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Research Article

Exploring the Implementation of *Wordwall* in English Learning for PKPBI Students in UIN Malang

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Abstract
This study investigates the implementation of Wordwall as a multimodal digital learning tool to enhance English vocabulary acquisition among third-semester PKPBI students from Tadris Mathematics and Qur'anic Interpretation majors at UIN Malang. Employing a descriptive qualitative design, data were collected through classroom observations, student interviews, documentation of student tasks, and pre- and post-tests. The findings reveal that Wordwall significantly improved students' vocabulary mastery, as demonstrated by the notable increase in post-test scores across both classes. Three main strategies, Meaning-Matching Strategy (MMS), Contextual Understanding (CU), and Pronunciation and Spelling Accuracy (PSA), were effectively applied through various Wordwall features such as Matching Game, Type the Answer, Wordsearch, and Open the Box. Students reported positive perceptions regarding Wordwall's effectiveness, motivational appeal, engagement, learning experience, and visual design. The game-based format created an enjoyable and interactive learning environment that supported retention and contextual vocabulary use. However, a few students expressed challenges related to visual complexity and internet dependency, reflecting the need to align digital tools with students' cognitive load and accessibility. This research contributes uniquely by integrating real-time classroom observations with student reflections from two distinct academic backgrounds and emphasizing Wordwall's role in personalized, multimodal vocabulary learning. The study highlights that while Wordwall is effective, its design and implementation must be adaptable to diverse learner profiles and technological readiness.

Keywords
vocabulary acquisition, multimodal learning, Wordwall, student perception, digital learning tools.

Introduction
Vocabulary mastery is a fundamental aspect of English language learning because it forms the foundation for other language skills such as reading, writing, listening, and speaking. However, in the

context of English language learning at religious universities such as UIN Malang, particularly in the Special English Language Program (PKPBI), it has been found that non-English major students, such as those in Mathematics Education and Quranic Interpretation face difficulties in understanding and remembering vocabulary. This is exacerbated by low learning motivation and limited variety of learning media used in the classroom.

Previous studies have shown that digital learning media such as Wordwall can improve students' motivation, engagement, and vocabulary comprehension (Ilahiyati et al., 2023; Ariagam, 2024; Oña et al., 2024; Paksi et al.2023). Wordwall offers an interactive and multimodal game-based learning approach that has been proven to enhance students' memory and learning experiences in various contexts. However, most of these studies have focused on elementary or secondary school levels and have not extensively explored its application among non-English major students at Islamic universities. Based on a literature review, there is a research gap in terms of exploring the use of Wordwall among students with different academic backgrounds and basic English proficiency (A1/A2). Additionally, few studies have combined direct classroom observations with interview data and learning documentation to uncover students' experiences and perceptions of digital media in a holistic manner.

This gap needs to be bridged to understand how Wordwall can be effectively adapted in the context of English language learning in PKPBI. Therefore, this study aims to explore the implementation of Wordwall as a multimodal learning medium in improving the vocabulary mastery of PKPBI students, as well as to analyze students' perceptions of the effectiveness, engagement, and learning experiences of using Wordwall.

The main questions of this study are: (1) How are Wordwall strategies applied to improve vocabulary mastery in PKPBI classes? and (2) What are students' perceptions of using Wordwall as a digital learning medium? This study offers novelty in the form of a combination of participatory observation, semi-structured interviews, and pre-post-test analysis to evaluate the use of Wordwall among two groups of students from different academic backgrounds, thereby contributing new insights into the role of digital media in the context of Islamic education and English language learning at the university level.

Method

This study employed a descriptive qualitative design to explore how the Wordwall application, as a multimodal digital platform, could support vocabulary acquisition and English proficiency among third-semester students in the PKPBI program at UIN Malang. This design was chosen because it allows for an in-depth understanding of the natural classroom context without manipulating variables, focusing instead on participants' experiences, behaviors, and perceptions. The goal was not to test a hypothesis but to describe how digital tools can enhance learning for non-English majors from different academic disciplines, specifically, students majoring in Tadris Mathematics and Qur'anic Interpretation.

The participants of this study consisted of 60 students from two PKPBI classes: 23 students from Class A (Tadris Mathematics) and 37 from Class B (Qur'anic Interpretation). These students were selected because they were enrolled in the mandatory PKPBI English course and shared the same basic proficiency level (A1/A2). The sampling method was purposive, targeting students who represented the typical user of the PKPBI program and whose learning outcomes could provide relevant insights into the implementation of Wordwall in this context.

The study was conducted over a period of one month, starting from 9th June 2025 to 9th July 2025. Three meetings were held for each class, with a total of six meetings. To collect the data, the researcher used three main instruments: pre-test and post- test, participant observation and semi-structured interviews. During the classroom observations, the researcher acted as a participant-observer and

documented student interactions and reactions in field notes based on a pre-developed observation blueprint. This blueprint focused on several aspects, such as active participation, applied strategies (Meaning-Matching Strategy, Contextual Understanding, Pronunciation and Spelling Accuracy), emotional engagement, vocabulary use, and media response. The observation tool was validated through expert judgment and triangulated by comparing data from observation, interviews, and student documentation to ensure functional validity.

The interviews were conducted with four selected students, two from each class, representing both high and low proficiency levels. The questions focused on their perceptions of Wordwall's effectiveness, engagement level, attractiveness, and overall learning experience. The semi-structured format allowed flexibility in responses while maintaining consistency in the themes explored. All interviews were audio-recorded, transcribed verbatim, and thematically coded.

For data analysis, a thematic approach was used. Observational field notes and interview transcripts were carefully reviewed to identify recurring patterns and categories. Data were analyzed under three main strategies: Meaning-Matching Strategy (MMS), Contextual Understanding (CU), and Pronunciation and Spelling Accuracy (PSA). These themes were used to understand how students internalized vocabulary through different Wordwall activities, such as Matching Game, Unjumble, Type the Answer, and Complete the Sentence. The researcher also compared pre-test and post-test results to describe changes in vocabulary mastery, although the focus remained qualitative rather than statistical.

Throughout the research process, triangulation of methods and sources was applied to ensure trustworthiness. Furthermore, findings were interpreted using theoretical frameworks such as Motivational Learning Theory (Dörnyei, 2007), Student Engagement Theory (Kahu & Nelson, 2018), and Cognitive Load Theory (Sweller, 1998) to contextualize the data and explain variations in students' learning experiences.

Results

Vocabulary Learning Strategies Observed through Wordwall Implementation

This study explored the use of Wordwall as a multimodal digital learning tool to enhance vocabulary acquisition for PKPBI students in two departments: Tadris Mathematics and Qur'anic Interpretation. The findings were collected through classroom observation, student interviews, documentation of learning activities, and vocabulary pre-tests and post-tests.

In this sub chapter, the data were collected through classroom observations during three meetings, in two PKPBI classes, Tadris Mathematics and Qur'anic Interpretation. The researcher used thematic analysis to identify the theme which correlated with the key of strategies used by students when applied Wordwall in learning vocabulary comprehension. The themes were breakdown into some codes : Meaning-Matching Strategy (MMS), Contextual Understanding (CU), and Pronunciation Accuracy (PSA).

1. Meaning-Matching Strategy (MMS)

One of strategies used for vocabulary learning in PKPBI classes is MMS. It means that students are asked to match the words with meaning, a synonym, or the definitions. Meaning matching strategy is implemented through Wordwall features such as *Matching game*, *Game show Quiz,* and *Type the answer* which all the designed to strengthen textual understanding of word meanings. The following learning activities aim to enhance students' ability to remember vocabulary by emphasizing the understanding of word meanings:

Table 1. The comparison of student success rates in implementing the MMS strategy

Feature	Average Success Rate	Class with Higher Performance	Implied Strategy Focus
Gameshow Quiz	84.02%	Class A (86.96%)	Complex Recall (Antonym/Synonym)
Matching Game	76.97%	Class A (78.26%)	Simple Recall (Matching Meaning)
Type the Answer	66.40%	Class B (67.57%)	Spontaneous Production/Retrieval

The result showed that the highest scores for games feature are Gameshow Quiz and matching game for both classes, that indicating that the feature is the most effective for testing vocabulary knowledge. In contrast, the Type Answer feature produced the lowest result because the game was indicated spontaneous vocabulary production from a clue is the most challenging task for students.

Analysis for different responses between class A (Tadris Mathematics) and class B (Qur'anic Interpretation) were minor. Class A consistently outperformed Class B in Gameshow Quiz (86,96%) and matching game (78,26%). While, Class B showed the higher success in performed Type the answer (65.75%) than class A (65.22%). The percentage results show the most students can improve their vocabulary skills through Wordwall. In conclude, almost all features of Wordwall which were implemented repeatedly helped the students to internalize vocabulary effectively (Kahu and Nelson. 2018).

2. Contextual Understanding (CU)

Contextual understanding strategies are used in vocabulary learning with the aim of helping students understand the meaning of words based on the context of a sentence or description, rather than just from a single definition to assess students' ability to use vocabulary appropriately in the context of sentences, the researcher utilized several *Wordwall*-based activities, such as *Complete the Sentence and Unjumble*, and provided simple writing tasks. These activities are used to help students understand the meaning of vocabulary through descriptions or contextual clues.

Table 2. The comparison of student success rates in implementing the CU strategy

Feature	Average Success Rate	Class with Higher Performance	Implied Strategy Focus
Complete the sentence	65.51%	Class B (65.79%)	Syntactic Awareness
Unjumble	76.43%	Class B (78.95%)	Sentence Structure

The results prove that class B has the highest percentage compared to class A in completing both games. The average rate showed that the percentage both classes is not too far apart. It was indicated that both games success as the strategy for improve the student vocabulary and the games were continuously exposed so that students used to learn vocabulary in easy way.

Based on result of the class observation, both classes showed high interest and motivation through the selected game features above. It means that both of games were very suitable for application in helping students master vocabulary in syntactically with ease. It can be concluded, complete the sentence and unjumble game demonstrate suitability in enhancing student's vocabulary skills, particularly in recalling vocabulary through spelling and placement.

3. Pronunciation Accuracy (PA)

The aspects of pronunciation and spelling are an important part of vocabulary acquisition as they are directly related to speaking skill. In this study, researcher used the *Open the Box* activity equipped with audio pronunciation to train students' phonetic skills. Students are asked to open the box randomly, listen

to the pronunciation of the vocabulary through the inserted audio, then imitate it and say the word with the right pronunciation.

Table 3. The comparison of student succes rates in implementing the PA strategy

Feature	Average Success Rate	Class with Higher Performance	Implied Strategy Focus
Open the Box	93.48%	Class B (100.00%)	Pronunciation & Production

The results of the observation demonstrate that both classes were capable of spontaneously produce sentences from the randomly selected vocabulary within the Open the Box feature. This provides evidence that the game effectively facilitates vocabulary retention through auditory stimuli and encourages students to practice spontaneous oral production such as pronouncing and forming sentences directly.

4. Result Pre-Test and Post-Test

To validate the learning progression of each class throughout the three observation sessions, the researcher employed pre-test and post-test as the primary quantitative evidence of the students' success in achieving vocabulary mastery subsequent to the implementation of Wordwall features.

Table 4. Result of pre-test and post-test

Class	Mean Pre-test	Mean Post test	Score Increases
Class A	81.4	97.7	+16.3
Class B	69.5	98.2	+28.7

Based on the result of the pre-test and post-test, there was a significant increase in the average score between the pre-test and post-test results in both classes, Class A and Class B. In Class A, the average pre-test score was 81.4, while the post-test score increased to 97.7. This increase shows excellent progress in mastery of the material after the learning process.

This reflects that the learning strategies implemented, possibly through media such as Wordwall, had a positive impact on students' understanding and abilities. Meanwhile, Class B also showed a remarkable improvement. The average pre-test score for this class was 69.5, then jumped to 98.2 on the post-test.

Students' Perceptions of Using Wordwall to Improve English Proficiency

This sub chapter explain the result of the student's perception after implementing the Wordwall. Through semi-structured interview, the data were collected and analyze thematically with identify the perception towards effectiveness perception (EP), engagement and motivation (EM), learning experience (LE), the student attractiveness (AT) and the perception towards general perception is evaluation (EV) in supporting their English proficiency. The researcher presents the data by classifying the code and the table of content.

Table 5. Result of the student perspective

No.	Perception Theme (Codes)	Qualitative Findings Description	Percentage of Respondents (N=4)
1.	Effective Perception (EP)	Wordwall helped in vocabulary comprehension and improved memory retention.	100% (4/4)
2.	Engagement & Motivation (EM)	Students felt motivated and reported enjoying the learning process.	100% (4/4)
3.	Learning Experience (LE)	All students mentioned their favorite Wordwall features, indicating diverse and engaging learning interactions.	100% (4/4)
4.	Attractiveness (AT)	Students appreciated the good design and visually colorful interface.	50% (2/4)
5.	Evaluation/Technical Issues (EV)	Students reported technical complaints, mainly related to internet instability.	50% (2/4)

The results of the semi-structured interviews indicate that students generally perceived Wordwall positively in supporting their English vocabulary learning. All students (4 out of 4) expressed that Wordwall was effective in helping them understand and remember vocabulary more easily (EP), and they felt motivated and enjoyed the learning process (EM). In terms of learning experience (LE), each student mentioned a different favorite feature of Wordwall, indicating that the tool offered diverse and engaging learning interactions.

However, only half of the respondents (2 out of 4) highlighted the visual attractiveness (AT), appreciating the design and color of the interface, while the other half remained neutral. Similarly, 2 out of 4 students expressed concerns related to the technical aspects (EV), such as internet instability and feature complexity. These findings suggest that while Wordwall effectively enhances motivation and vocabulary comprehension, its technical performance and visual complexity should be considered to optimize inclusivity and usability for all students.

Discussion

Vocabulary Learning Strategies Observed through Wordwall Implementation

The aim of this study is to explore the feature of Wordwall as a digital platform can help the improvement of students in PKPBI, especially Tadris Mathematics and Qur'anic Interpretation majors and examine the perception of students who have high and low motivation in learning English and ask them to give their perception after using Wordwall in improving their vocabulary understanding.

To answer this question, the researcher explored the findings obtained from this study regarding the features that can help students improve their vocabulary skills. By combining the findings with the literature of study, the researcher aims to provide a deeper understanding of this topic. This discussion will highlight the study's contributions in identifying potential disagreements with prior studies and propose plausible explanations for these differences.

The findings result conclude that the strategy for improvement based on meaning-matching, contextual understanding, and pronunciation spelling accuracy are proven effective for improve the vocabulary comprehension for students of Tadris Mathematics and Qur'anic Interpretation. The meaning matching strategy allow students for mapping of words into meaning or definitions directly through activities such as *Matching game and type the answer*. This finding in line with Nation (2001) theory that matching words with their meanings is an essential first step in building vocabulary knowledge.

This strategy was proven to help improve their vocabulary skills as reflected to the students positive responses during the observation sesion. This is supported by Kahu and Nelson (2018), stated that responses such as enthusiasm, requests for more challenging questions, and active participation during play indicate *behavioral engagement*, while expressions such as "exciting" and "fun" reflect *emotional engagement.* This is further emphasized by Dörnyei (2007), who semphazied that enjoyable learning media can increase students' intrinsic motivation to learn a foreign language.

The findings also find that almost all feature of Wordwall which were implemented repeatedly helped the students to internalize vocabulary effectively. Through the repeated exposure and the giving variation feature of Wordwall such as mathing game, unjumble etc, students were able to strenghten their undestanding of word meaning, undesrtand in using context meaning, pronounce and spelling acuuracy. These findings are in line with the principles of spaced repetition and retrieval practice in vocabulary learning (Nation, 2001; Brown, Roediger & McDaniel, 2014), which stated the frequencies of meeting and the repitition material of vocabulary learning will improve long-term retention.

Based on the results of the study, positive aspects were not only found in students' responses to the use of certain Wordwall features, but positive aspect also can be found based on the student engagement

during the class. During the observation process, it was found that classes A and B had different learning styles, means that student engagement with the Wordwall also can differ from their learning style. For example, student A2 actively joined and showed high enthusiasm in matching words with their definitions.

On the other hand, despite the students showed positive responses, there were differences in learning style characteristics. Student B3 responses toward to the use of word search feature, when student B3 make random letters were too many, which made the student feel stressed. This response reflects an overload of cognitive load, although the digital methods, such as Wordwall are designed to increase engagement, the effects can differ among students depending on their learning styles and cognitive ability.

This is supported by Sweller's (1998) cognitive load theory, which states that each individual has a limited working memory capacity, and if the cognitive load exceeds that capacity, the learning process will be disrupted. This is the main key in this discussion about the effectiveness of digital learning media towards the student's cognitive capacity. As a result, even though Wordwall offers a fun and interactive way for learn vocabulary, it is not effective universally but needs to be adapted with the students need and specific characteristics of each class.

These findings above elaborated to the new contribution to the development of digital learning especially in the context of students of PKPBI with two different characteristics. Adding the findings from Ariagam (2024) which only focus on the Wordwall strategy effectively enhance student English vocabulary not using observation field note just from interview of students to get the perception in during using Wordwall. This allowed the researcher to record the student's spontaneous reactions during learning, as like their enthusiasm, confusion, or their emotional, which is cannot be always get in through the result of interview. In conclude, this approach strengthens the validity of the data and broaden the understanding on how student engagement was formed in the context of using Wordwall directly.

Students' Perceptions of Using Wordwall to Improve English Proficiency.

Based on the result of the findings, the student's perception of the use of Wordwall in vocabulary learning showed the positive response from the respondents. The first, in the term of the effectiveness in using Wordwall, all the respondents both high and low competence, stated that Wordwall help them to understand and remember the vocabulary. They feel guided by using Wordwall in understanding synonym and antonym. This finding elaborated with the statement by Nation (2001) stated that matching words with their meanings is an important foundational step in vocabulary mastery. In addition this finding in line with previous studies by Ariagam (2024), but this study expands the findings to the context of non-language students, Tadris Mathematics and Quranic Interpretation Majors which has not been extensively explored before.

Other findings in the aspect of engagement and motivation, all students stated that they felt more interested and enthusiastic in participating in the Wordwall-based learning process. These findings showed that Wordwall is capable of eliciting behavioral engagement, such as their active participation and willingness to repeat learning as well as emotional engagement, such as their feelings and enjoyment in vocabulary learning. As explained by Kahu and Nelson (2018). These findings are in line with the statement by Dörnyei (2007) that the use of enjoyable learning media can increase students' intrinsic motivation in learning foreign languages. The findings elaborated provide the new insight of motivational perception for complement the previous research by Ilahiyati et al (2023) which disscuss the effectiveness of Wordwall feature but not mention about the sudents perspective especially the motivational perspective.

In term of learning experience, the students described the using Wordwall as a new and enjoyable experience. All the respondents mentioned their favourite features such as open the box, wordsearch, unjumble game because of the variation and the uniqueness of the feature of Wordwall. Each respondent show preference for different features, indicating that digital media such as Wordwall can provide a personalized learning experience. This is an edit value in the context of PKPBI classes, where the variety of students' learning styles needs to be considered.

However, there are critical statement regarding the attractivness of the design and overall evaluation. Statement from stduent B3 stated that the visual appearance of wordsearch too confusing, student B3 felt dizzy when seeing many random letters and required high concentration. This reflected Cognitive Load Theory (Sweller, 1998), which states that human working memory has limited capacity, and if the cognitive load is too large, learning effectiveness will decrease. This feedback highlights the importance of a balance between visual appeal and usability, so that Wordwall becomes an inclusive and accessible tool for all students.

This finding above complements previous studies such as Klimova & Kacetl (2018) and Sundqvist & Sylvén (2016), who note that while digital game-based learning platforms can boost motivation and vocabulary acquisition, poorly designed visual elements or excessive complexity may hinder learning, especially for students with lower language proficiency. Thus, the results of this study add nuance to earlier research by showing that not only the presence of gamification, but the quality and clarity of visual design, play a crucial role in determining the effectiveness of digital learning tools like Wordwall. In the overall evaluation, students acknowledged that Wordwall created a fun, interactive, and memorable learning experience. However, they also reported several challenges, such as technical issues (e.g., internet connection) and certain feature designs that needed to be adjusted. These findings indicate that the success of digital learning media is not only determined by its content, but also by technical accessibility and student readiness in using technology. Overall, this discussion concludes that the use of Wordwall in the context of PKPBI vocabulary learning is able to improve vocabulary comprehension, encourage emotional and behavioral engagement, and provide a fun and adaptive learning experience. An important contribution of this study is its context Islamic studies and science students, which has received little attention in similar studies. In addition, the evaluative dimension and negative perceptions provide new insights that the success of digital media greatly depends on the suitability of the design to the individual learning needs and capacities of students.

Conclusion

Based on the results of research conducted through classroom observation, interviews, documentation of student assignments, and analysis of pre-tests and post-tests, it can be concluded that the use of Wordwall as a multimodal digital learning medium can significantly improve the English vocabulary of PKPBI students. This is evident from the increase in post-test scores in both classes, as well as positive responses from students to Wordwall features such as *Matching Game*, *Type the Answer*, *Wordsearch*, and *Open the Box*. The three strategies used, namely Meaning-Matching Strategy (MMS), Contextual Understanding (CU), and Pronunciation and Spelling Accuracy (PSA), were proven to help students understand the meaning of vocabulary, recognize context, and improve pronunciation and spelling in a fun and interactive way.

In addition, students' perceptions of Wordwall in general showed positive responses in terms of effectiveness, motivation, engagement, learning experience, and media appeal. Students felt that Wordwall made the classroom atmosphere more lively, made it easier for them to remember vocabulary, and provided a different and not boring learning experience. However, some challenges were also identified, such as reliance on internet connectivity and a game design that some students found too

complex. Therefore, it can be concluded that Wordwall is highly effective for vocabulary learning, especially when tailored to students' proficiency levels and supported by adequate technical readiness.

For future research, it is recommended that future studies explore the use of Wordwall not only in vocabulary learning but also in other language components such as grammar and pronunciation. This would allow for a broader understanding of Wordwall's effectiveness as a comprehensive language learning tool. Additionally, integrating Wordwall with other digital platforms such as Padlet, Quizlet, or Edpuzzle could enrich the multimodal learning experience by supporting diverse learning styles and enhancing student engagement. Future researchers are also encouraged to adopt mixed-method approaches to produce more robust and balanced findings, combining the strengths of both quantitative and qualitative data.

For readers, it is important to recognize the potential of game-based and multimodal learning tools like Wordwall in enhancing students' motivation and learning outcomes. These interactive and enjoyable tools create more dynamic learning environments and encourage active participation. Furthermore, readers are invited to reflect on how technology can support inclusive and differentiated instruction, particularly for students with varying levels of language proficiency. This highlights the importance of creating adaptive and responsive learning experiences that cater to the needs of all learners.

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