

**THE EFFECTIVENESS OF WORDWALL-BASED GAMIFICATION IN
IMPROVING VOCABULARY RETENTION FOR EIGHTH GRADE STU-
DENTS AT SMP KARTIKA II-2 BANDAR LAMPUNG**

(Undergraduate Thesis)

By

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DEPARTMENT OF LANGUAGE AND ARTS EDUCATION
FACULTY OF TEACHER TRAINING AND EDUCATION
UNIVERSITY OF LAMPUNG**

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ABSTRACT

THE EFFECTIVENESS OF WORDWALL-BASED GAMIFICATION IN IMPROVING VOCABULARY RETENTION FOR EIGHTH GRADE STUDENTS AT SMP KARTIKA II-2 BANDAR LAMPUNG

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This study investigates the effectiveness of Wordwall based gamification in improving vocabulary retention for eighth grade students at SMP Kartika II-2 Bandar Lampung. A one-group pre-test and post-test design was employed within a quantitative research design. The sample consisted of 25 students from class VIII A, selected through cluster random sampling. The research instruments included pre-test and post-test vocabulary tests focusing on content words such as nouns, verbs, adjectives, and adverbs. The results of the paired sample t-test show a significant improvement in vocabulary achievement, with the mean score increasing from 46,70 in the pre-test to 86,30 in the post-test, resulting in a mean difference of 39,60. The t-value obtained (21.098) was greater than the t-table (2.064), and the significance level ($p = 0.000$) was below 0.05. All aspects of vocabulary show significant improvement, with adjectives and adverb achieving the highest improvement (11,8 points and 11.0 points). These findings indicate that Wordwall-Based Gamification is an effective learning for improving vocabulary retention among junior high school students.

Keywords: Content words, Quantitative research, Vocabulary retention, Wordwall-based gamification.

ABSTRACT

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Penelitian ini bertujuan untuk mengetahui efektivitas Wordwall-Based Gamification dalam meningkatkan retensi kosakata siswa kelas VIII di SMP Kartika II-2 Bandar Lampung. Penelitian ini menggunakan desain kuantitatif dengan rancangan one-group pre-test and post-test. Sampel penelitian berjumlah 25 siswa kelas VIII A yang dipilih melalui teknik cluster random sampling. Instrumen penelitian berupa tes kosakata dalam bentuk pre-test dan post-test yang berfokus pada kosakata isi (content words), meliputi nomina, verba, adjektiva, dan adverbial. Hasil uji paired sample t-test menunjukkan adanya peningkatan yang signifikan pada pencapaian kosakata siswa, dengan rata-rata nilai meningkat dari 46,70 pada pre-test menjadi 86,30 pada post-test, sehingga diperoleh selisih rata-rata sebesar 39,60. Nilai t hitung (21,098) lebih besar daripada t tabel (2,064), serta nilai signifikansi ($p = 0,000$) lebih kecil dari 0,05. Seluruh aspek kosakata menunjukkan peningkatan yang signifikan, dengan aspek adjektiva dan adverbial memperoleh peningkatan tertinggi, masing-masing sebesar 11,8 dan 11,0 poin. Hasilnya ini menunjukkan bahwa Wordwall-Based Gamification efektif digunakan sebagai strategi pembelajaran untuk meningkatkan retensi kosakata siswa sekolah menengah pertama.

Keywords: Content words, Quantitative research, Vocabulary retention, Wordwall-based gamification.

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**By
Sakha Angel**

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**Submitted in a Partial Fulfillment of The Require-
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In

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The Faculty of Teacher Training and Education**



**ENGLISH EDUCATION STUDY PROGRAM DEPART-
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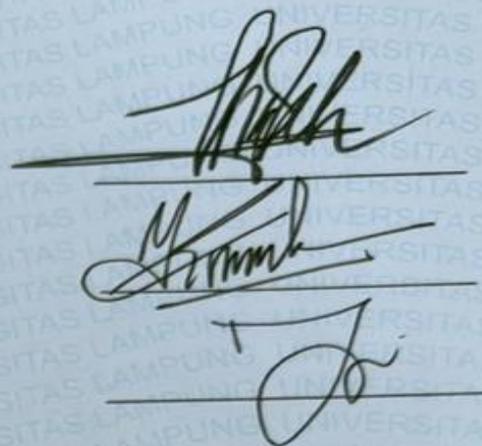
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Menyatakan bahwa skripsi ini adalah karya dari pelaksanaan penelitian saya sendiri. Sepanjang pengetahuan saya, karya ini tidak berisi materi yang ditulis orang lain, kecuali bagian-bagian tertentu yang saya gunakan sebagai acuan. Apabila ternyata terbukti bahwa pernyataan ini tidak benar, sepenuhnya menjadi tanggung jawab saya.

Bandar Lampung, 2 Februari 2026

Yang Membuat Pernyataan,



Sakha Angel

CURRICULUM VITAE

Sakha Angel, the oldest of three children of Napli Sulaiman and Widi Astuti, was born on March 13, 2004 in Metro. She has two amaze and beautiful sisters, Najwa Angel as the second child , and Lee lean Holy Ramadhan as the youngest child.

She began her education at SD 1 Palapa Bandar Lampung and graduated in 2016. She then continued her studies at SMP Kartika II-2 Bandar Lampung, graduating in 2019, and later attended SMAN 2 Bandar Lampung, where she completed her education in 2022. In the same year, she was accepted into the English Education Study Program, Faculty of Teacher Training and Education, University of Lampung, through the SMMPTN-Barat program.

While studying at the University of Lampung, she took an active role in student organizations. She served as a member of the Finance Division of the Society of English Education Department Students (SEEDS) during 2022–2023, an experience that strengthened her organizational and communication skills as well as broadened her understanding of financial administration.

MOTTO

“So, surely with hardship comes ease. Surely with ‘that’ hardship comes ‘
more’ ease.”

(QS. Al-Insyirah: 5-6)

“But they plan, and Allah plans. Allah is the best of planners”

(QS. Al-Anfal : 30)

“Life can be heavy, especially if you try to carry it all at once.

Part of growing up and moving into new chapters of

your life is about catch and release;

you can't carry all things,

decide what is yours to hold and let the rest go.”

(Taylor Swift)

“It.s fine to fake it until you make it.”

(Taylor Swift)

“Work hard in silence . Let your success be your noise”

(Frank Ocean)

DEDICATION

This thesis is proudly dedicated to:

My dearest parents

Napli Sulaiman and Widi Astuti

My dearest sisters

Najwa Angel and Lee Leean Holy

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The writer understands that this thesis may not be perfect and might have some

weaknesses that require improvement. Therefore, constructive feedback and suggestion are needed in order to improve this thesis.

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The writer,

Sakha Angel

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I. INTRODUCTION

This chapter includes the background of the research, research question, research objective, uses of the research, scope of the research, and definition of terms.

1.1 Background of the Research

Vocabulary is an essential component of language learning that significantly influences learners' ability to communicate effectively in both spoken and written forms. According to Utsajit (2022), vocabulary knowledge is typically divided into two main categories: receptive and productive vocabulary. Receptive vocabulary consists of words that learners can recognize and understand when listening or reading, while productive vocabulary refers to the words learners actively use in speaking and writing. This distinction underscores the complex process of vocabulary acquisition, which involves not only recognizing words but also being able to use them appropriately in various communicative contexts.

In addition to the distinction between receptive and productive vocabulary, vocabulary knowledge encompasses multiple dimensions such as form, meaning, and use (Utsajit, 2022). Form involves the phonological, orthographic, and morphological characteristics of words, meaning relates to the semantic understanding of vocabulary, and use pertains to the pragmatic and contextual application of words. These dimensions contribute to a comprehensive understanding of vocabulary and highlight the multifaceted challenges learners face in mastering a second language.

Teaching vocabulary effectively remains a challenging endeavor in language education, especially for junior high school students. Pratiwi (2024) notes that vocabulary learning often suffers from traditional instructional methods that are teacher-centered and lack student engagement. Such conventional approaches may

lead to passive learning, decreased motivation, and limited vocabulary retention, all of which impede students' progress in mastering new words and using them meaningfully in communication.

In response to these challenges, technological advancements have opened up new possibilities for enhancing vocabulary instruction. Digital learning platforms like Wordwall have become popular tools for creating interactive and engaging vocabulary activities. Alsyahrah, Suwarni, and Syarifuddin (2025) found in their quantitative study that the implementation of Wordwall media in vocabulary lessons significantly improved students' vocabulary mastery at the senior high school level by fostering active participation and interest.

Similarly, Igir, Liando, and Andries (2023) investigated the use of Wordwall.net as a web-based learning tool among junior high school students. Their quasi-experimental study revealed that the incorporation of Wordwall activities led to notable improvements in students' vocabulary knowledge compared to traditional teaching methods. The study highlights the effectiveness of gamification and multimedia in making vocabulary learning more dynamic and enjoyable.

Another study by Bandjarjani and Efrata (2024) examined the impact of Wordwall media on vocabulary achievement and found that this interactive method enhanced students' retention and recall abilities. Their findings suggest that visual and interactive learning tools provide meaningful contexts that support vocabulary acquisition. This is consistent with the research of Hapsari and Rachmawati (2023), who reported that Wordwall media positively influenced student engagement, increasing their enthusiasm and focus during vocabulary lessons.

Despite promising findings in previous studies, research focusing on the effectiveness of Wordwall for younger learners, particularly in junior high schools, remains limited. At SMP Kartika II-2, preliminary observations show that students face difficulties in acquiring and retaining new vocabulary. The dominant use of conventional, teacher-centered instructional methods creates a monotonous learning atmosphere, which negatively affects students' motivation and engagement in vocabulary learning.

This condition indicates a strong need for innovative teaching strategies that emphasize student-centered and interactive learning approaches. The gamification of vocabulary learning through platforms like Wordwall offers a viable solution by combining education with elements of play, which can increase learners' motivation, enjoyment, and ultimately their vocabulary retention. Qurashi (2025) supports this by demonstrating that interactive vocabulary games significantly improve vocabulary acquisition among EFL learners.

In light of these issues, this study aims to explore the effectiveness of Wordwall-based gamification in improving vocabulary retention among eighth-grade students at SMP Kartika II-2. This research seeks to contribute empirical evidence on how digital gamified tools can enhance vocabulary learning by making it more interactive, engaging, and effective. Furthermore, it hopes to offer practical insights for educators to innovate their teaching methods and improve student outcomes in vocabulary mastery.

Ultimately, this research intends to fill the gap in the current literature regarding vocabulary learning among junior high school students and provide a foundation for future studies on the integration of technology in language education. By addressing the specific needs of SMP Kartika II-2 students, the study aims to promote effective vocabulary teaching strategies that align with contemporary educational practices and learner preferences.

These observations underscore the urgent need for more interactive, student-centered approaches to vocabulary teaching that can address these gaps and boost student motivation and engagement. Accordingly, this study aims to examine *The Effectiveness of Wordwall- Based Gamification in Improving Junior high school Students Vocabulary Retention*. Beyond its immediate educational context, this research is expected to contribute to the broader academic understanding of Wordwall's role and potential as an innovative resource for vocabulary enhancement across different educational levels.

1.2 Research Question

In line with the background explained before, the researcher formulated a research question as the main problem as follows:

Is there any significant difference in students' vocabulary retention before and after being taught using Wordwall-Based gamification among eighth-grade student at SMP Kartika II-2 Bandar Lampung?

1.3 Research Objective

Based on the research question above, the objective of the study is to find out whether there is a effective difference in students' vocabulary retention before and after being taught using the Wordwall-Based Gamification in eighth grade at SMP Kartika II-2 Bandar Lampung.

1.4 The Uses of the Research

This research is hopefully useful both theoretically and practically.

Theoretically:

- a. The findings of this study are expected to support the use of Wordwall-based gamification as an effective strategy for improving vocabulary retention among junior high school students.
- b. This research is expected to contribute to the existing body of knowledge about gamification in vocabulary learning, particularly the application of Wordwall in language education.

Practically:

- a. The results of this study can serve as a useful reference for English teachers in designing and implementing engaging vocabulary learning activities using Wordwall-based gamification.
- b. This research is expected to guide educators and curriculum developers in applying innovative, technology-based gamification methods to enhance students' vocabulary retention and overall language proficiency.

1.5 Scope of the Research

This study focuses on improving vocabulary retention through the use of Wordwall-based gamification among eighth-grade students at SMP Kartika II-2 Bandar Lampung. The vocabulary targeted in this research includes content words, particularly nouns, verbs, adjectives, and adverbs, which are commonly used in descriptive texts about people. The study emphasizes vocabulary retention in both receptive and productive skills, with a focus on students' ability to remember and use the vocabulary over time.

To measure the effectiveness of the intervention, the researcher will conduct a pre-test and a post-test to determine whether there is a significant improvement in students' vocabulary retention after using Wordwall as a learning tool. In addition, this study also aims to investigate students' perceptions of the use of Wordwall-based gamification in vocabulary learning to understand how students respond to and experience the learning process.

1.6 Definition of Terms

To avoid misunderstanding by readers, the following definitions are provided:

a. Vocabulary

Vocabulary refers to the collection of words that an individual knows and uses in communication. A rich vocabulary is essential not only for expressing ideas clearly but also for understanding messages received from others.

b. Wordwall-based Gamification

Wordwall-based gamification refers to the use of the Wordwall digital platform to create interactive and game-like learning activities that aim to enhance students' engagement and retention of vocabulary through various customizable exercises such as quizzes, matching games, and puzzles.

c. Vocabulary Retention

Vocabulary retention is learners' ability to remember and recall vocabulary items over time after they have been initially learned. It involves storing

lexical knowledge in long-term memory and being able to retrieve word forms, meanings, and usage when. Effective vocabulary retention is influenced by factors such as repeated exposure, meaningful use, and depth of cognitive processing.

d. Writing

Writing is a process in which ideas are expressed in written form in order to clarify thoughts, develop main ideas, and organize them into a coherent and meaningful text. Through this process, writing allows writers to shape their ideas more clearly, refine their thinking, and present information in an organized manner so that the intended message can be effectively understood by readers.

e. DescriptiveText

Descriptive text is a type of writing that describes a person, place, thing, or animal in detail. The purpose is to help the reader imagine or feel what the writer is describing. This type of text usually uses adjectives, present tense, and relating verbs like *is*, *has*, or *looks*.

f. Effectiveness

Effectiveness refers to the extent to which Wordwall-based gamification successfully improves students' vocabulary retention. In this study, effectiveness is determined by comparing students' pre-test and post-test scores to identify measurable improvement in learning outcomes.

All of the above is what this chapter covers, such as the background of the research, research question, research objective, the uses of the research, the scope of the research, and the definition of terms.

II. LITERATURE REVIEW

This chapter includes the theories used in the research, such as previous research overview, theories of vocabulary, concept of vocabulary achievement, types of vocabulary, aspects of vocabulary, media in teaching vocabulary, teaching of vocabulary, Wordwall-Based Gamification, Wordwall-Based Gamification in teaching vocabulary, procedure for using Wordwall-Based Gamification in teaching vocabulary, advantages and disadvantages of Wordwall-Based Gamification in teaching vocabulary, theoretical assumption, and hypothesis.

2.1 Previous Research Overview

Many previous studies have demonstrated the effectiveness of using the Wordwall-Based Gamification to enhance students' vocabulary mastery. A study by Alsyahrah, Suwarni, and Syarifuddin (2025) revealed that the integration of Wordwall media significantly improved students' vocabulary mastery among tenth-grade students of SMAN 14 Bone. Utilizing a quantitative research method, the study found a substantial increase in vocabulary test scores between the pre-test and post-test after the implementation of Wordwall-based learning. The results indicated that the interactive features of Wordwall contributed to students feeling more motivated and comfortable during vocabulary practice, which ultimately led to better learning outcomes.

In line with these findings, Igir, Liando, and Andries (2024) also confirmed the effectiveness of Wordwall.net in enriching students' vocabulary, particularly in a quasi-experimental study involving eighth-grade students at SMP Negeri 1 Tombariri. The use of Wordwall helped create a game-based learning environment that engaged students and improved their focus during English lessons. The study concluded that Wordwall's dynamic and competitive format made vocabulary learning more enjoyable and significantly boosted students' vocabulary knowledge.

Another related study by Bandjarjani and Efrata (2024) highlighted the positive impact of Wordwall on vocabulary achievement. This study, which employed a quasi-experimental method, reported that students exposed to Wordwall activities were better able to retain and recall new vocabulary compared to those taught using conventional methods. The visual and interactive aspects of Wordwall contributed to a more meaningful learning experience, allowing students to connect words with images, actions, and engaging contexts.

Dwiningrum, Bunau, and Rahmani (2024) explored the use of Wordwall in vocabulary instruction through a pre-experimental design. Their research showed a significant improvement in students' vocabulary mastery after participating in Wordwall-based activities. In addition to the positive learning outcomes, students expressed greater interest and participation in vocabulary exercises, suggesting that gamified learning could effectively overcome boredom and increase classroom engagement.

Wulandari (2024) further reinforced the benefits of Wordwall through her qualitative study on game-based vocabulary teaching. Through classroom observations and student interviews, the study revealed that learners were actively involved in the learning process and responded positively to vocabulary tasks. Wordwall not only helped students acquire new vocabulary but also provided a supportive environment that encouraged meaningful and interactive learning.

Moreover, Hapsari and Rachmawati (2023) underscored the role of Wordwall in improving students' emotional, cognitive, and behavioral engagement. Their qualitative descriptive study indicated that students became more enthusiastic, focused, and motivated to learn English vocabulary when exposed to Wordwall activities. The study emphasized that student-centered digital tools like Wordwall can make vocabulary

learning more appealing, especially in post-pandemic classroom settings where engagement and participation remain a challenge.

Complementing these findings, Pratiwi (2024) conducted classroom-based research showing that Wordwall is highly effective in supporting vocabulary mastery through several learning cycles. Her study highlighted that the repeated use of Wordwall activities helped students reinforce their vocabulary understanding over time, contributing to long-term retention. The research also observed that students became more actively involved and the classroom shifted toward a more student-centered learning model.

An international perspective is provided by Qurashi (2025), who investigated the impact of Wordwall games among Saudi EFL learners. The study utilized an experimental design and reported significant improvements in the vocabulary acquisition of the experimental group compared to the control group. A large effect size was found, further confirming Wordwall's effectiveness across diverse educational contexts. The gamified learning environment helped increase learners' engagement and facilitated vocabulary retention through repetition and competition.

The previous studies serve as valuable references and comparisons for the present research. However, it is important to note that most of the existing research tends to focus on older learners, such as senior high school students or university students, and often in international or urban educational settings. There is a noticeable gap in research that investigates how younger learners, particularly seventh-grade students in Indonesian junior high schools, respond to Wordwall-based vocabulary instruction. This research, therefore, aims to fill that gap by exploring the application of Wordwall in a more specific and localized context.

At SMP Kartika II-2 Bandar Lampung, preliminary classroom observations and informal interviews with English teachers indicated that eighth-grade students frequently face challenges in remembering and retaining English vocabulary. Students tend to lack motivation and interest in learning English due to the monotonous nature of traditional, teacher-centered methods. These issues have made vocabulary learning less effective and less engaging. As a result, this study is conducted to investigate whether the use of Wordwall-based gamification can bring significant difference in students' vocabulary retention and foster a more interactive, student-centered learning environment at SMP Kartika II-2 Bandar Lampung.

2.2 Vocabulary

Vocabulary is an essential component of language learning, particularly for junior high school students who are at the early stages of developing their English proficiency. Linse (2005) defines vocabulary as a group of words that a person knows. In the context of teaching English at SMP Kartika II-2 Bandar Lampung, vocabulary can be interpreted as a set of English words that students are expected to understand, remember, and use both receptively and expressively. As vocabulary forms the foundation of all four language skills: listening, speaking, reading, and writing. Its mastery plays a central role in students' ability to communicate effectively.

Without sufficient vocabulary, students may experience difficulties in understanding learning materials, following teachers' instructions, and expressing their ideas in English. Limited vocabulary knowledge can also reduce students' confidence and motivation to participate actively in classroom activities. Therefore, vocabulary instruction becomes an essential component of English teaching at the junior high school level.

One important aspect of vocabulary learning is vocabulary retention. Vocabulary retention refers to learners' ability to remember and recall vocabulary after learning has taken place. Retention emphasizes how well vocabulary items are stored in memory and can be retrieved after a certain period of time, rather than immediately after instruction.

Schmitt (2008) explains that vocabulary retention is closely related to memory, particularly long-term memory. According to him, vocabulary learning does not occur instantly but requires repeated exposure and retrieval. Words that are encountered and recalled repeatedly are more likely to be retained, while words that are learned only once tend to be forgotten easily.

For junior high school students, vocabulary retention is especially important because learners often forget newly learned words if they are not practiced regularly. Students may recognize vocabulary items during a lesson but fail to remember them in subsequent learning sessions. Therefore, vocabulary retention becomes a key indicator of successful vocabulary learning.

Nation (2001) emphasizes that vocabulary retention is strengthened through repeated encounters with words in meaningful contexts. He argues that retention is supported by repetition, active recall, and opportunities to use vocabulary in various learning activities. Retained vocabulary allows learners to reuse words in future communication.

In addition, Hulstijn (2001) highlights the role of depth of processing in vocabulary retention. Vocabulary items are more likely to be retained when learners process them deeply, such as by understanding meanings, making associations, and using words in context. Passive memorization without meaningful engagement often results in weak retention.

Although vocabulary retention is closely related to vocabulary mastery, the two concepts are different. Vocabulary mastery refers to learners' overall and comprehensive control of vocabulary, including accurate understanding, correct usage, and the ability to apply words across different language contexts (Nation, 2001).

In contrast, vocabulary retention focuses specifically on learners' ability to remember and recall vocabulary after instruction. As stated by Hulstijn (2001), learners may retain vocabulary items in memory without fully mastering their use in communication, which indicates that retention does not automatically lead to mastery.

Based on these theoretical perspectives, vocabulary retention is considered a crucial component of vocabulary learning that supports further vocabulary mastery. However, since vocabulary mastery requires long-term exposure and continuous practice, this study focuses on vocabulary retention as the main variable in examining the effectiveness of Wordwall-based gamification in supporting vocabulary learning among eighth-grade students.

Based on these perspectives, the present study highlights the role of vocabulary in supporting language development and aims to investigate whether Wordwall-based gamification can effectively improve vocabulary retention among eighth-grade students at SMP Kartika II-2 Bandar Lampung. By introducing vocabulary through engaging and interactive digital activities, the researcher expects that students will not only remember more words but also use them more confidently in various communicative tasks.

2.3 Concept of Vocabulary Retention

Vocabulary retention refers to learners' ability to remember, recall, and reuse vocabulary items over time after the initial learning process. Retention emphasizes long-term memory rather than immediate vocabulary mastery. In English language

learning, vocabulary retention is essential because students need to consistently retrieve previously learned words to communicate effectively in various contexts (Richards & Renandya, 2002).

For eighth-grade students at SMP Kartika II-2 Bandar Lampung, vocabulary retention plays a crucial role in supporting the development of the four language skills: listening, speaking, reading, and writing. Students who are able to retain vocabulary effectively tend to demonstrate better comprehension and language use across skills. Sulistianingsih, Febriani, and Pradjarto (2019) argue that vocabulary retention enables learners to understand texts more easily and use language more accurately in both spoken and written forms.

Vocabulary retention can be enhanced through repeated exposure and meaningful practice. Learning vocabulary through memorization alone often results in short-term recall, which does not support long-term retention. Therefore, students need to be engaged in interactive and contextual learning activities that allow them to repeatedly encounter and use new vocabulary. Sulistianingsih et al. (2019) emphasize that vocabulary retention improves when learners are involved in integrated language activities such as listening, speaking, reading, and writing.

Richards and Renandya (2002) state that vocabulary knowledge supports all aspects of language proficiency, but its effectiveness depends on how well vocabulary is retained and accessed over time. For junior high school students who are still developing their English foundation, vocabulary retention is particularly important because it allows learners to build upon previously learned words rather than relearning vocabulary repeatedly

Montgomery (2007) categorizes vocabulary into four types: listening vocabulary, speaking vocabulary, reading vocabulary, and writing vocabulary. These vocabulary

types are interrelated, and retention in one area can positively influence the others. For example, vocabulary that is retained through listening and speaking activities can later support reading comprehension and writing accuracy. This interconnected nature highlights the importance of focusing on vocabulary retention rather than short-term achievement.

In the context of this study, vocabulary retention is defined as students' ability to recall, recognize, and appropriately use vocabulary after a certain period of instruction. Retention is demonstrated when students can apply previously learned words in different language contexts, not merely recognize them in isolated tests. Richards and Renandya (2002) note that meaningful use and repeated exposure are key factors in strengthening vocabulary retention.

A strong level of vocabulary retention also contributes to students' motivation and confidence in learning English. When learners are able to remember and reuse vocabulary successfully, they become more willing to participate in classroom activities and language practice. Sulistianingsih et al. (2019) suggest that effective vocabulary retention supports learner engagement and sustained language development.

Furthermore, vocabulary retention needs to be measured systematically to determine learning effectiveness. Retention is commonly assessed through pre-tests and post-tests that measure students' ability to recall vocabulary over time. Such assessments provide clear evidence of whether instructional strategies are successful in helping students retain vocabulary (Richards & Renandya, 2002).

In conclusion, vocabulary retention is a fundamental component of English language learning that supports long-term language development. By emphasizing repeated exposure, meaningful practice, and contextual use of vocabulary, learners are more likely to retain and apply vocabulary effectively. Based on the theoretical

perspectives of Richards and Renandya (2002), Montgomery (2007), and Sulistianingsih et al. (2019), vocabulary retention should be a central focus in vocabulary instruction for junior high school students.

2.4 Types of Vocabulary

Vocabulary in English language learning can be categorized into different types based on its function and usage in communication. Many studies on vocabulary acquisition highlight the distinction between receptive vocabulary and productive vocabulary, as well as between content words and function words, which are essential for learners to understand and use English effectively.

a. Receptive and Productive Vocabulary

According to Utsajit (2022), vocabulary knowledge exists on a continuum between receptive and productive dimensions. Receptive vocabulary refers to the words learners can recognize and understand when listening or reading, while productive vocabulary refers to the words they can actively use in speaking or writing. Utsajit emphasizes that receptive knowledge tends to precede productive use, which suggests that students may understand more words than they can actually produce. This distinction is crucial in vocabulary instruction, where both recognition (input) and usage (output) should be balanced to enhance vocabulary mastery.

b. Content Words

are words that carry the main meaning in a sentence. These include:

- **Nouns:** represent people, places, things, or concepts (e.g., *student*, *book*, *happiness*).
- **Verbs:** describe actions or states (e.g., *write*, *is*, *have*).

- **Adjectives:** describe or modify nouns (e.g., *beautiful, blue, happy*).
- **Adverbs:** describe or modify verbs, adjectives, or other adverbs (e.g., *quickly, very, often*).

Studies such as that by Alsyahrah, Suwarni, and Syarifuddin (2025) show that learning content words through digital tools like Wordwall enhances students' understanding and retention of these key vocabulary types. The interactive nature of Wordwall media makes the learning of content words more engaging and memorable.

c. **Function Words**

Function words serve a grammatical purpose rather than conveying specific lexical meaning. These include:

- **Articles** (*a, an, the*)
- **Auxiliary verbs** (*is, do, have*) and **modal verbs** (*can, must, should*)
- **Prepositions** (*in, on, at*)
- **Conjunctions** (*and, but, because*)

Although these words are often small and seem simple, they play a critical role in sentence structure and meaning. Bandjarjani and Efrata (2024) argue that Wordwall activities can help learners focus on the correct usage of function words by providing repeated practice through contextual games. Function words are essential in forming grammatically correct sentences, and their mastery supports fluency and coherence in both spoken and written English.

d. **Vocabulary by Context of Learning**

Vocabulary learning also varies based on learning context and media, as shown in several studies. For instance, Igir, Liando, and Andries (2024) found that the game-like features of Wordwall.net contribute significantly to

students' vocabulary acquisition across different word types. Similarly, Pratiwi (2024) and Qurashi (2025) highlight that Wordwall is effective not only for teaching individual word meanings but also for helping learners use those words correctly in context—supporting both recognition and production.

2.5 Aspects of Vocabulary

Vocabulary knowledge is not a single-dimensional concept. Instead, it encompasses various aspects that contribute to how well a learner knows a word. According to Utsajit (2022), vocabulary mastery involves a learner's knowledge of form, meaning, and use. These aspects help determine how effectively a learner can recognize, understand, and apply words in different contexts. This section elaborates on each aspect:

a. Form

The form of a word includes its pronunciation (spoken form), spelling (written form), and morphological components such as prefixes, suffixes, and roots. For example, in the word *unhappiness*, *un-* is a prefix meaning 'not', *happy* is the base form, and *-ness* is a suffix indicating a state or quality. Mastering word form helps learners identify patterns in vocabulary, which is essential for decoding unfamiliar words and improving spelling and pronunciation skills. As noted by Utsajit (2022), understanding the morphological structure of words enhances learners' ability to store and retrieve vocabulary from memory, contributing to long-term retention.

b. Meaning

Meaning refers to both the conceptual understanding of a word and the associations learners have with it. This includes denotative meaning (literal

meaning), connotative meaning (emotional or cultural associations), and the ability to distinguish synonyms and antonyms. Learners must also be aware of polysemy, where a single word has multiple meanings depending on context. For instance, the word *bank* may refer to a financial institution or the side of a river. According to Dhuli, Lamo, and Larsari (2023), meaning becomes more solidified when learners encounter words in various contexts, reinforcing semantic connections and supporting deeper comprehension.

c. Use

The use of a word involves knowing its grammatical function (e.g., noun, verb), common collocations, register (formal or informal), and constraints on its usage such as frequency and appropriateness. For example, the verb *make* often collocates with *a decision*, while *do* collocates with *homework*. Learners need to practice using vocabulary accurately in context to internalize these patterns. In line with Alizadeh (2016), vocabulary knowledge also includes an understanding of collocational behavior and grammatical compatibility. This aligns with the learning objective of Wordwall-based gamification, which provides contextualized exercises where students can apply vocabulary through sentence completion, categorization, and cloze activities.

In conclusion, understanding vocabulary requires more than memorizing word lists. It involves a comprehensive mastery of form, meaning, and use, which together create a holistic vocabulary knowledge base. These three aspects are interrelated: form allows for recognition, meaning enables understanding, and use ensures practical application. Wordwall, as an interactive digital tool, supports vocabulary learning across all three dimensions by offering a variety of task types that reinforce spelling, comprehension, and usage in engaging formats.

2.6 Teaching of Vocabulary

Teaching vocabulary to junior high school students requires strategic planning that balances engagement, comprehension, and long-term retention. In the context of this research, effective vocabulary instruction is crucial due to the challenges students at SMP Kartika II-2 face, such as low motivation, passive learning, and limited recall. To address these, both traditional principles and modern, technology-based approaches such as *Wordwall-based gamification* can be integrated into vocabulary teaching.

a. Emphasize Both Direct and Indirect Teaching

Vocabulary should be taught both explicitly by directly introducing word meanings and implicitly, by embedding words in meaningful, contextualized activities. As stated by Utsajit (2022), vocabulary knowledge involves recognizing word form, meaning, and use, which can be strengthened through both direct teaching (e.g., pre-teaching key words in a text) and indirect discovery (e.g., letting students guess meanings through context or games). Wordwall activities, such as “Match Up” or “Find the Match,” provide a platform where students can experience both modes simultaneously.

b. Teach Vocabulary before a New Activity

Introducing target vocabulary before reading, writing, or listening activities allows students to better understand and engage with the material. According to Pratiwi (2024), vocabulary instruction prior to the main task increases students’ readiness and confidence. For example, teachers can use Wordwall quizzes to preview vocabulary that will appear in a descriptive text about people one of the main focuses in this study’s context.

c. Encourage the Use of Context Clues

Teaching students to use contextual clues to infer meaning helps develop autonomy in reading and listening. Qurashi (2025) supports this by showing that interactive game formats like Wordwall support strategy development, such as recognizing meanings from sentence-based activities. However, students also need guidance, as context clues are not always reliable. Wordwall exercises that include sentence completion or gap-fills are excellent for practicing this skill.

d. Provide Repeated and Varied Exposed

Research by Bandjarjani and Efrata (2024) emphasizes the importance of repetition in vocabulary retention. Students must encounter words multiple times in different contexts to fully remember and apply them. Wordwall facilitates this by offering diverse formats matching, grouping, quiz, anagram, etc. which can be used in successive lessons with the same vocabulary to reinforce retention.

e. Promote Deep Processing

Students are more likely to retain vocabulary when they connect new words to prior knowledge or use them in personalized tasks. This aligns with Alizadeh's (2016) view that vocabulary learning includes association, usage, and conceptual depth. Teachers can design Wordwall games that go beyond recognition—such as asking students to form sentences or sort vocabulary into themes—to encourage deeper mental engagement.

f. Train Students in Vocabulary Learning Strategies

Nation (2008) suggests that vocabulary learning must include strategy training, where students learn how to plan, monitor, and evaluate their own

learning. Teachers should teach students to use dictionaries (print or digital), word-part analysis, and mnemonic techniques. Although Wordwall itself is a platform, it can be integrated with strategy instruction by asking students to reflect on the words they found hard, or by requiring them to look up unfamiliar vocabulary after a game.

g. Utilize Vocabulary Notebooks and Portfolios

Students can maintain vocabulary notebooks to track their learning progress, add example sentences, or document game results from Wordwall. This practice fosters learner autonomy and ownership of learning, as suggested by Fowless in Linse (2002). Teachers can complement digital activities with reflective writing or journaling tasks based on new vocabulary.

h. Integrate Multimedia and Student Centered Content

As Tomlinson (1998) recommends, learning materials should be varied, engaging, and relevant to learners' interests. Wordwall's customizable format allows vocabulary to be presented using images, sounds, animations, and real-life topics that resonate with students. In the current study context, gamification has helped transform passive students into active participants, particularly through content that connects with their daily lives and cultural backgrounds.

i. Align with the Four Strands of Vocabulary Learning

I.S.P Nation (2008) proposes that vocabulary teaching should incorporate four strands:

1. **Meaning-focused input** – e.g., reading and listening to texts with familiar vocabulary

2. **Meaning-focused output** – e.g., using vocabulary in speaking and writing
3. **Language-focused learning** – e.g., explicit grammar instruction through Wordwall
4. **Fluency development** – e.g., timed games or repeated activities for speed and recall

Wordwall addresses all four strands effectively when used consistently, as shown in studies by Hapsari & Rachmawati (2023), which report increases in student engagement, retention, and fluency.

In conclusion, effective vocabulary teaching integrates a variety of strategies—from direct instruction to contextualized practice combined with repetition, personalization, and strategy training. Tools like Wordwall support these principles by providing an interactive, engaging environment where students can explore vocabulary from multiple angles. When these methods are implemented thoughtfully, as in the context of SMP Kartika II-2, vocabulary retention improves significantly, leading to better overall language proficiency.

2.7 Wordwall Based Gamification

Wordwall-based gamification refers to the use of the Wordwall digital platform as an instructional strategy that integrates game elements into vocabulary learning. Unlike traditional vocabulary teaching methods that rely on explanation and memorization, Wordwall presents vocabulary through interactive activities such as quizzes, matching tasks, word sorting, and word completion games. These activities are designed to make vocabulary learning more engaging, student-centered, and meaningful.

From a pedagogical perspective, Wordwall-based gamification supports vocabulary retention by providing repeated exposure and active recall. Vocabulary items are

revisited through various activity formats, allowing students to encounter the same words multiple times in different contexts. This aligns with Schmitt's (2008) theory that vocabulary retention is strengthened through repetition and retrieval practice rather than single exposure.

In addition, Wordwall-based gamification encourages learners' active involvement during the learning process. The use of scores, time limits, and competitive elements motivates students to participate actively and maintain focus. Active participation is essential for vocabulary retention because learners who are cognitively and emotionally engaged are more likely to process vocabulary deeply and store it in long-term memory.

Wordwall also supports meaningful vocabulary learning by combining visual and contextual elements. Vocabulary items are often presented with images, clues, or sentence contexts, enabling students to understand word meanings more clearly. This approach helps learners connect word form, meaning, and use, which is consistent with Nation's (2008) framework of effective vocabulary instruction.

From a classroom implementation perspective, Wordwall-based gamification is flexible and adaptable to different learning objectives. Teachers can use Wordwall to introduce new vocabulary, reinforce previously learned words, or assess students' understanding. The variety of activity templates allows the same vocabulary to be practiced in different ways, which helps prevent boredom and supports long-term vocabulary retention.

Furthermore, Wordwall-based gamification is suitable for junior high school learners because it accommodates different learning styles, including visual, auditory, and kinesthetic learners. The interactive nature of Wordwall creates a positive learning atmosphere that encourages collaboration, discussion, and motivation, which are important factors in vocabulary learning at this level.

Based on these characteristics, Wordwall-based gamification is not merely a digital application but an instructional approach that integrates interaction, repetition, and motivation. Therefore, it is theoretically appropriate to be used as a strategy for improving vocabulary retention among eighth-grade students, particularly in learning vocabulary related to descriptive texts.

2.8 Wordwall-based gamification in Teaching Vocabulary

In this digital age, Wordwall-based gamification has emerged as an effective instructional approach for improving vocabulary learning in English language teaching, particularly among junior high school students. Wordwall-based gamification refers to the integration of game elements through the Wordwall platform to create interactive and engaging vocabulary learning activities. By combining learning content with game mechanics, such as points, competition, and immediate feedback, this approach encourages students to actively participate in the learning process rather than relying on traditional teacher-centered instruction.

From a theoretical perspective, the use of Wordwall-based gamification is grounded in gamification theory and digital game-based learning. Deterding et al. (2011) explain that gamification involves the use of game design elements in non-game contexts to increase learners' motivation and engagement. In line with this view, Prensky (2001) states that today's students are digital natives who learn more effectively when instruction incorporates interactive and game-like environments. Therefore,

Wordwall-based gamification aligns with students' learning characteristics and supports meaningful vocabulary learning through digital interaction.

In classroom practice, Wordwall-based gamification promotes active learning through collaborative and competitive activities. Students are encouraged to work individually or in groups to complete vocabulary tasks, discuss answers, and compete to achieve higher scores. This learning environment allows students to actively construct vocabulary knowledge through participation and interaction, rather than passively receiving explanations from the teacher. Such activities support the principles of student-centered learning, where students are positioned as active learners in the vocabulary learning process.

In terms of teaching steps for students, Wordwall-based gamification conceptually involves several stages of learning. First, vocabulary is introduced through meaningful input, such as images, short texts, or contextual clues embedded in Wordwall activities. Second, students engage in guided practice by completing interactive tasks that require them to match, categorize, or select vocabulary items. Third, students receive immediate feedback from the platform, which helps them recognize errors and reinforce correct answers. Finally, repeated exposure to vocabulary through varied Wordwall activities supports students' vocabulary retention and recall over time. These steps reflect Nation's (2008) four strands of language learning, which include meaning-focused input, language-focused learning, meaning-focused output, and fluency development.

In the context of syllabus-based teaching under the Merdeka Curriculum, Wordwall-based gamification can be aligned with English learning objectives and *Capaian Pembelajaran* (CP) at the junior high school level. The vocabulary taught through Wordwall activities is selected based on the learning outcomes stated in the syllabus, particularly vocabulary related to specific text types and communicative

functions. This alignment ensures that Wordwall-based activities support curriculum goals and do not function merely as entertainment.

Furthermore, Wordwall-based gamification supports differentiated learning as emphasized in the Merdeka Curriculum. Teachers can design vocabulary activities that accommodate students' different proficiency levels and learning styles. Visual learners benefit from images and colors, while students who prefer practice-based learning benefit from repeated interaction with vocabulary items. Through this approach, students are given opportunities to learn vocabulary at their own pace while remaining actively engaged in classroom activities.

For students, Wordwall-based gamification provides a supportive learning environment that reduces anxiety and increases motivation. The game-based format encourages students to participate without fear of making mistakes, as errors are treated as part of the learning process. As a result, students become more confident in recalling and using vocabulary, which contributes to improved vocabulary retention. Thus, Wordwall-based gamification functions not merely as a supplementary medium, but as an instructional strategy that integrates theory, syllabus objectives, and student-centered teaching to support effective vocabulary learning.

2.9 Procedure for Using Wordwall Based Gamification in Teaching Vocabulary

The process of utilizing Wordwall-based gamification for vocabulary instruction involves several pedagogical steps designed to promote active learning and student engagement. Rather than focusing on technical operation, this procedure emphasizes how Wordwall is implemented as a teaching strategy in the classroom. According to Prensky (2001), students as digital natives tend to learn more effectively through interactive and game-based activities. Therefore, Wordwall-based gamification is used to create a learning environment that matches students' learning characteristics and encourages active participation.

Based on this perspective, the procedure for using Wordwall-based gamification in English language learning can be described as follows.

- a. The teacher introduces the Wordwall-based activity to the students and explains its purpose in supporting vocabulary learning. The learning objectives are clearly stated so students understand what is expected from the activity.
- b. The teacher provides examples of Wordwall templates and explains how the game works, including the rules and scoring system, to ensure students are ready to participate.
- c. During the lesson, the teacher operates the Wordwall platform using a projector, while students actively respond to the vocabulary questions orally or through group discussion. This approach is applied when students are not allowed to use personal devices in the classroom.
- d. The teacher displays the selected Wordwall template and divides students into small groups to encourage collaboration and peer interaction.
- e. Vocabulary tasks are presented through interactive templates, such as grouping or matching activities, where students analyze word meanings and categorize them based on their understanding.
- f. Before starting the activity, the teacher explains the instructions clearly and ensures that students understand how to answer the questions correctly.
- g. Once the activity begins, students take turns answering the questions within their groups, while the teacher facilitates the process and manages the game flow.
- h. A time limit is applied to increase focus and motivation, encouraging students to respond efficiently during the activity.
- i. After the activity is completed, the teacher reviews the results and discusses the answers with the students to clarify vocabulary meanings.

j. Feedback is provided to help students recognize their strengths and areas for improvement, and students are encouraged to ask questions if they experience difficulties.

In conclusion, Wordwall-based gamification provides an interactive learning environment that supports vocabulary development through collaboration and competition. The use of game-based activities helps students remain engaged and motivated throughout the learning process.

1. Post-Activity Review

After completing the activity, students are shown their results, including the number of correct answers and the time taken to complete the task. Reflection is conducted by reviewing common errors and discussing word meanings. This stage supports vocabulary retention, as repetition and feedback play an important role in reinforcing learning.

2. Repetition and Variation

To maximize vocabulary retention, the teacher reuses the same vocabulary items in different Wordwall templates in subsequent lessons. By presenting the same vocabulary through varied game formats, students encounter repeated exposure in different contexts, which supports deeper understanding and long-term retention.

In summary, the procedure for using Wordwall-based gamification in vocabulary instruction consists of four essential stages: preparation, implementation, post-activity review, and repetition. This structured procedure aligns with Prensky's (2001) theory of digital game-based learning and supports an engaging, interactive, and effective vocabulary learning environment for junior high school students.

2.10. Advantages and Disadvantages of Word Wall Based Gamification in Teaching Vocabulary

The use of Wordwall Based Gamification in vocabulary instruction presents various advantages that support both pedagogical effectiveness and student engagement. One of the key benefits is that Wordwall creates an interactive and enjoyable learning environment. As demonstrated in the study by Alsyahrah, Suwarni, and Syarifuddin (2025), the integration of Wordwall media significantly increased students' motivation and participation in vocabulary learning. The game-based approach offered by Wordwall allowed students to experience vocabulary as something fun and meaningful rather than as a memorization task, which led to improved vocabulary mastery.

Another advantage of Wordwall is its capacity to promote better vocabulary retention through repeated exposure and varied formats. Research by Bandjarjani and Efrata (2024) showed that students retained vocabulary more effectively when they encountered the same words in multiple Wordwall activities, such as "match-up," "group sort," or "missing word." These interactive and visual activities helped students connect vocabulary with context and usage, which contributed to long-term memory.

Furthermore, the simplicity and accessibility of the Wordwall platform make it an efficient tool for teachers, especially those with limited technological experience. According to Pratiwi (2024), Wordwall was user-friendly and could be easily operated by teachers to prepare materials in a short amount of time. This convenience is particularly beneficial in school contexts where time and resources are limited. In addition, Wordwall can be accessed via smartphones, which suits the conditions in many Indonesian schools, including SMP Kartika II-2 Bandar Lampung.

Another strength of Wordwall is the immediate feedback it offers. After completing an activity, students can instantly see their scores and review their mistakes. This feature helps students monitor their own progress and motivates them to repeat the activity for better results. As highlighted in the study by Qurashi (2025), instant feedback and visible results play an important role in maintaining student focus and encouraging active learning behavior. Moreover, Wordwall activities can also be printed in PDF format, allowing students who have internet limitations to participate in offline practice, as also implied in the findings of Dwiningrum et al. (2024).

Despite its advantages, Wordwall is not without limitations. One of the primary drawbacks is that not all templates are available for free. Although Wordwall provides a selection of basic templates at no cost, many of the more engaging formats such as “maze chase,” “balloon pop,” or “whack-a-mole” require a paid subscription. This limitation reduces the creative flexibility for teachers who do not have access to premium accounts, as mentioned by Igir, Liando, and Andries (2024).

Another limitation is the restriction on the number of activities that can be created using a free Wordwall account. Teachers who rely on the free version may only create a limited number of games before needing to delete previous ones or upgrade to a premium plan. In addition, while Wordwall is effective for vocabulary learning, it is less suitable for teaching listening skills because it lacks built-in support for uploading or integrating audio files. As vocabulary often depends on pronunciation and listening practice, this can be considered a disadvantage in teaching more comprehensive language skills.

In conclusion, the Wordwall Website presents a highly engaging and practical solution for vocabulary teaching, especially in junior high school contexts. It offers many strengths, including ease of use, immediate feedback, flexible formats, and strong student engagement. However, some limitations related to access,

functionality, and subscription costs must also be considered. Therefore, while Wordwall can serve as an effective supplementary tool, its integration should be accompanied by thoughtful planning and, when possible, supported by alternative resources to address its shortcomings.

2.11 Theoretical Assumption

Based on previous studies related to the use of Wordwall in English language teaching, the researcher assumes that Wordwall-based gamification has a positive effect on improving students' vocabulary retention. As stated by Alsyahrah, Suwarni, and Syarifuddin (2025), the use of Wordwall media significantly increased students' vocabulary mastery by presenting learning materials in a game-like format that is fun, interactive, and engaging. This digital tool allows students to practice vocabulary through various templates such as quizzes, matching games, and sorting activities that promote repetition and active participation.

The interactive and visual nature of Wordwall activities enables students to relate new words to prior knowledge in a meaningful way. Bandjarjani and Efrata (2024) found that students exposed to Wordwall activities were better able to recall and use vocabulary in context compared to those taught using traditional methods. Similarly, Igir, Liando, and Andries (2024) concluded that Wordwall created a dynamic and student-centered learning environment that fostered focus and motivation during English lessons.

Moreover, Wordwall supports receptive and productive vocabulary development. According to Hapsari and Rachmawati (2023), the use of Wordwall contributed positively to students' emotional and behavioral engagement. Students were more enthusiastic and confident in using English vocabulary as they engaged with the learning materials in a relaxed and enjoyable setting. Pratiwi (2024) also

emphasized that students became more active in the classroom and demonstrated improvement across several vocabulary learning cycles after using Wordwall repeatedly.

Considering these findings, the researcher assumes that integrating Wordwall into vocabulary instruction can help students at SMP Kartika II-2 Bandar Lampung improve their ability to understand, memorize, and use English vocabulary. The platform not only facilitates vocabulary comprehension but also enhances retention through game-based interaction and student-centered learning. The researcher also believes that students can learn vocabulary more effectively without experiencing stress or boredom, as Wordwall turns vocabulary exercises into enjoyable digital games. Therefore, the use of Wordwall is assumed to be an effective strategy to improve vocabulary retention among seventh-grade students in this study.

2.12 Hypothesis

The hypothesis in this research is to investigate the significant difference in students' vocabulary retention after being taught through the Wordwall-Based Gamification to eighth-grade junior high school students. To reach the answer, the researcher proposed these research hypotheses as follows:

H₀: There is no significant difference in students' vocabulary retention after the descriptive text material is inserted into the WordWall Based Gamification by eighth-grade junior high school students

H₁: There is a significant difference in students' vocabulary retention after the descriptive text material is inserted into the WordWall Based Gamification by eighth-grade junior high school students.

All above are what this chapter covers, such as previous research overview, theories of vocabulary, concept of vocabulary retention, types of vocabulary, aspects of vocabulary, teaching of vocabulary, Wordwall Based Gamification, Wordwall Based

Gamification in teaching vocabulary, procedure for using Wordwall Based Gamification in teaching vocabulary, advantages and disadvantages of Wordwall Based Gamification in teaching vocabulary, theoretical assumption, and hypothesis

II. METHODS

This chapter includes design, variables, data sources, population and sample, instrument of the research, try out of the instrument, validity and reliability of the instrument, level of difficulty, discrimination power, item analysis, data collecting technique, procedure, data analysis, data treatment, and hypotheses testing.

3.1 Design

In conducting this research, the researcher conducts quantitative research. The researcher focuses on using the Wordwall-Based Gamification to improve the vocabulary of eighth-grade junior high school students. In conducting the study, the design uses one group pre-test and post-test design. The students will be administered a pre-test before the treatment and a post-test after the treatment. The research design is described as follows:

T1 X T2

Notes:

T1 refers to the pretest of vocabulary administered before the researcher teaches through the Word Wall-Based Gamification.

X refers to the treatments the researcher administers through the Wordwall-Based Gamification.

T2 refers to the posttest of vocabulary administered after implementing the Word-wall-Based Gamification.

(Setiyadi, 2018)

3.2 Variables

To assess the influence of the treatments in this research, variables are defined as dependent and independent variables. The dependent variable is the main variable

in a study and will be measured after all treatments in the study are completed; the independent variable is a variable that in a study is used as a cause or function to influence the dependent variable (Setiyadi, 2018).

These are the variables:

X1 : Pre-Test

X2 : Post-Test

3.3 Population and Sample

Population and sample are important elements in quantitative research because they determine the scope and representativeness of the study. The population refers to the entire group of individuals who share common characteristics and become the focus of the research, while the sample is a smaller part of the population selected to represent it and to be observed in detail (Setiyadi, 2018).

3.3.1 Population

This study was conducted at SMP Kartika II-2 Bandar Lampung. The population of the study included all eighth-grade students from classes VIII A, VIII B, and VIII C. The sample consisted of students from class VIII A, which was selected as the experimental class and received the pre-test and post-test. Class VIII B was used to conduct the try-out of the research instrument.

3.3.2 Sample

The sample of this research is the VIII A class. The researcher used Cluster Random Sampling. Cluster Random Sampling involves dividing the population into groups and selecting a random subset of these groups as the sample (Adeoye, 2023). This class will participate in pre-test and post-test tests to determine the use of the Word-wall-Based Gamification in their vocabulary achievement.

3.4 Instrument of the Research

The research instrument used in this research is a vocabulary test consisting of a pre-test and post-test. The pre-test aims to determine students' vocabulary

achievement before being administered the treatment. In addition, the post-test is used to evaluate students' vocabulary achievement after being taught using the media. The researcher conducted a vocabulary test on content words focusing on nouns, verbs, adjectives, and adverbs. There will be 15 questions and each question has four alternative answers; a,b,c, and d, then the students should choose the right answer. The questions cover the four content words: nouns, verbs, adjectives, and adverbs. The vocabulary test given is adjusted to the material studied and the curriculum used in the school.

3.5 Try Out of the Instrument

Before conducting the actual research, a try-out of the vocabulary test was carried out to examine the quality of the instrument in terms of clarity, difficulty level, and internal consistency. The try-out was conducted on a group of eighth-grade students from a different class at SMP Kartika II-2 Bandar Lampung who did not participate in the main research. The purpose of the try-out was to ensure that the vocabulary test items functioned well and could measure what they were intended to measure.

The vocabulary test used in this study consists of 25 multiple-choice items that cover various word classes such as nouns, verbs, adjectives, and adverbs. The results of the try-out were analyzed to assess item clarity and to identify ambiguous or problematic questions. Feedback from students was also considered to revise confusing items. Additionally, the data collected from the try-out were used to calculate the reliability of the instrument through the split-half method, using odd and even-numbered items, followed by the Spearman-Brown Prophecy formula.

The analysis of try-out results showed that the test items were generally appropriate in terms of difficulty level and discrimination. Therefore, the vocabulary test was considered valid and reliable for use in the actual research

3.5.1 Validity of Vocabulary Test

In general, the validity of a measuring instrument shows the extent to which the measuring instrument measures something that must be measured (Setiyadi, 2018).

To measure whether the test has good validity, the researcher uses content validity, and construct validity

a. Content Validity

Validity and reliability are two elements that are relatively inseparable from a measuring instrument. A measuring instrument that has met the elements of validity can be said that the measuring instrument also meets the elements of reliability. However, a measuring instrument that has met the elements of reliability does not necessarily mean that the measuring instrument also meets the elements of validity (Setiyadi, 2018). The vocabulary test in this research was constructed using material from the The vocabulary test was created using the book from the Merdeka Curriculum, English for Nusantara, for eighth-grade students at SMP Kartika II-2 Bandar Lampung. The selected topic is from Chapter 5: Embrace Yourself, which introduces students to vocabulary and expressions related to describing people's physical appearance and personality traits, relevant to real-life communication in social and school settings.

The vocabulary items in the test include nouns (e.g., friend, student, hair), verbs (e.g., has, is, looks), adjectives (e.g., tall, friendly, cheerful), and adverbs (e.g., always, usually, confidently). These word classes are essential for helping students express physical characteristics, behaviors, and personalities accurately in descriptive writing. This aligns with the curricular goals of communicative language use and supports students' ability to describe people around them clearly and appropriately.

The test emphasizes the meaning aspect of vocabulary, aiming to measure how well students understand and apply vocabulary in the context of culinary discussions. Each multiple-choice item is structured around a contextual sentence where students choose the most appropriate word to complete the blank. This design not only evaluates vocabulary recognition but also the practical use of words in context.

Table 3. 1 Specification Used to Judge Content Validity

No	Content Words	Item Number	Total
1	Nouns	2, 3,7,19,12,13	6
2	Verbs	5,8	2
3	Adjectives	1,4,6,10,15	5
4	Adverbs	11,14	2
Total			15

b. Construct Validity

Construct validity is essential for measurement tools that assess multiple indicators within a single concept. When an instrument focuses on one specific area, such as vocabulary, its validity can be determined by analyzing all included items (Setiyadi, 2018). In this study, the vocabulary test consists 15 questions include an underlined word within a sentence, and students are asked to choose the closest meaning from the options (a, b, c, d). This format ensures that students demonstrate their ability to recognize and interpret word meanings in context, particularly in describing people. By requiring students to select the most appropriate word based on its meaning, the test reflects how well they understand and can use vocabulary in relevant situations.

3.5.2 Reliability of the Instrument

Reliability is the consistency of a measuring instrument or the extent to which the measuring instrument can measure the same subject at different times but shows relatively the same results (Setiyadi, 2018). In achieving the reliability of the vocabulary pre-test and post-test, split-half reliability is used in this study. The researcher divides the 50 vocabulary test items into two randomly based on odd and even numbers. To measure the coefficient of reliability between odd and even groups, the researcher uses the Pearson Product Moment as follows:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}}$$

$$r_i = \frac{25(\sum xy) - (\sum x)(\sum y)}{\sqrt{[25(\sum x^2) - (\sum x)^2][25(\sum y^2) - (\sum y)^2]}}$$

$$r_i = \frac{25(2143) - (210)(198)}{\sqrt{[25(1980) - (210)^2][25(1872) - (198)^2]}}$$

$$r_i = \frac{53575 - 41580}{\sqrt{[49500 - 44100][46800 - 39204]}}$$

$$r_i = \frac{11995}{\sqrt{(5400)(7596)}}$$

$$r_i = \frac{11995}{14438}$$

$$r_i = 0.831$$

Notes:

r : the Pearson correlation coefficient (value between -1 and 1)

n : the number of data pairs (number of observations)

x : the value of the first variable (pre-test score)

y : the value of the second variable (post-test score)

$\sum xy$: the sum of the products of each pair of x and y values

$\sum x$: the sum of all values of the x variable

$\sum y$: the sum of all values of the y variable

$\sum x^2$: the sum of the squares of all x values

$\sum y^2$: the sum of the squares of all y values

After getting the coefficient correlation between odd and even numbers, the researcher continues to put them into the reliability formula Spearman-Brown's Prophecy to know the coefficient correlation of the whole items. The formula of SpearmanBrown's Prophecy is as follows:

$$r_k = \frac{2r_i}{1 + r_i}$$

$$r_k = \frac{2(0.831)}{1 + 0.831} = 0.908$$

Notes:

r_k is the reliability of the full test

r_i is the reliability of half of the test

The standard of reliability is described as follows:

- a. A very low reliability (ranging from 0.00 to 0.19)
- b. A low reliability (ranging from 0.20 to 0.39)
- c. An average reliability (ranging from 0.40 to 0.59)
- d. A high reliability (ranging from 0.60 to 0.79)
- e. A very high reliability (ranging from 0.80 to 1.00)

The analysis of the vocabulary test's reliability a Spearman–Brown coefficient of 0.908, indicating that the vocabulary test has high reliability. This aligns with prior calculations, confirming the strong dependability of the test items. The obtained reliability coefficient suggests that the test effectively assesses vocabulary proficiency. Both the split-half method and the Spearman-Brown prophecy formula produced comparable results, classifying the test items as highly reliable (See Appendix 4 for data).

Both the Spearman-Brown Prophecy formula and the split-half reliability method produced identical results, confirming that the test items exhibit high reliability, even though different approaches were used to assess consistency. This indicates that the measurement remains reliable and trustworthy, regardless of the variation in calculation methods. The detailed results can be seen in Table 3.2

Table 3. 2 Reliability Statistic by Using SPSS

Correlation Between Forms		.794
Spearman-Brown Coefficient	Equal Length	.885
	Unequal Length	.885
Guttman Split-Half Coefficient		.878

3.6 Item Analysis

Item analysis is a systematic procedure used to evaluate the quality of test items based on students' responses. The purpose of item analysis is to determine whether each test item functions effectively in measuring what it is intended to measure. Through item analysis, researchers can identify items that are too easy, too difficult, or unable to differentiate between high- and low-achieving students.

3.6.1 Level of Difficulty

The difficulty level of a test item indicates how challenging or easy it is for test-takers to answer correctly (Heaton, 1975). To assess the complexity of each item, the researcher applied the following formula:

$$LD = \frac{U + L}{N}$$

Notes:

LD = Level of difficulty.

U = The number of students who answered correctly in the upper group.

L = The number of students who answered correctly in the lower group.

N = The total number of students

The criteria of level difficulty:

0.00-0.30 is difficult

0.31-.0.70 is average

0.71-1.00 is easy

Table 3. 3 Difficulty Level of Test Item

No	Number Item Test	Computation	Criteria
1	3,15,16,17,21,22,23,25	0.00 - 0.31	Difficult
2	2,4,6,8,11,12,14,18,20,24	0.31 - 0.70	Average
3	1,5,7,9,10,13,19	0.71 - 1.00	Easy

The test items were divided into three categories according to their difficulty indices. The “Difficult” category consisted of 8 items with difficulty values ranging from 0.00 to 0.31. The “Average” category included 10 items with index values between 0.31 and 0.70. Meanwhile, the “Easy” category comprised 7 items with difficulty indices ranging from 0.71 to 1.00 (see Appendix 5).

3.6.2 Discrimination Power

An item's discrimination index measures how effectively it differentiates between high- achieving and low-achieving test-takers. It reflects whether students who

score well on the overall test also perform well on individual items. This assumes that the total test score accurately represents a student's ability (Heaton, 1975). To calculate discrimination power, the researcher applies the following formula:

$$DP = \frac{U - L}{\frac{1}{2}N}$$

Notes:

DP = Discrimination Power.

U = Total of the correct answers of the higher group.

L = Total of the correct answers of the lower group.

N = Total number of students

The criteria are:

DP = 0.00-0.20 is poor.

DP = 0.21-0.40 is satisfactory. DP = 0.41-0.70 is good.

DP = 0.71-1.00 is excellent.

- (Negative) is bad items, and should be omitted. The criteria are:

1. If the value is positive discrimination, high-quality students are better informed than low-ability students to answer the question correctly. If the value is zero, there is no discrimination.
2. If the value is negative, more low-ability students than high-ability students answer the question correctly.
3. In general, the higher the discrimination index, the better. In a classroom situation, most items should have a discrimination index higher than 0.20.

3.7 Data Collecting Technique

In this research, the researcher implements specific techniques to collect quantitative data. To determine whether the research objectives are achieved, a research instrument is required. The instrument used is a vocabulary test, consisting of a pre-test and a post - test, aimed at measuring students' mastery of vocabulary. The steps involved in the data collection process are described as follows:

a. Try out

The first step in this research involved constructing and administering a try-out of a vocabulary achievement test developed in the form of multiple-choice items. This study employed a one-group pre-test and post-test design, in which the try-out test was conducted prior to the main data collection. The try-out was administered to a group of eighth-grade students who were not included in the experimental group in order to examine the validity, reliability, level of difficulty, and discrimination power of the test items. The results of the try-out were used to revise and refine the test before it was used in the pre-test and post-test.

The reliability of the vocabulary test was examined using the split-half method during the try-out phase. The analysis showed that the correlation between the two forms was 0.831, indicating a strong internal consistency between the halves. After applying the Spearman-Brown prophecy formula, the reliability coefficient increased to 0.908 for both equal and unequal length estimates, demonstrating that the test possesses a high level of reliability. In addition, the Guttman Split-Half coefficient of 0.689 further supports the consistency of the instrument. These results confirm that the try-out test items function reliably and are appropriate for use in the pre-test and post-test.

b. Pre Test

The pre-test was given prior to the implementation of the treatment to assess students' initial vocabulary proficiency in content words, including nouns, verbs, adjectives, and adverbs. This evaluation aims to measure their baseline knowledge before being introduced to the Wordwall website as a learning tool. The pre-test consists of 15 multiple-choice questions, each with four answer choices (a, b, c, and d), covering all four categories of content words.

c. Treatment

The treatment in this study was used the Word Wall Website to improve vocabulary and as a teaching aid during the treatment stage in this study. During this

period, the researcher carefully selects the template used, the teaching method used, and the duration of the treatment.

d. Post Test

The post-test is administered following the treatment to evaluate students' progress in vocabulary acquisition, specifically in content words such as nouns, verbs, adjectives, and adverbs. This assessment aims to measure the effectiveness of the Wordwall based gamification in enhancing their vocabulary skills. The post-test comprises 15 multiple-choice questions, each offering four answer options (a, b, c, and d), covering the same content word categories.

3.8 Procedure

The researcher follows a series of steps in conducting this research, as outlined below:

a. Identifying the Population

The target population in this research consists of eighth-grade students from VIII A class at SMP Kartika II-2 Bandar Lampung.

b. Selecting and Organizing Learning Materials

The researcher gathers materials from English books and online sources about describing people. The researcher chose one of the descriptive texts describing people and tried to highlight the words used in the text (nouns, verbs, adjectives, and adverbs).

c. Administering a Try-Out Test

To evaluate the quality of the test items, the researcher administers a try-out consisting of 25 multiple-choice questions. Each question requires students to complete sentences by selecting the correct answer from four options (a, b, c, or d). This process helps to determine the validity and reliability of the test instruments.

d. Preparing and Administering the Pre-test

Before the treatment is given, the researcher prepares and conducts a pre-

test to measure the students' initial vocabulary knowledge. This test serves as a benchmark for later comparison.

e. Implementing the Treatment

The treatment is carried out in one or two sessions, where students are introduced to vocabulary learning through Wordwall-based gamification. The researcher integrates interactive games from the Wordwall platform into the lesson and guides students to engage actively with the vocabulary materials. Students are also encouraged to practice the vocabulary items during the treatment phase.

f. Administering the Post-test

After the treatment sessions, the researcher conducts a post-test to assess students' vocabulary progress. The results will indicate the effectiveness of the Wordwall-based gamification in enhancing vocabulary retention.

g. Analyzing the Data

The researcher examined the pre-test and post-test data using SPSS to determine whether there was an improvement in students' vocabulary achievement.

3.9 Data Treatment

Data treatment refers to the procedures used to process and analyze the data collected in this study in order to answer the research question. After the data were obtained from the pre-test and post-test, several steps were conducted to ensure that the data were accurate and ready for statistical analysis.

a. T-test

To measure if there is the improvement in students' vocabulary achievement after being taught using the Wordwall based gamification as a vocabulary learning tool, the researcher conducted a statistical analysis using the Paired Sample T-test in SPSS.

b. Normality Test

The researcher uses a normality test to find out whether the data is distributed normally or not. The researcher applied the Shapiro-Wilk formula with the hypotheses as follows:

H₀: The data is distributed normally

H_a: The data is not distributed normally

In this research, the criteria for normality is if the significance value >0.05 , then the data distribution meets the assumption of normality, and if the significance value <0.05 , then the data distribution does not fulfill the assumption of normality.

The researcher used SPSS to determine the normality of the test. The results showed that for the pre-test, the statistic was 0.931 with a p-value of 0.090 which was greater than the significance level of 0.05, indicating that the data was normally distributed. For the post-test, the statistic was 0.924 with a p-value of 0.063 which was also greater than 0.05, indicating that the post-test data was also normally distributed. These results indicate that the pre-test and post-test data are normally distributed. (Data in Appendix 8).

3.10 Data Analysis

In analyzing the results of the study, the researcher applies several statistical steps to determine whether there is a significant improvement in the students' vocabulary performance after being taught through Wordwall-based gamification. The analysis process includes the following steps:

- a. Scoring pre-test and post-test

$$S = \frac{R}{N} \times 100$$

Notes:

S = Score of the test.

R = Number of the right answer.

N = Total number of items.

- b. Tabulating the results of the pre-test and post-test into a structured table.
- c. Calculating the data to SPSS
- d. Summarizing the outcomes of the pre-test and post-test in the form of descriptive statistics, including the total number of students, minimum, maximum, mean, and standard deviation using SPSS (Data in Appendix 6).
- e. Assessing students' progress by comparing the mean scores of the pre-test and post-test using Excel.
- f. The researcher utilizes SPSS to analyze the data using the Paired Sample T-test to determine whether there is a significant improvement in students' vocabulary achievement after learning with the Wordwall Based Gamification.

3.11 Hypotheses Testing

After collecting the data, the researcher analyzes them to find out whether there is a significant improvement in students' vocabulary achievement after being taught using the Wordwall-Based Gamification. The researcher analyzes the data using a Paired Sample T-test.

The researcher formulates the hypotheses as follows:

$$H1 = \text{Sig} < 0.05$$

Where:

- If the Sig. two-tailed is lower than 0.05, therefore H0 is rejected and H1 is accepted.
- If the Sig. two-tailed is higher than 0.05, therefore H0 is accepted and H1 is rejected.

H0: There is no significant difference in students' vocabulary retention after the descriptive text material is inserted into the WordWall Based Gamification by eighth-grade junior high school students

H1: There is a significant difference in students' vocabulary retention after the descriptive text material is inserted into the WordWall Based Gamification by eighth-grade junior high school students.

All of the above is what this chapter covers, such as design, variables, data sources,

instrument of the research, validity, and reliability of the instrument, item analysis, level of difficulty, discrimination power, data collecting technique, procedure, data treatment, data analysis, and hypotheses testing.

V. CONCLUSION AND SUGGESTION

This chapter describes the conclusions of the data found during the research and suggestions for future researchers and teachers who want to apply Wordwall Based Gamification to the learning process, especially in teaching vocabulary.

5.1 Conclusion

Reflecting on the entire research process, this study concludes that the use of Wordwall-based gamification effectively improves the vocabulary retention of eighth-grade students at SMP Kartika II-2 Bandar Lampung. The improvement from pre-test to post-test scores shows that integrating interactive digital games with suitable learning materials helps students understand, remember, and use English vocabulary better while making the learning process more enjoyable. Its interactive and engaging features increase students' motivation and participation, leading to a better understanding of new words. These findings support previous studies emphasizing the positive impact of digital gamification

on language learning. Therefore, Wordwall-based gamification serves as a valuable medium for English teachers, especially at the junior high school level, to deliver vocabulary instruction that is both effective and enjoyable. Besides improving students' vocabulary, it also enhances their learning motivation and classroom engagement.

5.2 Suggestion

From the result of this research, the researcher would like to provide several suggestions:

1. Suggestions for English Teachers

Based on the results of this study, English teachers are suggested to use Wordwall-based gamification with more varied types of games in teaching vocabulary. Using different game formats, question models, and activity variations can help keep students interested and motivated during the learning process. When students are exposed to varied games, they tend to feel more enthusiastic and less bored, which encourages them to participate more actively in the classroom. This variation can also support students' motivation to learn vocabulary continuously and help improve their vocabulary retention. Therefore, teachers are expected to creatively design Wordwall activities so that the learning process remains engaging and motivating for students.

In addition, teachers are advised to adjust the game variations based on students' learning conditions and classroom situations. By combining Wordwall games with simple follow-up activities, such as short discussions or sentence-making tasks, teachers can help students better understand and apply the vocabulary they have learned. This approach not only maximizes the benefits of Wordwall-based gamification but also helps maintain a balanced and well-managed classroom environment during vocabulary learning activities.

2. Suggestions for Future Researchers

For future researchers, this study can be used as a reference to explore the use of Wordwall-Based Gamification in different learning contexts. Since this study focused on vocabulary retention using descriptive text materials, future research may apply Wordwall-based activities to other English skills, such as grammar, reading comprehension, or writing skills, to see whether similar improvements can be achieved.

Future researchers are also encouraged to examine the teaching process of Wordwall-Based Gamification in more detail. For example, they may compare different types of Wordwall activities or learning formats, such as individual work and group

work, to identify which approach is more effective in supporting students' learning outcomes.

In terms of strengths, future researchers may further investigate how Wordwall-Based Gamification influences students' motivation, engagement, and learning attitudes over a longer period of time. Conducting studies with longer treatment duration may help reveal whether the positive effects of gamified learning can be maintained consistently or improved over time.

Regarding limitations, future researchers are suggested to involve a larger number of participants or conduct the study in more than one school to obtain more varied and representative data. This may help improve the generalizability of the findings. In addition, future studies may consider using offline or low-technology alternatives, such as printed Wordwall-style activities or blended learning approaches, to reduce dependence on internet connection and minimize technical problems during the learning process.

Finally, future researchers may combine quantitative data with qualitative data, such as interviews or student reflections, to gain a deeper understanding of students' learning experiences when using Wordwall-Based Gamification. This combination can provide more comprehensive insights into both the learning outcomes and the learning process.

Based on the teaching process in this study, and the researcher's direct experience during classroom implementation, Wordwall-Based Gamification was implemented through group activities and simple competition among students.

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