

The effectiveness of Wordwall in improving students' English vocabulary retention at a primary school in Phu Tho province

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Abstract: This study investigated the effectiveness of Wordwall, an interactive digital tool, in enhancing English vocabulary retention for primary school students in Phu Tho province through a quasi-experimental research design. The study involved a control and an experimental group to assess the impact of Wordwall on vocabulary retention. Sixty students in grade 5 at Huong Non primary school were the research subject. The qualitative component involved questionnaires administered to students, focusing on their attitudes toward Wordwall. The quantitative component consisted of tests for two groups of participants. Data was analyzed using Excel to compare pre-test and post-test scores between the two groups, providing a quantitative measure of vocabulary retention.

Key words: vocabulary, vocabulary learning, vocabulary retention, Wordwall application.

I. INTRODUCTION

English plays an important role in modern society as it has become “a critical tool for communication and integration” (Crystal, 2003, p. 5), particularly with accelerating globalization. Proficiency in English offers substantial advantages not only in daily communication but also as “an important factor in both personal and national development” (Crystal, 2003, p. 8). In the process of acquiring a second language, vocabulary serves as a fundamental building block. Developing a strong vocabulary base for English as a Second Language (ESL) learners, especially young students, is crucial for mastering essential language skills such as listening, speaking, reading, and writing (Nation, 2001). However, retaining newly learned vocabulary often poses significant challenges, particularly in educational environments where traditional teaching methods—centered on memorization and repetition—are the primary approach to language instruction. While these methods may support initial word acquisition, they fail to foster long-term retention and deeper understanding (Schmitt, 2008). Studies also indicate that active engagement and applying vocabulary in specific contexts are essential for better retention, as opposed to passive learning through mere memorization and repetition (Hulstijn & Laufer, 2001).

In Vietnam, English is a compulsory subject from grade 3 at primary school with 4 periods per week assigned according to the 2018 general education curriculum. However,

learning English in many primary schools today still faces a lot of difficulties, especially in studying and memorizing vocabulary. Acquiring and retaining vocabulary is essential for establishing a solid foundation in English for students, especially 5th-graders.

At Huong Non primary school in Phu Tho province where traditional teaching methods - centered on memorization and repetition - were the primary approach to language instruction, vocabulary retention was the challenge. It was compounded by limited access to innovative learning tools and resources. Many teachers continued to rely on conventional pedagogical practices, where vocabulary was introduced through rote learning, word lists, and exercises from textbooks. While these strategies could assist students in acquiring new words, they didn't have enough motivation, interactive elements that promoted long-retention. As a result, students frequently forgot recently acquired vocabulary, and their overall language development and proficiency was obstructed.

Though, the researcher tried to teach English vocabularies in some ways such as using flashcards, pictures or real things, and language games, students' English vocabulary retention wasn't improved markly. With the increasing integration of technology into education, there are variety of potential digital tools to transform traditional approaches to language learning. Research indicated that interactive platforms like Wordwall offered opportunities to enhance vocabulary retention by providing game-based, interactive learning experiences (González-Fernández & Schmitt, 2020). These activities—such as word matching, quizzes, and crossword puzzles—actively engaged students and provided repeated exposure to vocabulary in varied contexts, and promoted better retention (Nation & Meara, 2002). Additionally, Wordwall allowed teachers to design and implement customizable exercises, made the learning experience more relevant and enjoyable for students, which was critical for sustaining motivation and interest in language acquisition (Oxford, 2017; Gee, 2003).

By integrating Wordwall into the English language curriculum, the research determined whether this digital tool offered a more effective approach to vocabulary learning than traditional methods. By examining the impact of Wordwall on vocabulary retention at Huong Non primary school in Phu Tho province, the study “ The effectiveness of Wordwall in improving students' English vocabulary retention at a primary school in Phu Tho Province” contributed to the growing body of research on the use of digital tools in language learning. It also provided practical recommendations for educators in similar rural settings, where access to innovative educational resources remains limited but students' language outcomes needed to improve.

The study provided a comprehensive understanding of Wordwall's effectiveness and reception as a digital tool for supporting vocabulary learning for primary school students. Through these aims, the study attempts to find the answer for the following questions:

- *To what extent does the use of Wordwall improve students' English vocabulary retention?*

- *What are the students' attitudes toward using the Wordwall for enhancing their English vocabulary retention?*

II. METHODOLOGY

This study followed a quasi-experimental design with two non-random groups: an experimental group and a control group. The experimental group used the Wordwall platform to learn English vocabulary, while the control group learned through traditional methods (e.g., copying words and completing worksheets). Both groups were tested before and after the intervention to measure changes in vocabulary retention. The goal was to determine whether Wordwall enhances students' vocabulary retention compared to traditional teaching methods.

The participants in this study were selected from Huong Non primary school in Phu Tho province. Two classes in grade 5 in the academic year 2024 - 2025 were chosen, one serving as the experimental group and the other as the control group. Sixty random students participated, with 30 students in each group. All participants learnt the vocabulary in the Tieng Anh 5 textbook - Global Success, as determined by their recent academic records and prior standardized testing results

To collect data for the study, the researcher employed a combination of a pre - test, progress tests, post – test and questionnaires.

Pre - test and post - test: The pre - test and post - test included 20 questions per test. Some types of questions were used such as: multiple choice questions, odd one out, matching and gap-filling exercises. To ensure consistency, the tests contained the same vocabulary items as the Tieng Anh 5 textbook. Each correct answer earns 0,5 point, with a maximum score of 10. The tests aimed to evaluate students' English vocabulary retention through pronunciation, spelling, meaning and usage.

Progress tests: Throughout the intervention period, the researcher conducted progress tests following each vocabulary lesson. The progress tests with 10 questions were designed to evaluate the students' English vocabulary competence every two weeks. The first progress test was designed to evaluate the students' pronunciation and spelling in topic classroom objects, outdoor activities and school trip. In the second, third and fourth progress tests, the students were asked to demonstrate their English vocabulary retention in form and meaning in topics family time, Tet holiday, special days and staying healthy. Finally, in the fifth progress test, the students checked their vocabulary usage through the topics seasons and the weather and stories for children.

Questionnaires: The questionnaires were used to assess students' attitudes toward learning vocabulary, and their perceived effectiveness of the Wordwall tool. Only the experimental group (students who used Wordwall) filled out the questionnaires to capture their specific feedback on the digital learning tool. The Likert-Scale Questions allowed students to express their thoughts and opinions in more detail. The responses from the Likert scale questions were averaged to measure general attitudes toward Wordwall's effectiveness.

III. FINDING AND DISCUSSION

3.1. Research question 1

3.1.1. The pre-test and post-test results

The information about the average scores and average score gains are presented in the following table.

Table 4.1. Pretest and posttest's average score report

Group	Test	Number of students	Average score	Average score gains
Experimental	Pre-test	30	5.8	1.6
	Post-test	30	7.4	
Control	Pre-test	30	5.9	0.4
	Post-test	30	6.3	

It can be seen from the table that before the treatment the average score was quite similar, specifically, the control group's average score was 5.9 and the experimental's was 5.8. After a period of using Wordwall in learning vocabulary, the average score of the control group was 6.3 and that of the experimental group was 7.4. It is identified that in the posttest, the control group's average score was higher than in the pretest, but only gained slightly, while that of the experimental group increased significantly. Furthermore, the average score gain by the experimental group was 1.6, four times higher than the average score gain of 0.4 by the control group. This proved that the frequent use of Wordwall positively influenced the improvement of students' vocabulary retention.

3.1.2. The progress tests' results

The average grade given by 30 students in twelve weeks practice during the treatment was shown by the following table.

Table 4.3. The progress tests' results in 12 weeks

Grade	Week 2: Progress test 1	Week 4: Progress test 2	Week 6: Progress test 3	Week 8: Progress test 4	Week 10: Progress test 5
	Student	Student	Student	Student	Student
Total	30	30	30	30	30
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	5	4	2	1	1
5	7	6	6	4	2
6	6	6	7	8	8
7	7	8	8	9	9
8	4	5	5	6	6
9	1	1	2	2	3
10	0	0	0	0	1
Average Grade	6.03	6.23	6.46	6.7	7.0

The results of 30 students for progress tests conducted over twelve weeks when playing Wordwall weekly was seen by the above figures. The student numbers were shown in the first column and the students' marks recieved in the respective week's progress test were represented subsequent columns.

The students' average score in week 4 compared to week 2 increased 0.2 (from 6.03 to 6.23) that demonstrated students' achievement improvement. The average grade from Week 4 to Week 10 was also increased, with the highest average grade recorded in Week 10 (7.0). It implemented that the students' vocabulary retention was improved over time by using Wordwall.

The above results indicated that most students showed improvement in their scores after ten weeks of applying the Wordwall in vocabulary learning. The increase in students' average scores from week 2 to week 10 demonstrated the students' significant progress during the program.

In summary, data collected from the pre-test showed that the vocabulary competence of the 5th grade students at Huong Non Primary School was quite alarming, with most of them classified as "average" or "below average". There were many reasons for this situation, but the main reason was that students were not interested in learning vocabulary and did not have the ability to remember vocabulary for a long time. Nation (2001) emphasized that vocabulary knowledge and language use are in collaboration supportive: vocabulary knowledge facilitates

language use, and in turn, language use expands vocabulary knowledge. He highlighted that vocabulary is central to communicative competence and second language learning. Nation (2011) also stated that vocabulary plays an important role in all language skills: listening, speaking, reading, and writing. Nevertheless, students' grammar scores were labeled "good" after they were accorded special treatment through Wordwall. Substantial improvements in students' academic performance were observed. The result of the research are also consistent with Cil (2021), who indicated that integrating Wordwall.net into English lessons significantly improved 5th-grade EFL students' vocabulary knowledge. The interactive nature of Wordwall games contributed to increased student engagement and better retention of new vocabulary. They also supported the findings of Nguyen and Nguyen (2019), who stated that such interactive tools significantly consolidate students' ability to retain new vocabulary, making learning more engaging and effective. The research results are also in line with Firmansyah (2020) that the visual and interactive aspects of Wordwall facilitated easier memorization and recall of vocabulary among young learners. Furthermore, the present study's findings validate the findings of Pradini & Adnyayanti (2022), who observed a significant improvement in young learners' vocabulary acquisition after using the Wordwall application.

3.2. Research question 2

3.2.1. Findings from the pre-intervention questionnaires

A survey questionnaire was administered to 30 students from class 5A at Huong Non Primary school with the objective of evaluating students' attitudes towards the important of vocabulary in acquiring a language. The results obtained are presented as follows:

Students' attitudes towards vocabulary before using Wordwall were reported in the pre-questionnaires. The information obtained is compiled and analyzed as follows.

Data collected through the first question- students' opinions on the importance of vocabulary in language learning- the majority of the students answered that vocabulary is very important.

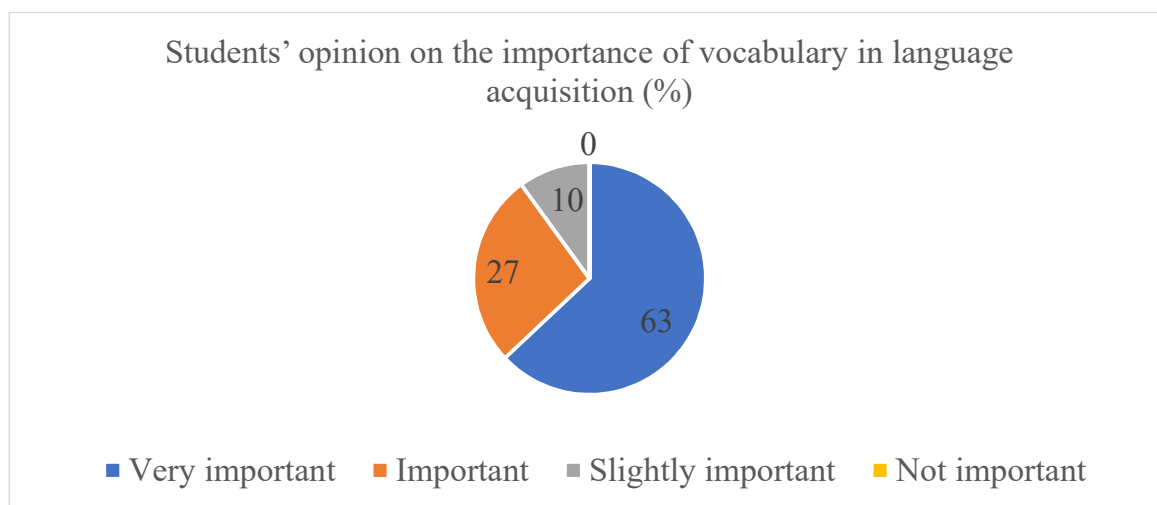


Figure 4.3. Students’ opinion on the importance of vocabulary in language acquisition.

From the chart above, it can be seen that 90% students thought the vocabulary was important and very important. There were only 10% of them answered that was slightly important, and no one believed vocabulary was not important. This indicated the majority of students recognized the role of vocabulary in teaching and learning a foreign language.

In the response to the second question, which asked students about their interest in vocabulary classes at school, the large numbers of them reported being uninterested in vocabulary classes. The graph below illustrated the statistic details.

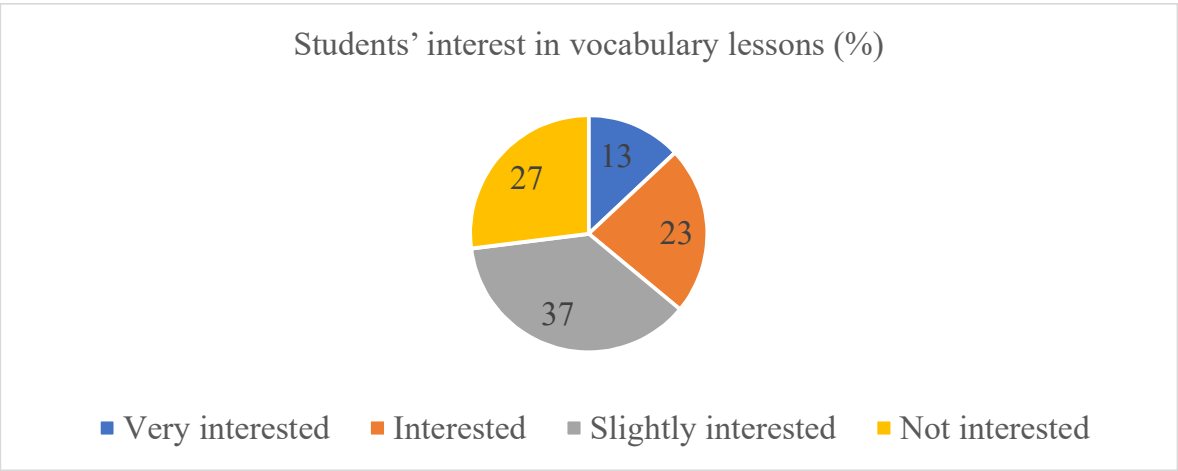


Figure 4.4. Students’ interest in vocabulary lessons (%)

The chart shows that just a small numbers of students thought the vocabulary lessons were interesting (13%) or interesting (23%). However, over 60% of them regarded vocabulary lessons tobe slightly or not at all exciting.

The students’ answers for the third question of the pre-intervention questionnaires, which asked the students for their level of attention to vocabulary, showed they were lack of interest in learning newwords. This might have had a significant impact on their engagement in vocabulary classes. The figure below shows more detail about the students’ responses.

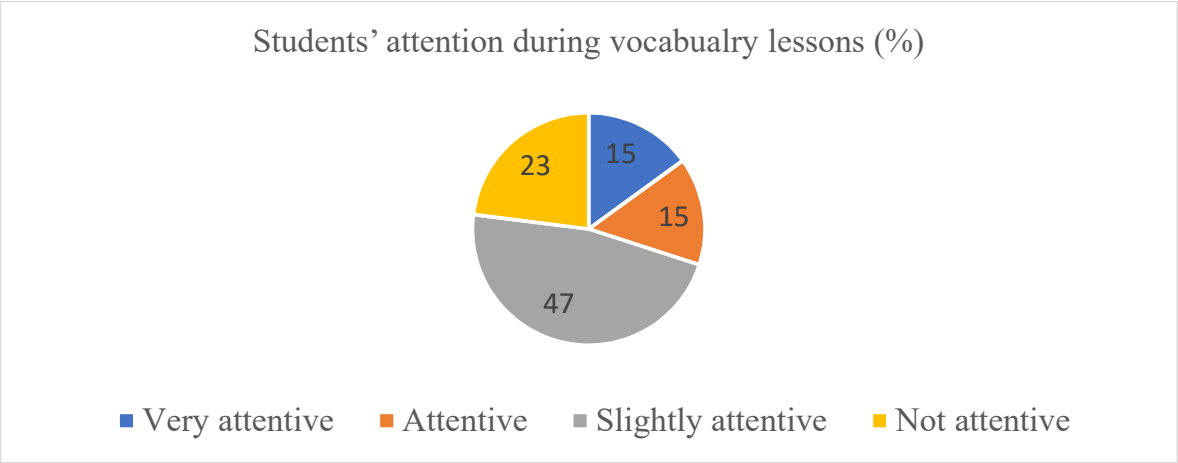


Figure 4.5. Students' attention during vocabulary lessons (%)

It's indicated in the above graph that 30% of students were very attentive and attentive during vocabulary lessons, while 47% of students reported being slightly attentive in vocabulary classes. Furthermore, the students who were not attentive in vocabulary classes was 23%. The students' challenges encountered in vocabulary could explain why the majority of students didn't pay attention in vocabulary classes. The statistics are shown in the following table.

Table 4.4. Students' difficulties in learning vocabulary

Students' difficulties in learning vocabulary	Number of students	%
I find it hard to remember vocabulary spelling and stress.	19	63
I find it hard to use vocabulary correctly.	24	80
I find it hard to apply English vocabulary to speaking and writing.	27	90
I often find it hard to focus when learning vocabulary.	20	67
I often feel stressed when learning vocabulary.	14	47
I waste a lot of time to learn newwords.	15	50

As can be seen from the table, the students had a variety of difficulties in learning vocabulary. The most problems for students were applying English vocabulary to speaking and writing (90%) and using vocabulary correctly (80%). How to stay focus when learning vocabulary and remember vocabulary's spelling and stress were other major challenges for students with over 60% acknowledged. 47% students also felt stressed when learning vocabulary and half of them shared that they wasted a lot of time to learn newwords. The figures show that the lack of interest, practice, and limited vocabulary competence were the significant reasons for students' difficulties in vocabulary learning. Therefore, there was a need for suitable treatment to help students improve their vocabulary retention.

3.2.2. Findings from the post-intervention questionnaires

The students' attitudes towards the use of Wordwall in vocabulary lessons and the convenience they got from the application of the technique in their classroom were reported on the post-intervention questionnaires results.

The following chart shows the students’ opinion regarding using Wordwall to study vocabulary and improve their vocabulary retention.

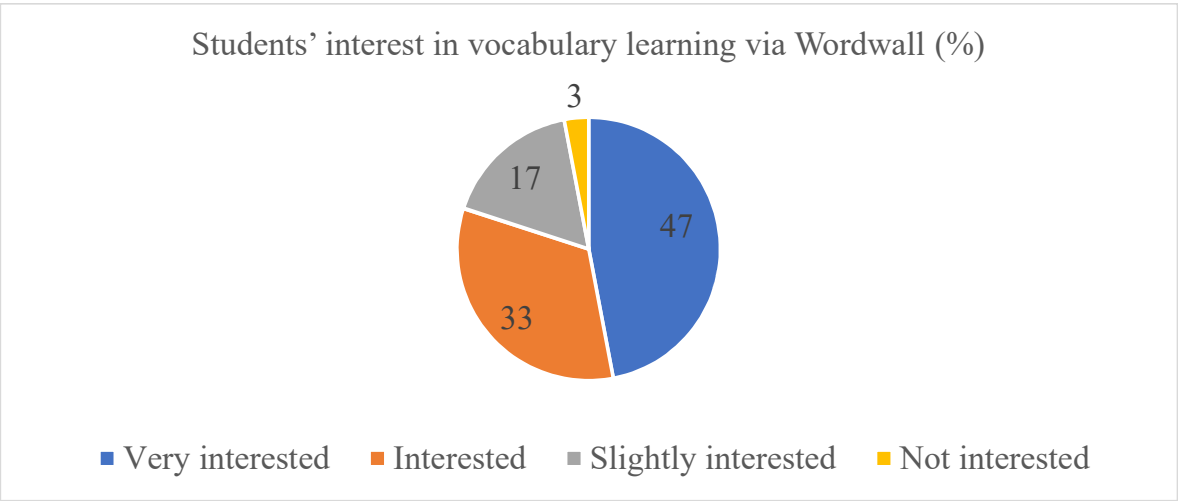


Figure 4.6. Students’ interest in vocabulary learning via Wordwall (%)

It can be clearly seen from the pie chart that after the treatment the students’ attitudes toward vocabulary learning have changed positively. Compared to the results before the treatment, the proportions of students found learning vocabulary very interesting and interesting increased significantly. To be specific, 47% students found learning vocabulary with Wordwall very interesting and 33% of them were interesting, while the figures before applying Wordwall were 13% and 23%, respectively. It rose 44% in total. On the other hand, only a total of 26% students found that vocabulary lessons were not interesting (3%) or slightly interesting (17%), which was 64% before the treatment period.

The following bar charts illustrate how students' perceptions of learning vocabulary changed before and after the use of Wordwall in relation to their degree of focus during the vocabulary lesson.

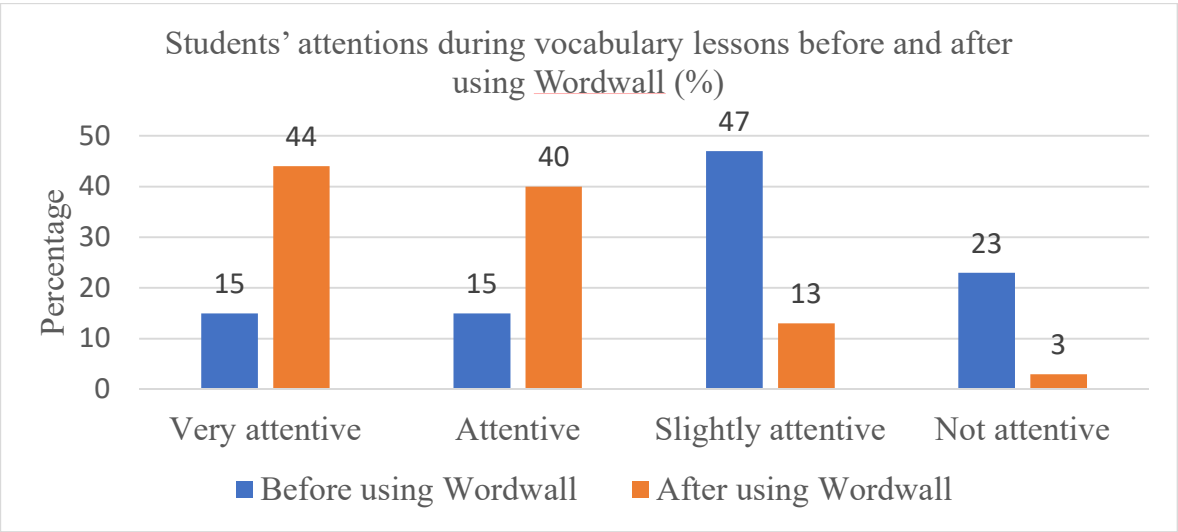


Figure 4.7. Students' attentions during vocabulary lessons before and after using Wordwall.

Students in the experimental group paid different amounts of attention to the vocabulary lessons before and after the treatment period, as shown in the above chart. It is evident that their opinions toward the vocabulary lessons changed both with and without using Wordwall. Students were far more focused on the vocabulary courses when the narrative was utilized. After the narrative technique was used, the numbers of students who were extremely attentive and attentive in their learning rose dramatically from 15% before the treatment to 44% and 40%, respectively. In contrast, the percentage of students who responded by paying little or no attention to learning vocabulary decreased from 47% to 13% and 23% to 3%.

Almost students being asked about the benefits of Wordwall in helping students improve their vocabulary retention agreed that Wordwall had positive opinion, and they would like their teacher to continue teaching vocabulary through the use of this application. Their viewpoints were summarized in the table below.

Table 4.5. Students' opinions about the effectiveness of Wordwall in improving their vocabulary retention

Benefits of learning vocabulary through Wordwall lessons.	Number of students	%
It is easier for me to remember vocabulary.	26	87%
I can remember vocabulary for a long time.	24	80%
I can do vocabulary exercises whenever I want in an interesting way.	23	73%
Using Wordwall helps me concentrate on learning vocabulary.	25	83%
The exercises on Wordwall.net motivates me to study vocabulary.	27	90%
Using Wordwall in vocabulary lessons is fun.	28	93%
I do not have to pay any fee to use Wordwall.	15	50%

As can be seen from the above table, the students in the experimental group realized the numbers of benefits through using Wordwall in vocabulary lessons. 28 out of 30 (accounting for 93%) found that using Wordwall in vocabulary lessons is fun. 90% of the participants agreed the motivation of Wordwall's exercises in their vocabulary learning. Besides, 80% of the students shared that Wordwall improved their vocabulary retention because they remembered the words learnt for longer time. Using this application in vocabulary learning also makes

students more interested in doing vocabulary exercises (73%), helps them concentrate on the lessons (83%) and they have no worry about the cost (50%).

To sum up, The questionnaires' findings indicated that there was a change of students' attitudes towards learning English vocabulary through Wordwall. Most of students in the experimental group were not very interested in learning English vocabulary before the use of Wordwall lessons. However, the major of students found English vocabulary much more interesting, which made them more attentive in vocabulary lessons after a period of using Wordwall. Many students expressed a positive attitude toward vocabulary acquisition, understanding that a larger vocabulary enables them to communicate more clearly and comprehend complex texts better (Nation, 2001). Gamified vocabulary tools can increase motivation, promote repetitive practice, and help reduce learning-related anxiety, all of which support retention (Godwin-Jones, 2020). Games that incorporate vocabulary practice, such as Wordwall or Quizlet, make learning more interactive and enjoyable by including elements like points, rewards, and immediate feedback (Dörnyei, 2001). It is evident from the students' feedback on the utilization of Wordwall during the intervention's 12 weeks that all of the experiences the participants had while utilizing Wordwall were viewed conveniently. Positive feedback from students regarding the use of Wordwall to teach English vocabulary to the 5th graders points to the possibility of regular integration of Information and Communication Technologies (ICT) in general and Wordwall in particular into the English curriculum to improve academic performance and students' motivation and interest in learning the language.

IV. CONCLUSION

The findings show the effectiveness of Wordwall on improving vocabulary retention for 5th graders. The students' vocabulary learning is significantly improved. Moreover, students are more interested in vocabulary lessons. After the research period, students of the experimental group found that English vocabulary lessons became more interesting and effective with Wordwall. Moreover, they also received the other benefits from this application.

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