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Game-Based Learning Using Wordwall to Improve Students' Vocabulary in the EFL Classroom

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Abstract. This study aims to investigate the effectiveness of Game-Based Learning through the Wordwall application in improving students' vocabulary mastery at SMK Kesehatan Medika Farma. The subjects of this study were 34 tenth-grade students of the TLM (Medical Laboratory Technology) class, selected using random sampling technique to ensure varied student proficiency levels. A preliminary observation revealed that students' English ability, especially in vocabulary, was still limited, affecting their reading and writing perfomance. The research employed a Classroom Action Research (CAR) design conducted in two cycles. The instruments used included a vocabulary test consisting of 15 multiple-choice participation and motivation during the learning process. Quantitative data were obtained from the pre-liminary study, cycle I, and cycle II results, while with qualitative data were derived from classroom observations. The data analysis combined quantitative and qualitative approaches. The findings revealed that the integration of Wordwall as a Game-Based Learning medium effectively enhanced students' vocabulary mastery, motivation, and classroom engagement. The use of interactive digital games made learning more enjoyable, promoted active participation, and supported students' retention of new vocabulary.

Keywords: Game-based learning, Wordwall, Vocabulary Mastery, EFL

Introduction

Vocabulary, as one of the knowledge areas in language, plays a great role for learners in acquiring a language(ALQAHTANI, 2015). Vocabulary is a collection of words used in a language. Vocabulary becomes the basic foundation in the acquisition of any language*(Mukhtar et al., 2023)*. A board vocabulary will also give someone an easier time understanding or expressing ideas via speaking or written text. Vocabulary mastery also plays an important role in reading, writing, speaking, and listening skills.

Many students find English a difficult subject to understand, especially since the sentence structure and pronunciation are different from their daily language. In addition, monotonous learning methods often make students feel bored and uninterested in learning more deeply. This causes them to put less effort into enriching their vocabulary. As a result, many students have difficulty understanding English texts, writing fluently, or even speaking in everyday situations. If this goes on, their command over English will not blossom. Therefore novel, challenged educational methods are too be introduced to teach and make students interested in learning and have enriched vocabulary (Khaerunnisa et al., 2021). Technology can introduce vocabulary teaching to attract students' interest by word play, and emphasize that it can improve word learning Dalton & Grisham, 2011, cited in Black & Wright, 2024). One method that can be used to improve students' vocabulary mastery is a game-based learning strategy. This strategy is a learning approach that uses games as a tool in the teaching and

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learning process*(Al-Azawi et al., 2016)*. First of all, gamification creates an interesting and interactive learning environment, which can increase students' involvement in the learning process (Kharizmi et al., 2024). The games designed for game-based learning not only make the learning atmosphere more fun, but also provide a more hands-on learning experience. Vocabulary practices based on motivation theory include the use of word-learning games, the development of word consciousness to enhance interest, and strategies that provide student autonomy Wright et al, 2016), cited in Black & Wright (2024). By using this method, students not only memorize vocabulary, but also understand its use in a more real and meaningful context. In addition, game-based learning can stimulate three important aspects of learning, namely emotional, intellectual, and psychomotor. From the emotional aspect, the game can increase students' enthusiasm and interest in English learning(Alotaibi, 2024). From the intellectual aspect, students are more active in thinking and understanding the meaning of the vocabulary they learn. From the psychomotor aspect, the interaction in the game allows students to be more active and involved in the learning process(Prensky, 2001).

Wordwall application is an interactive game learning media that can be used for learning. Activities in Wordwall invite users to play while learning by utilizing frequently used words and visual elements, making learning more interesting and fun through a variety of interactive formats(Alfares, 2025). Wordwall is very flexible and can be used for a wide variety of lessons. Wordwall also has many features such as: matching pictures with available words, crossword puzzles by writing letters, and providing keywords and etc. Besides that, playing quizzes on Wordwall can be done offline. Importantly, students may improve their knowledge and maintain the spirit of collaboration and belonging to the class(Widhiatama & Brameswari, 2024).

Therefore, not only can game-based learning facilitate students to memorize vocabulary in a more enjoyable way, but it also enhances the motivation of learning. What's more, it also contributes to vocabulary retention in students given that they learn in a relaxed and interactive environment. Thus, this approach can be a type of participatory learning, which can help students expand their vocabulary and to make English learning more interesting.

Although several studies have also evaluated the use of games in developing vocabulary, they largely give general game-based learning strategies or tools like Kahoot and Quizizz.(Sun et al., 2023). However, there is a dearth of discussion about the extent to which Wordwall contributes toward mastering vocabulary, especially in the context of Indonesian Vocational High School. This lack of evidence points to a necessity of future research that demonstrates the impact of Wordwall in these educational context.

While knowledge of grammar can help us convey messages more accurately, without a rich vocabulary, we would not be able to hold a conversation. Therefore, a rich source of words is essential (Mukhtar et al., 2023). Lack of vocabulary can be a major obstacle in the language learning process, making it harder to understand text, speak fluently, or write well. In reality, a low vocabulary proficiency reduces an individual's confidences to communicate particularly in the case of foreign language like English (Eginda Erlangga et al., 2025). Similarly, Afifah Marshalina (2024) stressed that lack of language means and learners usually feel reluctant to form sentences or have conversation so that it makes them unable in mastering the second language. In general, the L2 learners are aware that vocabularyis mos important factor which affects their communication skill because if they do not have enough words in order to express themselves, they have to struggle so hard. You need to have more effective ways of learning if you wish to improve your vocabulary, it can make us sound well, affect our listening and writing skills Nation, 2013, cited in(Sukying, n.d.). Using more effective methods is essential for improving vocabulary, as it can help us communicate well, improve our reading, writing, and listening skills.

This study has novelty that this study is implemented in Wordwall application on vocabulary teaching at vocational high school students. Unlike prior work, the current study compares individual and group activities using Wordwall in order to explore which learning

mode has better perfomances. In addition, it draws attention to students' motivation and involvement as further achievements beyond vocabulary learning.

This article discusses how game-based learning can be an effective solution in improving students' English vocabulary acquisition. In addition, this study also aims to find out the extent to which this strategy can increase students' engagement in learning, help them remember vocabulary longer, and create a more interactive and fun learning atmosphere (Majid & Dewi Purnama, 2024). Thus, it is hoped that this method can be an effective alternative in learning English at school. It aimed to investigate the improvement of students' vocabulary in EFL learning using a Game-Based Learning strategy. Vocabulary is particularly essential for EFL learners since it is the base of each language skill a student cannot understand what is read or heard without sufficient vocabulary, also a student is unable to express ideas when speaking or writing (Kansızoğlu & Bekiroğlu, 2025).

The preliminary study on the English proficiency level of students at SMK Kesehatan Medika Farma is relatively low. Most students have difficulty in understanding basic vocabulary, constructing simple sentences, and expressing ideas in English. The major causes of it are scarce exposure to English outside the class, including deficiency of motivation, and restricted practice. Limited exposure to English outside the classroom, lack of motivation to learn, and limited opportunities to practice are the main contributing factors. Therefore, innovative learning strategies such as game-based learning are needed to make the learning process more interesting, interactive, and effective in improving their vocabulary and overall language skills Therefore Wordwall applications, as one of the game-based activities, are employed to enhance vocabulary acquisition at SMK Kesehatan Medika Farma, which is a school with limited access to technology and students with limited technology and students with low motivation to learn. Previous studies may have been conducted in environments with more adequate resources or focused on general EFL contexts without considering geographical conditions and resources.

This study is based on the belief that vocabulary mastery is a vital element in second language acquisition.Learners without adequate vocabulary will ecounter problems in listening, speaking, reading, and writing. As (ALQAHTANI, 2015) states, vocabulary forms the basis of communication and determines a learner's ability to convey and comprehend ideas.

In the present study, the independent variable is game-based learning, while the dependent variable is students' mastery of vocabulary. According to Al-Azawi et al. (2016), GBL combines instructional content with game features to create a learning atmosphere that is effective, interactive, and enjoyable. Wordwall is applied here as a concrete example of GBL, where learners engage in activities such as matching games, crosswords, and quizzes, both individually and collaboratively.

From a teaching viewpoint, GBL is consistent with deficit constructivist learning since contact with new information creates stronger links in memory and may be accomplished when students are vibrant and able to interact (Sakkir et al., 2023). Through Wordwall, learners perform practice and repetition.

The study is based on the belief that Wordwall's gamified setting can have a beneficial impact on student motivation, level of engagement and vocabulary retention. Motivation represent an important affective element in second language acquisition, and digital games are seen to enhcance motivation through taking part in a greater enjoyment of learning(Prensky, 2001). In addition, Black & Wright (2024) point out vocabulary strategies implemented through interactive games can develop word consciousness and independence – two key components for retention in the long-run.

Consequently, the model locates Wordwall as a modern digital technology that implements GBL guidelines and students' test scores are preliminary the outcomes with vocabulary competence as a construct. By analyzing the preliminary and test in cycle 1,2 difference in different settings (Groups vs Individual), this study confirms the theorical prediction that GBL is effective for vocabulary learning in EFL.

Theoretical Framework

Game-based learning

Game-based learning is an instructional approach that uses game elements to support the learning process to increase engagement, motivation, and retention(Meylani, 2025). According to Alotaibi (2024), Game-based learning is also beneficial for providing challenges and rewards as well as instantaneous feedback, that keep learners engaged in the bussiness of calligraphy. Game-based learning is particularly efficacious in language education, where it gives students the space to test out linguistic input in interactive environment. (Dinh Thi, n.d.) describes Game-based learning changes the traditional classroom activities into dynamic ones in which students are encouraged to build their knowledge instead of being feed with information. In the context of vocabulary acquisition, Game-based learning enables learners to ecounter words in several meaningful and pleasurable context which, consequently, may facilitate future retention (Dwi Prastiwi & Lestari, 2025). This is in line with Constructivist Learning Theory, which emphasizes that the best learning is achieved when students actively interact with the material, collaborate with peers, and receive feedback.

Wordwal

Wordwall is one of the digital platforms that operationalizes the principles of Game-based learning in classroom practice. It offers multiple templates such as matching games, quizzes, crossword puzzles, and word searches, all of which can be adapted to language learning. The platform combines both text and visual aspects that enables students to make connections between words, meaning, and context much better. According to (Alfares, 2025), Wordwall not only promotes correlation among learners but it also enables individual learning as they are able to practice at their own pace. Game based learning increases the confidence of the learners, and supports a sense of accomplishment as well immediate feedback an invaluable part to language development. (Putri Fachri Aulia Fatah, 2025). Wordwall is also interactive which encourages the students to learn, and makes the activities less boring and more fun (Alsyahrah & Suwarni, 2025). In this study, the vocabulary learning is from group and individual game based learning using Wordwall as a tool.

Vocabulary

Vocabulary is a basic component in the second language learning process. Without adequate vocabulary, students will face significant problems in the four language skills: listening, speaking, reading, and writing. (Kansızoğlu & Bekiroğlu, 2025). According to, (Ekasari, n.d.) Defines vocabulary mastery as the ability to recognize, understand, and use words appropriately in communication. As vocabulary is the base of the ability to communicate, the teaching strategy must go beyond mechanical memorization and word lists. They need to engage learners in meaningful interactions with vocabulary actively. (Arif, 2025)Highlight that language games are effective in creating word consciousness and autonomy in learners, which are critical for long-term vocabulary retention. In this study, mastery of vocabulary is the dependent variable, which is measured through the pre-liminary and test cycles 1,2 and is reflected in the effectiveness of Wordwall as a game-based learning medium.

Utilization of Wordwall for Vocabulary

Wordwall's utilization to enhance vocabulary teaching is reinforced by Constructivist Learning Theory, which states that knowledge constructions occurs more effectively when learners are actively involved and interacting with their peers, and allowed immediate feedback. Wordwall addresses this theory by converting passive abstract vocabulary learning into interactive concrete activities. According to (Zakaria & Zakaria, 2025), Digital games enhance learners' motivation through entertaining them, provide instant feedbacks and giving various opportunities for repeated practice. (Zakaria & Zakaria, 2025) Additionaly claim that vocabulary games develop word awareness and the role of the learner, both of which are

crucial for achieving long term retention. Through Wordwall, learners don't just learn vocabulary by rote they actually gey to use it in real and fun situations, thus reinforcing recognition as well us usage. Thus, the utilization of Wordwall for vocabulary development aligns with pedagogical theories of gamification and constructivism, highlighting its potential to improve retention, engagement, and learner autonomy in EFL classrooms.

Material and Method

This research was conducted using the Classroom Action Research (CAR) method by (Kemmis et al., 2014), combined with a mixed-method approach that integrates both quantitative and qualitative data. The combination of these two types of data is designed to give a more complete picture where vocabulary learning has taken place, and how sucessful the treatment was in the respect. Classroom Action Research is a reflective process of teachers or researchers in their classroom that aims to bring positive change in teaching and learning activities. In this study, CAR was implemented in two cycles, each consisting of four stages: planning, acting, observing, and reflecting. The quantitative approach was used to measure students' vocabulary improvement through a preliminary study and the test scores in each cycle. This represented objective data on the therapy efficacy. In the qualitative part observational data were gathered in observation forms and fields notes during the learning activities. This enabled the researcher to observe classroom engagement, attitudes, posturing and response to their game based learning technique. Integrating CAR with mixed-methods design, the study examined acquiring vocabulary, which enhanced data validity.

Population and Sample

The population of this study is all grade X students of SMK Kesehatan Medika Farma in the academic year 2024/2025. The sample of this study is students in class X TLM, amounting to 34 students, determined by using random sampling technique. This technique is used because each class in the population has an equal chance of being selected as a sample, so that the research results are expected to be more representative and objective. Random selection also aims to avoid class selection bias and provide equal opportunities for all class X students to be used as respondents in this study.

Procedure for Collecting Data

The procedure of collecting data in this study was carried out through several stages in two research cycles. The data were collected using both test and non-test instruments, including vocabulary tests, observation sheets, and field notes.

1. Preliminary Study

   Before the treatment, a pre-liminary study is conducted to determine the initial conditions at the school, class, or students before the treatment is given.
2. Treatment (Cycle I and Cycle II)

   In Cycle I, students were grouped in 4-5. The teacher introduced Wordwall as the main medium for vocabulary practice. First, I opened the Wordwall application. Then I asked them to come forward in groups. Each student who came forward took turns answering word matching and crossword puzzles. The group who have completed the task will be the winner. Two activity types were included: the matching task (matching words to their meaning, or pictures) and the crossword (applying new terminology in context). The teacher first introduced them and provided two examples which were followed by a collaborative problem solving process for the puzzles in the groups. The activity was based on the group method that fosters cooperation and mutual support from peers. Throughout, the teacheer observed each group, provided feedback and recorded observations about students participation on observation sheets. Achievement was measured by a vocabulary test at the end of cycle I. The average student score has increased compared to the preliminary study, and Wordwall

has been effective in helping students understand vocabulary. However, there were still several obstacles: not all students were actively involved; only a few were. Student concentration decreased because the group learning atmosphere became noisier; test results showed that some students had not yet reached the minimum passing grade.

Therefore, modifications are needed in cycle 2. The group game became an individual game and was carried out with a time limit of 15 seconds per person. By playing individually, students tend to be more active, responsible, and focused. Thus, every student is directly involved in the game. Student used their own device (smartphone or laptop) to access Wordwall activities independently. This cycle emphasized students' responsibility, autonomy, and direct engagement with the task. The same types of games (matching and crossword puzzle) were given, but this time students had to complete them individually. The teacher again observed their activity using observation sheets, provided immediate feedback, and assigned reinforcement tasks such as rewriting the vocabulary in sentences. At the end of the cycle, another vocabulary test was administered to evaluate progress and compare the results with Cycle I.

3. Test in Cycle 1 and 2

   At the end of each cycle, a test with the same structure as the pre-test was administered to assess students' vocabulary improvement after the game-based learning treatment.

Instrument of the Research

A mixed-methods approach was used in this study to utilize quantitative and qualitative tools to obtain a complete picture of students' vocabulary improvement. The quantitative tools used included a vocabulary test consisting of 15 multiple-choice questions to evaluate students' vocabulary mastery.The test was administered at three stages: Preliminary study: Conducted before treatment to measure initial vocabulary knowledge related to procedural texts (e.g., cut, mix, boil). Duration: 30 minutes. Tests are given at the end of Cycle 1 and Cycle 2. Qualitative instruments were obtained through observation sheets. The observation focused on students' learning behaviors, including their preparation and learning content, learning process, and reflective closing.

Indicators of vocabulary test:

1. Word Meaning Recognition (Students can choose the correct meaning of a word from several options.)
2. Synonyms or Antonyms (Students can determine synonyms or antonyms of a word).
3. Collocation or Usage (Students can recognize words that are appropriate to use in a specific context).

Data Analysis

The data on this study were analyzed using quantitative & qualitative techniques. The quantitative data were obtained from pre-limenary scores, tests in cycle 1, and cycle 2. The qualitative data were obtained from observation sheets. This analysis was carried out to determine the improvement of students' vocabulary through the comparison of the pre-limenary test, the test in cycle 1, and cycle 2. The steps of data analysis are as follows:

Calculating pre-liminary study, test in cycle 1, and cycle 2 scores

Students' pre-liminary study, test in cycle 1, and cycle 2 scores were collected from each cycle.

1. Each correct answer is given a score of 1, while the wrong answer is given a score of 0.
2. The total score is calculated for each student.

Calculating class average (Mean)

Formula : $\underline{x} = \frac{\sum x}{N}$

Description :

$\underline{x}$ = average value

$\sum x$ = total number of student scores

N = number of students

Calculating the percentage of learning completeness

Formula : $P = \frac{f}{N} \times 100\%$

Description :

P = percentage of learning completeness

f = number of students who reached ≥ KKM (Minimum Completeness Criteria)

N = total number of students

Comparing the results of each cycle

1. Average scores and student learning completeness in cycle I compared to cycle II.
2. The increase shows the success of the action.

Results and Discussion

The results of this study are presented in two main parts. The first part shows the quantitative analysis of students' vocabulary mastery through the frequency and percentage of pre-liminary study, test in cycle 1, and cycle 2 scores. The second part presents the observational findings that describe students' engagement, participation, and responses throughout the learning process.

Results of Preliminary Study Score, test in cycle 1, and cycle 2.

To identify the students' initial vocabulary mastery, a pre-test was administered prior to the implementation of the treatment. The following table presents the distribution of scores and their classifications based on the preliminary study results.

Table 1.

Preliminary Score: study frequency and Percentage

Range Score	Frequency	Categories	Percentage
5 to 20	11	Very Low	32,3 %
21 to 40	9	Low	26,4 %
41 to 60	10	Average	29,4 %
61 to 80	3	High	8,8 %
81 to 100	1	Very High	2,9 %

(Researcher data source*:, 2025)*

As shown in Table 1, the majority of students scored in the *very low* (32.3%) and *low* (26.4%) categories, indicating that their vocabulary mastery was still below the expected standard. As for the students' scores, only few (2.9%) were classified as *very high*, indicating poor learning process methods.

After implementing the treatment through group-based Wordwall activities in Cycle 1, a post-test was conducted to measure students' vocabulary improvement. The results are shown in Table 2.

Table 2.

Test (Cycle 1) Frequency and Percentage

Range Score	Frequency	Categories	Percentage
5 to 20	1	Very Low	2.9 %
21 to 40	3	Low	8.8 %

41 to 60	16	Average	47 %
61 to 80	11	High	32.3 %
81 to 100	3	Very High	8.8 %

(Researcher data source*: 2025)*

The data in Table 2 shows a significant increase compared to the Pre-Liminary Study. The percentage of students in the moderate category increased to 47%, while students in the high and very high categories also increased to 32.3% and 8.8%. In cycle 1, the learning that was done in groups and not given a time limit had a positive impact on students' vocabulary mastery, although it still needs to be improved. This showed that the game-based learning strategy using Wordwall in cycle 1 was successful, but only 8 students out of a total of 34 students reached the KKM standard. < 74, Therefore, it needs to be improved again in cycle 2.

Table 3.
Observation Sheets Cycle 1

Observation Aspects	Observation Result
Preparation and Learning Content	Two of the three items in this section have been fulfilled. The teacher prepares a vocabulary list in accordance with the material. Then, the teacher prepares Wordwall media (matching & crossword). However, in this section, the teacher plans playtime for each group, which requires further observation.
Learning Process: Game-Based Learning	Several points in this section have not been achieved, meaning they need to be improved. Although the teacher divided the students into groups, it turned out that only some of the students were active when playing the game.
Reflective and Closing Activities	In this section, teacher-student interaction is still not optimal. Teachers do not provide motivation, only asking what has been learned and asking them how they feel.

Table 4.
Test (Cycle 2) Frequency and Percentage

Range Score	Frequency	Categories	Percentage
5 to 20	0	Very Low	0
21 to 40	0	Low	0
41 to 60	2	Average	5.8 %
61 to 80	15	High	44.1 %
81 to 100	17	Very High	50 %

(Researcher data source*:2025)*

After the strategy was modified in Cycle 2, by executing the game for individual learners, where each student used the Wordwall individually with a time limit of 15 seconds per student, the post-test results showed remarkable improvement. As presented in Table 3, no student was in the low or very low category. Only 2 students (5.8%) were in the medium

category, while 15 students (44.1%) reached a high level, and 17 students (50%) reached a very high level of vocabulary acquisition.

These results show that the individual game-based learning method is more effective than the group-based method in Cycle 1. It was due to not all students within the group are active in playing the game, so in Cycle 2 the students the group work was changed into an individual activity were the students have to do the activity on their own. This resulted in Cycle 2, this method significantly improved the students' vocabulary mastery and fulfilled the learning objectives more optimally.

Table 5.
Observation Sheets Cycle 2

Observation Focus	Result
Preparation and Learning Content	This objective has been successfully achieved. The teacher prepared a list of vocabulary that had been taught in the previous cycle, ensuring continuity in learning. Wordwall media, in the form of individual game links, were carefully designed and distributed to each student. In addition, the teacher planned the timing effectively, allowing each student enough time to complete the vocabulary games independently.
Learning Process: Game-Based Learning	The implementation of the individual game-based learning process was effective. On their own devices, teacher directed students to keep Wordwall games matchiing and crossword opens playing. The teacher closely circulated around the room and directed students when assistance was required. The students seemed to be concentrated and motivated when playing, there was an enhancement in the memorization and recognition of vocabulary. The teacher gave instant feedback to students when they finished the game, there by reinforcing learning objectives. In a follow-up, students were required to re-write words' vocabulary items that they had rehearsed on one page to another, again in order to extend their recollection and exposure.
Reflective and Closing Activities	All the planned endpoints were met in this phase. The teacher and students jointly reviewed the individual game tasks, elaborating on learning experiences gained and efforts exerted. The teacher's emphasis on students' improvements by cycle gave them freedom and made it possible to identify their advances. This reflective process encouraged and helped the students to grow, while it was an action plan for vocabulary strategy.

Calculating Class Average

The average class score results in the three testing sessions indicates that there is a progressive increase in students' vocabulary mastery. The mean pre-test score was 40.7 and increased to 60.4 in Cycle 1, it raised again to 81.5 in cycle 2. This gradual increase indicates treatment efficacy, especially that of the modified approach in Cycle 2.

Table 6.
Average

Preliminary Score	Test cycle 1	Test cycle 2
Pre-test average score: 40.7	Test cycle 1 average score: 60.4	Post-test cycle 2 average score: 81.5

Standard Deviation

The variability also varied during the three phases. In pre-test scores the was 4.5 (range of scores from students was small). It was 6.3 in Cycle 1 and slightly higher than that 8.4 in Cycle 2, indicating that altough the overall level of achievement is raised, it also widened in student variation across scores at higher levels, but with vaying levels of proficiency.

Table 7.
Standard Deviation

Standard Deviation: 4.5	Standard Deviation: 6.4	Standard Deviation: 8.4

Calculating the percentage of learning completeness

$$Percentage\ of\ learning\ completeness\ post\ test\ cycle\ 1 = \frac{f}{N} \times 100\%$$

$$= \frac{8}{34} \times 100\ \%$$

$$= 23{,}5\%$$

$$Percentage\ of\ learning\ completeness\ post\ test\ cycle\ 2 = \frac{f}{N} \times 100\%$$

$$= \frac{25}{34} \times 100\%$$

$$= 73{,}5\ \%$$

Comparing the results of each cycle

Based on the calculation of student learning completeness, there was a significant increase from cycle I to cycle II. In cycle I, the number of students who achieved scores above the Minimum Completion Criteria (KKM) was only 8 out of 34 students, with a percentage of completeness of 23.5%. This figure shows that most students have not mastered the vocabulary material optimally after being given the first treatment through game-based learning in groups. However, after improving the strategy in cycle II by changing the method to individual learning using Wordwall media independently, the number of students who were complete increased dramatically to 25 students, or 73.5%. This 50% increase reflects that the strategy modification in cycle II was more effective in improving students' vocabulary mastery. This proves that the appropriately adapted game-based learning strategy can significantly improve learning outcomes.

This increase shows the success of the actions that have been taken in the learning process. The change in strategy from group learning in cycle I to individual learning in cycle II had a positive impact on student learning outcomes, especially in mastering English vocabulary. This success was reflected in the increase in the number of students who reached the Minimum Completion Criteria (KKM), from 23.5% in cycle I to 73.5% in cycle II. In addition,

students also seemed more focused, motivated, and active in participating in learning activities when using Wordwall media individually. His research proves that the adaptation of learning methods in accordance with student needs can significantly improve learning effectiveness and learning outcomes.

Discussion

The findings of this study on the use of game-based learning media show that the Wordwall application is effective in improving students' vocabulary and vocabulary mastery at SMK Kesehatan Medika Farma. Through the features provided in Wordwall, such as the matching game and crossword puzzle in Wordwall conducted in this study, also gave significant results in improving students' vocabulary. The learners are more motivated and interested when they learn vocabulary through digital games rather than conventional (Universitas Jambi, n.d.). It is consistent with the previous studies game-based learning by using Wordwall apps was able to improve the students' vocabulary skills, students' vocabulary mastery, and students' learning motivation (Tobias, Game-Based Learning Platform and Its Effects on Vocabulary Mastery in Online ESL Classroom, 2021). It seems that interaction and graphic design of Wordwall might significantly keep students' attention, consequently it helps them learn new words (Almuafa & Alqurashi, 2025).

In addition, it proves that game-based learning based on Wordwall is able to increase the average and percentage in improving students' vocabulary(Kiranti et al., 2025). This shows that Wordwall increase not only cognitive but also affective aspects, like interest and motivation to learn(Hasan & all, 2024). These affective profits are just as valuable and these more than anything else influence whether a student is motivated to get involved, and continue participating in learning process. Language learning is motivation and the tools which keep it fun and interactive will be precisely those that sustain.

Additionally, this study is also congruent with contrutivist learning theory whose premise assert that the learning will be enhanced when students actively develop knowledge from firsthand experience and social exchange (Sakkir, Azis, & Jabu, 2023). In this study, the use of Wordwall was observed Communicative Accredited Journal for Social Sciences how it enabled students to be active in learning as they could engage directly with content and obtain instant feedback through the application which reflects well on constructivism principles (Harisma, 2025). This technique involves active participation of the learner in order to relate the learning material to themselves and transform it into significant knowledge information or standards, which learners can use.

Wordwall, as a game-based learning media, gives students the opportunity to actively participate, collaborate, and receive immediate feedback, which strengthens the learning process and vocabulary retention. (The Role of Digital-Game Based Language Learning and Retention: , 2024). This can be seen from how the researcher has made a change in how the game was done, from group work to individual work, where each student was assigned to complete the game on their own. By doing so, they are actively engaged and focused on completing the game. The last shift to individual gameplay also ensures that all students are equally involved and responsible for their own learning outcomes, which increases accountability and encourages personal effort (Zhang, 2024).

However, previous research also revealed that the game-based learning method has challenges, such as the potential for students to focus too much on the game so that they tend to ignore the learning material. (Berg Marklund & Alklind Taylor, 2012).. This can be seen in how the students were too busy doing the task in the Wordwall while the teacher was trying to explain or give instructions on how to complete it. Therefore, teachers should have a balanced proportion between games and material delivery. By doing so, teachers can ensure that the students are focused when they need to pay attention to the instructions before doing the task in the Wordwall game application. The impact will then influence how the students are able to play the game with minimum trouble. When implemented with well-structured planning and

monitoring, such tools have the potential to revolutionize the language learning experience, particularly in contexts where motivation and engagement are key concerns (Tania, 2025)

Another important factor contributing to the improvement of students' vocabulary is the active role of teachers during the learning process(Ayana et al., 2024). Teachers constantly monitor activities of each student to make sure that they understand the instruction, and offer assistance when students have problem on playing individually with Wordwall (Srisudarso, 2025). Throughout the learning sessions, the teacher observed how students used Wordwall and observed carefully. The teacher also helped and really guided when the students faced difficulty to finish the task that they created using Wordwall application. This monitoring allows teachers to immediately identify students who are experiencing obstacles, so that assistance can be provided in a timely manner and according to their needs. This individualized attention fosters a supportive classroom atmosphere in which students are not hesitant to take risks and make errors or ask questions(Shao et al., 2025).

In addition, after students finish the game teachers give them instant feedback by pointing out wrong answers, explaining the meaning difficult vocabulary for students and praising. Immediate and positive feedback, can contribute to increase the self-esteem of students and make them even more zealous about learning (Brandmo & Gamlem, 2025). Immediate feedback also decreases the chances for students to incorporate mistakes made into knowledge by addressing gaps in learning when they arise.

Not only this the students are also asked to re-write and apply the vocabulary which they have learned by making simple sentences according to their own standard. This process of rewriting and writing short sentences is a kind of reinforcement to help them remember or comprehend the word meaning. Writing reinforcement can be beneficial for the transfer of passive vocabulary into active usage, which is vital for productive language skills (Tağa & Kalenderoğlu, 2022). When hands on practice, teacher guidance, instant feedback and reinforcement activities are employed in combination the process of learning is more meaningful and effective in improving students' vocabulary mastery. The general results of this study add to the evidence that Wordwall or game-based learning is an effective tool in contributing students' vocabulary (Nauval, 2022).

Conclusion

The study indicates that the game-based learning strategy with Wordwall application has been sucessfully employed to enhance students' vocabulary mastery at SMK Kesehatan Medika Farma. The application of game-based learning channels, matching games and crossword puzzles, have not only improved the average score for students but also saw a significant increase in the number of students who achieved Minimum Competency Criteria. This style of learning not only enhances learners cognitive side,but it also affect their affective factors such as enthusiasm or motivation to learn. As a result of learning being fun and interactive, students are more engaged in the process. Individual learning strategies in the second cycle provide space for students to be more focused, responsible, and motivated in completing their tasks. Support from the teacher, both by active monitoring and immediate feedback, as well as assignment to repeated writing out of vocabulary is condicive with regrad to student achievement. Therefore, employing Wordwall as game-based learning medium is one of the efficient and appropriate alternative education packages for learning English which is a foreign language. This approach should be more broadly implemented in schools with restricted technology infrastructure, as it allows a strong learning experience without high tech demands.

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