communication.

Therefore, employing innovative methods in language learning has proven to be effective in enhancing student motivation and engagement. One effective solution to these challenges is the use of Wordwall, a web application that offers a variety of themes and interactive activities designed to support vocabulary learning. Wordwall includes features such as match-up games, quizzes, missing word exercises, word searches, anagrams, and maze chases, which can make learning more engaging and enjoyable for students (Arsini et al., 2022; Moorhouse & Kohnke, 2024; Pradini & Adnyayanti, 2022). By integrating Wordwall into their teaching strategies, educators can create a more dynamic and motivating learning environment. This platform's user-friendly interface and diverse activity templates help cater to different learning styles and cognitive levels. In addition, Wordwall can enhance students' cognitive, motivational, emotional, and social development (Pradini & Adnyayanti, 2022).

Numerous studies have explored the efficacy of web-based tools in vocabulary instruction. For instance, Wandari et al. (2024) explored the effectiveness of ICT-based learning using wordwall.net to improve vocabulary mastery among 7th-grade students in an East Java public junior high school. The experimental research employed a one-group pre-test-post-test design, involving 32 students selected through purposive sampling. The aim was to evaluate the impact of wordwall.net on students' vocabulary acquisition in an EFL classroom. Pre-test and post-test scores were analyzed using SPSS 21.0 to assess the improvement in vocabulary mastery. The findings revealed a substantial increase in students' vocabulary knowledge, with the average score rising from 57.03 in the pre-test to 77.34 in the

post-test, indicating a significant enhancement. This study highlights the role of engaging ICT tools and enthusiastic student participation in facilitating vocabulary learning. The results suggest that appropriate ICT integration, such as wordwall.net, can effectively enhance vocabulary mastery and foster a more dynamic and motivating language learning environment.

In a similar study, Anisah (2022) researched to evaluate students' perceptions of using the interactive media tool Wordwall as an assessment tool. Utilizing a case study design and data collection methods included questionnaires and interviews to comprehensively understand students' views on Wordwall. The findings revealed that 87.5% of the students expressed interest in using Wordwall for assessments, citing its ease of use, attractive interface, and variety of questions as motivating factors for future use. Hasram et al. (2021) assessed the motivation levels of students using WordWall Online Game (WOW) for vocabulary learning and evaluated the impact of Wordwall on vocabulary acquisition. This experimental study, which included students from a national primary school in Negeri Sembilan following the Malaysian National Primary Schools Language Curriculum (KSSR), focused on students' perceptions. The findings indicated moderate levels of satisfaction, attention, relevance, confidence, and volition. Moreover, a paired sample t-test revealed a significant improvement in vocabulary scores after the implementation of Wordwall as a supplementary learning tool.

This study focused on exploring how the Wordwall application can be effectively used to address the unique challenges of vocabulary acquisition among young learners in non-formal education settings. While previous studies have highlighted that young learners often struggle with abstract concepts and have difficulty maintaining concentration during traditional vocabulary lessons (Nation, 2019), this study aimed to investigate whether digital tools like Wordwall can enhance engagement and motivation by offering interactive and dynamic learning experiences. Wordwall's game-like features and adaptability may provide a more engaging alternative to repetitive teaching methods, potentially increasing students' interest and helping them retain new vocabulary more effectively. Additionally, by examining the perceptions of students in non-formal education contexts, this research addressed a significant gap in the literature, as there has been limited exploration of digital tools' effectiveness in non-traditional learning environments. This study seeks to contribute valuable insights into how innovative educational technologies can support vocabulary learning and promote active participation in learning activities in non-formal setting. From the gaps above the researcher developed the following research questions as follows:

1. How do young learners in non-formal education settings perceive the effectiveness of the Wordwall application in enhancing their vocabulary acquisition and engagement?
2. What are the perceived strengths and weaknesses of the Wordwall application in maintaining student interest and supporting vocabulary retention among young learners in non-formal education contexts?

RESEARCH METHOD

Research Design

This study employed a qualitative approach to capture students' perceptions. Qualitative research, a well-established method in management studies, is praised for its ability to provide detailed insights and contextual explanations for modern management challenges. Creswell (2017) supported this by noting that qualitative research relies on text and image data, involves unique steps in data analysis, and uses diverse designs. Creswell (2017) also mentioned that qualitative research is often chosen due to the nature of the research questions, which frequently start with 'how' or 'what', prompting an exploration into the subject matter. This research utilized a case study design and was used to describe student responses to Wordwall as an English learning assessment tool in non-formal education

settings. Case study research can vary in hypotheses, and is applicable across various fields (Hancock et al., 2021). It involves in-depth analysis of phenomena in specific settings, requiring valid data obtained through interviews, observations, or documentation.

Research Participant

The study involved 16 students from grades 4 until 6 in various elementary schools. The vocabulary level of these students is still at the A1 and A2 levels. However, some students in grade 4 were still learning basic vocabulary concepts such as nouns, verbs, and adjectives. These concepts were taught using Wordwall, an interactive tool designed to enhance their learning experience. All participants had prior experience using Wordwall in their language learning, which was often facilitated by their teachers at Rumah Belajar AII.

To maintain confidentiality, all participants are given the codes P1-P16 allowing the researchers to collect detailed and nuanced data while respecting the students' privacy. This approach aims to capture students' perspectives on their engagement with Wordwall, providing in-depth information on how effectively the tool supported their vocabulary learning. English has been a compulsory subject for students in Indonesia since grade 3rd of elementary school. This has been stated in the Indonesian Ministry of Education and Research Law No. 12 of 2024 (Kemendikbud, 2024) regarding English as a compulsory subject for grade 3rd elementary school students. Therefore, the researcher wrote down students' experiences in learning English in Table 1 starting from grade 3rd of elementary school.

However, there are some limitations to this study that should be noted, particularly regarding the sample size and its potential impact on the generalizability of the findings. With only 16 participants, the sample size is relatively small, which may limit the extent to which the findings can be generalized to a broader population of elementary school students. Additionally, the participants were all selected from a single educational setting, Rumah Belajar AII, which may not fully reflect the wide range of educational contexts and practices across different schools or regions. This focus on a specific group means the findings may be more indicative of the unique environment and teaching methods employed at Rumah Belajar AII rather than being broadly applicable to all young learners using Wordwall.

Table 1
Participants Demographic Information

Participant	Gender	Grade	Age
P1	Male	IV	9
P2	Male	IV	9
P3	Female	VI	11
P4	Female	V	10
P5	Female	V	10
P6	Female	V	11
P7	Male	VI	12
P8	Male	VI	11
P9	Female	IV	9
P10	Female	V	10
P11	Male	IV	9
P12	Male	V	11
P13	Male	V	10
P14	Female	V	10
P15	Male	VI	11
P16	Male	V	10

Instruments

To gain an in-depth understanding of participants' perceptions regarding the implementation of Wordwall in language learning, individual interviews were conducted using a semi-structured approach. These interviews took place in May 2024 at the “Rumah Belajar Aksi Inspirasi Indonesia (AII)” and were held face-to-face with students during their regular Saturday afternoon study sessions. The interview questions were carefully developed based on a review of existing literature on language learning tools and insights from preliminary discussions with educators and students. These questions were designed to explore various aspects of participants' experiences with Wordwall, such as its impact on their engagement, vocabulary retention, and overall enjoyment of learning. Before the interviews, the questions were piloted with a small group of students to ensure clarity and appropriateness for the age group. Feedback from this pilot testing was used to refine the questions, making them more accessible and relevant to the young learners' experiences.

The interviews were conducted by the researcher and two trained teachers, who were briefed on the interview protocol and the importance of creating a comfortable environment for the students. During the interviews, participants were divided into three groups, with each interviewer conducting sessions with five students, and one group having an additional student, to maintain manageable group sizes and ensure in-depth conversations. Each interview lasted between 15 to 20 minutes and was conducted in Bahasa Indonesia to match the young learners' language proficiency. The semi-structured nature of the interviews allowed the researchers to use the prepared questions as a guide while remaining flexible to explore new topics that emerged based on participants' responses. All sessions were audio-recorded and transcribed verbatim, providing a comprehensive data set for thorough qualitative analysis. This meticulous approach ensured that the data collected was both rich and nuanced, capturing the students' genuine perceptions and experiences with the Wordwall application.

Table 2
List of Questions for Interview

No.	List of questions
1.	Does using Wordwall make learning new words more fun?
2.	Do you prefer using Wordwall to learn new words or traditional methods (like books or worksheets)?
3.	How do you feel when you answer correctly and get points on Wordwall?
4.	Do you think using Wordwall helps you remember new words better?
5.	Have you faced any problems while using the Wordwall app?
6.	Do you like the colors, pictures, and layout used in Wordwall?
7.	How does vocabulary learning with Wordwall compare to other methods?
8.	Does the Wordwall application help you improve your vocabulary knowledge?
9.	Do you still want to learn vocabulary using the Wordwall app?

Data analysis

Qualitative research is characterized by the use of textual and visual data, following a structured process in data analysis, and employing various research designs. Creswell (2017) emphasized that the nature of the research questions often determines the decision to undertake qualitative research. These questions typically begin with "how" or "what," prompting researchers to delve deeper into a topic to uncover and describe underlying phenomena. Unlike quantitative methods, qualitative data analysis is interpretive, focusing on understanding the meanings and patterns within the data (Creswell & Creswell, 2017). In this study, the interview data was analyzed using inductive thematic analysis, following the four-step process outlined by Cohen et al. (2002). The first step involved generating units of natural meaning, where researchers identified significant statements and phrases directly

related to the participants' experiences and perceptions. These units were then classified and categorized into meaningful groups based on similarities and differences, allowing for the emergence of initial patterns and themes. In the third step, narratives were constructed to describe the content of the interviews, providing a detailed account of the participants' viewpoints and experiences. Finally, the themes that emerged were interpreted, enabling a comprehensive understanding of the data.

The thematic analysis process was thorough and systematic, ensuring that only relevant responses from the interviews were carefully selected and analyzed. Each response was examined within the context of the respondents' intended meanings, allowing for a nuanced interpretation of the data. To ensure confidentiality and consistency, each respondent was assigned a unique code (P1-P16), which was used throughout the analysis. This coding system helped maintain a structured and coherent interpretation of the data, focusing on the core themes and insights derived from the participants' narratives.

To validate the themes, the researchers employed several strategies. First, peer debriefing sessions were conducted, where researchers reviewed and discussed the identified themes to ensure that they accurately represented the data. This collaborative approach helped refine the themes and reduce potential biases. Additionally, member checking was used to validate the findings, involving participants in reviewing the preliminary results to confirm that their experiences and perspectives were accurately captured. This process enhanced the credibility and reliability of the thematic analysis, ensuring that the final themes were grounded in the participants' authentic experiences and reflections.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

Engagement and Motivation in Vocabulary Learning

The positive responses from all students when asked if the wordwall made learning new words more fun indicated that its interactive elements and visual stimulation effectively support vocabulary acquisition. The students' responses support the idea that a wordwall that incorporates engaging features such as games can increase student interest and investment in the learning process. For example, P3 stated, *"I found it interesting and fun to learn with Wordwall,"* Additionally, P5 highlighted the collaborative benefits of Wordwall, *"We can learn together, Wordwall provides interesting features such as many pictures that can make us feel interested and engaged with the course."* Student comments aligned with research indicating that interactive and enjoyable learning experiences positively impact student motivation. The use of images and interactive elements not only captures students' attention but also reinforces vocabulary through repeated exposure and context, facilitating deeper learning and retention.

Moreover, wordwall design offers cognitive benefits for students. The interactive interface, which uses visual cues and keywords, helps reduce students' learning difficulties by providing accessible learning tools to help them understand vocabulary. P12 further underscored that, *"pictures and question keywords help in guessing answers"*. The motivational aspect of using Wordwall was also reflected in the students' feedback on the points mechanism and the element of competition. P4 stated, *"I feel happy because I can measure how many vocabulary words I can answer correctly,"* These illustrated that Wordwall, as a digital learning tool, effectively engages students through its interactive and visually stimulating features, while also supporting vocabulary retention and fostering a positive, motivating learning environment.

Perceived Effectiveness of Wordwall Features

Students responded regarding the use of Wordwall for vocabulary acquisition revealed a range of insightful perspectives that underscore the tool's effectiveness and multifaceted approach. Specifically, many students expressed confidence in Wordwall's ability to aid memory retention. For instance, P16 stated that using pictures alongside vocabulary terms can improve memory by creating connections that are easy to remember. *"Because the wordwall provides pictures along with the vocabulary, it is easy for me to remember the words of vocabulary"*. Similarly, P12 pointed out that recognizing linguistic similarities between English and Indonesian also facilitated easier retention of vocabulary. He stated, *"There are some English and Indonesian vocabularies that are similar, so it is easy to remember such as 'astronaut', 'artist', etc."* The combination of visual elements with text can help students remember new vocabulary by creating strong associations. This approach also uses students' existing language knowledge, like familiar patterns and similar words, to connect new vocabulary to what they already know.

Furthermore, students also expressed that Wordwall introduced them to new vocabulary in a dynamic and engaging manner. P15 emphasized that the interactive nature of Wordwall helped expand their vocabulary, while P4 mentioned that the gamified aspects made learning enjoyable. Wordwall elements of personal agency is crucial as it allows students to take ownership of their learning process, thereby increasing engagement and satisfaction. P7 further highlighted, *"We are engaged in learning, and we have the opportunity to determine our answers."*

Additionally, the competitive aspect of Wordwall was mentioned by several students as a significant motivator, encouraging students to participate actively and strive for better performance. P2 shared, *"We feel excited because we compete with friends to answer quickly and correctly."* Wordwall platform also effectiveness in creating a positive and stimulating learning environment, where learning is associated with enjoyment and achievement. P10 expressed, *"We feel entertained and happy if we can answer correctly."* The combination of entertainment and education, often referred to as edutainment, has been found to enhance student engagement and learning outcomes (Othman et al., 2022).

Comparison of Learning Methods

Most students expressed a strong preference for using Wordwall over traditional learning methods when it comes to vocabulary acquisition. They cited several benefits of the platform that make it more effective and appealing than conventional tools like dictionaries or textbooks. One of the key reasons for this preference is the platform's use of visually stimulating images and interactive activities, which many students found to make the learning process more enjoyable and engaging. For instance, P14 remarked that using Wordwall made them *"Using Wordwall makes us feel happier compared to dictionaries or books,"*. This highlighted how the platform's design elements contribute to a more positive learning experience. This preference incorporated an interactive and multimedia elements, can offer a more engaging alternative to traditional methods that often rely on passive learning techniques.

The students also noted that Wordwall's interactive features helped maintain their interest and prevent boredom. P7 commented on the satisfaction they derived from the platform's features, stating that the inclusion of pictures and interactive guessing activities not only kept them engaged but also made learning more dynamic. This feedback indicated that Wordwall's interactive components effectively capture students' attention and sustain their interest, which is a significant advantage over more static learning tools. The use of

multimedia elements can make the learning experience feel less monotonous and more varied, encouraging students to stay focused and actively participate in the learning process.

Traditional vocabulary learning often involves rote memorization and repetitive exercises, which can lead to disengagement and reduced motivation over time. By contrast, Wordwall offers a range of interactive and dynamic learning opportunities that create a stimulating environment for students. according to Gee as cite by (Shu & Liu, 2019) learning tools that incorporate interactive and game-like elements can enhance engagement by making learning feel more like play. This approach not only helps maintain students' interest but also promotes a more active and participatory form of learning, which can lead to better retention and understanding of new vocabulary.

Preferences and Satisfaction with Wordwall

Most students found the design elements of Wordwall, such as colors, images, and layout, to significantly enhance their learning experience. The use of vibrant colors and dynamic visuals made the learning process more engaging and enjoyable, capturing students' attention and keeping them actively involved in their learning. As P1 noted, *"Well, I like the colors because they show motion and interesting visuals"*. These elements not only make the platform aesthetically pleasing but also add a sense of movement and interactivity. These dynamic features contribute to a stimulating learning environment, making it easier for students to focus and absorb information. This aligned with (Mayer, 2024) suggested that integrating visual and textual information can enhance memory retention and understanding by helping learners to create meaningful connections between new and existing knowledge.

Furthermore, several students highlighted the positive impact of Wordwall's engaging pictures on their motivation and participation. For example, P9 mentioned that, *"My friends and I felt happy because we were all active and involved in answering the correct answers because of the interesting pictures."* This indicated that visually appealing content can foster a collaborative learning atmosphere, encouraging students to engage more fully with the material. Additionally, P14 emphasized the importance of clear visuals in aiding comprehension, stated that even when they did not know the meaning of a word, the clear pictures made it easier to guess the vocabulary. *"The picture is very clear, so it is easy to guess the vocabulary even if you don't know the meaning."* This responses also suggested that visual aids can serve as valuable tools for supporting vocabulary acquisition, particularly when students encounter unfamiliar words.

Visual elements provide contextual clues that can help learners infer the meanings of new words, facilitating a deeper understanding and reducing the cognitive load associated with learning unfamiliar vocabulary. By making abstract concepts more concrete and accessible, clear and relevant images can bridge the gap between known and unknown information, enabling students to build on their existing knowledge more effectively.

Challenges

Although participants generally expressed satisfaction with Wordwall, some students highlighted specific challenges that could negatively impact their learning experience. For instance, P2 pointed out difficulties associated with longer questions, noting that lengthy phrasing made it challenging to identify key clues and link them with the answer choices. *"If the question is too long, it is difficult to guess the clue of the question and connect with the choices."* When questions are overly complex or lengthy, students may struggle to process the information effectively, leading to confusion and a reduced ability to make accurate connections. This finding highlighted the need for clarity and conciseness in question design to facilitate better comprehension and prevent cognitive overload, which can be particularly

detrimental in a digital learning environment where immediate engagement and understanding are crucial.

In addition, several students identified unfamiliar vocabulary as a significant barrier to their success with Wordwall. P5 mentioned that encountering unknown words made it difficult to answer questions correctly, *"There are still many vocabulary words that I don't know, so it is difficult for me to answer correctly."* while P11 emphasized the challenges posed when answer choices included vocabulary that was new to them. *"If the answer choices use new vocabulary that I don't know."* These comments underscored the importance of aligning instructional content with students' current vocabulary levels to ensure that they can fully participate and benefit from the learning activities. Introducing too many new words at once or using vocabulary beyond the students' proficiency level can create unnecessary hurdles, reducing their confidence and ability to engage effectively with the material.

Discussion

There was a varied understanding among students in non-formal education regarding the use of the Wordwall application in their learning. The research findings revealed that students generally perceive Wordwall as an effective tool for vocabulary acquisition. Many students reported that the platform's interactive features, such as games, pictures, and quizzes, significantly enhanced their learning experience by making it more engaging and enjoyable. This aligned that gamified learning platforms can improve motivation, engagement, and memory retention by creating an enjoyable learning environment (Oliveira et al., 2023; Rodrigues et al., 2021). For instance, students highlighted the role of visual aids in aiding memory retention which is consistent with Cognitive Theory of Multimedia Learning (Mayer, 2024) supposed that combining visual and verbal elements enhances learning. Students like P16 noted that the use of pictures alongside vocabulary terms made the words easier to remember, underscoring the importance of multimedia elements in supporting memory retention. Similarly, P12 mentioned that recognizing linguistic similarities between English and Indonesian facilitated easier vocabulary retention, which is in lined with the findings of Nation (2001) on the importance of cross-linguistic similarities in vocabulary learning.

The preference for Wordwall over traditional methods such as books or worksheets suggests that digital tools can provide a more dynamic and engaging learning experience. Students such as P6 and P13 emphasized how the gamification nature of Wordwall makes learning feel like playing a game, which increases motivation and reduces perceived effort in learning. According to Csikszentmihalyi's as cited by (Tse et al., 2020) stated that individuals are more likely to achieve a state of deep engagement and enjoyment when activities provide an optimal balance between challenge and skill. Khaldi et al. (2023) stated that digital learning tools can be more effective in maintaining student interest and promoting active learning. However, this preference also suggests that traditional methods may lack the interactive and motivational elements necessary to keep students engaged.

Despite the generally positive feedback, the research findings highlighted specific challenges students faced, particularly with longer questions and unfamiliar vocabulary. These challenges provide an opportunity for a more critical analysis. Students like P2 and P11 expressed difficulty in understanding lengthy questions and unfamiliar vocabulary, which hindered their ability to select correct answers. This indicated potential cognitive overload, where the cognitive demands of processing lengthy or complex questions exceed the students' working memory capacity (Sweller, 2020). Moreover, the difficulty with unfamiliar vocabulary which suggested that learners need to reach a certain level of vocabulary knowledge to be able to understand and learn new words effectively (Ludewig et al., 2023). The finding indicated that when students encounter new vocabulary without adequate contextual support or scaffolding, it can lead to frustration and decreased student engagement.

Finally, the study suggested that educators need to ensure that questions are clear and concise to avoid cognitive overload. Educators could consider integrating adaptive learning technologies that adjust the difficulty of questions based on students' proficiency levels, thereby providing a more personalized learning experience. Additionally, incorporating features that gradually introduce new vocabulary with contextual support, such as providing definitions or example sentences, could help mitigate the challenges associated with unfamiliar vocabulary. Moreover, educators should consider supplementing digital tools like Wordwall with traditional teaching methods that offer more explicit vocabulary instruction and practice. This blended approach could help reinforce vocabulary learning and provide the scaffolding necessary to support students who may struggle with digital-only methods. As this study suggests, future research could explore how these tools can be further adapted to meet diverse learners' needs and how they can be effectively integrated into different educational settings to maximize their benefits.

CONCLUSION

This study explored the effectiveness of Wordwall as a digital learning tool for vocabulary acquisition among students, highlighting both its benefits and challenges. The findings demonstrate that Wordwall can significantly enhance student engagement and enjoyment through its interactive and gamified features. Students reported that the platform's use of colors, images, and dynamic activities made learning more appealing, aligning with existing literature on the benefits of multimedia learning and gamification. However, the study also identified challenges, such as difficulties with longer questions and unfamiliar vocabulary, suggesting areas for improvement in digital learning tools. The research contributes to the field by providing insights into the specific ways digital platforms like Wordwall can transform vocabulary learning, particularly in non-formal education settings. It underscores the importance of incorporating interactive and visually engaging elements to maintain student interest and promote active learning. Additionally, the study highlights the need for adaptive learning features that can tailor content to individual proficiency levels, ensuring that students are neither overwhelmed nor under-challenged.

Practically, this study offers valuable guidance for educators seeking to enhance vocabulary instruction using digital tools. By integrating Wordwall into their teaching practices, educators can create a more dynamic and engaging learning environment that supports both motivation and memory retention. Moreover, the study suggests that educators should complement digital tools with traditional methods to provide comprehensive vocabulary instruction and address the challenges students may face.

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