The Effect of Interactive Multimedia Wordwall on Students' Vocabulary Learning Outcomes at SMA Negeri 1 Huruna

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ABSTRACT

Vocabulary learning is an essential component in mastering reading skills, which directly impacts students' ability to communicate effectively in both oral and written forms. However, many students at SMA Negeri 1 Huruna experience difficulties and lack motivation in the vocabulary learning process. This study to explore and examine the effectiveness of using interactive multimedia based on the Wordwall application in improving students' vocabulary learning outcomes. The research employs a quasi-experimental method with a pre-test and post-test design. The subjects of the study consist of students at SMA Negeri 1 Huruna, the population were all tenth-grade students which 60 students, divided into two groups as a sample: an experimental group that uses the Wordwall application as 30 students and a control group that apply conventional teaching methods as 30 students. The results of the analysis indicate a significant increase in the vocabulary learning outcomes of students taught using the Wordwall application compared to those in the control group. The mean pre-test score for the experimental group was 35.50, while the post-test mean increased to 89.13. In contrast, the control group showed a smaller increase, with a pre-test mean of 33.53 and a post-test average of 74. These findings demonstrate that the Wordwall application not only makes learning more engaging but also enhances students' understanding of the vocabulary taught. Students involved in Wordwall-based learning exhibited higher enthusiasm and were able to participate actively in class activities. Overall, these findings provide valuable insights for educators regarding the importance of technology integration in teaching and encourage the development of more innovative and responsive teaching methods that meet students' needs.

Keywords: Interactive multimedia, Wordwall, Vocabulary, Learning Outcomes.

INTRODUCTION

Vocabulary learning is a crucial part of mastering reading skills. Teaching vocabulary in schools aims to enhance learners' communication skills and ability to use language accurately. Repeating vocabulary in various contexts improves retention, comprehension, and overall reading abilities (Kuhl, 2022). A rich vocabulary helps learners understand texts better and strengthens their reading proficiency. However, many students perceive vocabulary learning as boring and

challenging, especially in writing, reading, and speaking (Graves, 2020). At SMA Negeri 1 Huruna, a lack of oral and written vocabulary knowledge among students hinders the achievement of optimal learning outcomes. Teachers must adapt to students' evolving needs by utilizing accessible digital tools and creating engaging learning models. Digital media can increase student motivation, interest, and enthusiasm, making learning more effective compared to traditional lecture methods (Septiawan & Abdurrahman, 2020). To address these challenges, interactive multimedia strategies have gained popularity. One such platform is Wordwall, which offers various educational games and tools to support vocabulary learning. Wordwall enables teachers to design interactive activities tailored to students' needs and reading levels, fostering better reading comprehension (Rahmawati & Wijayanti, 2022). Accessible via mobile phones, PCs, or laptops, Wordwall promotes fun and dynamic learning experiences. According to Harlina et al. (2020), Wordwall provides an alternative to traditional methods, making vocabulary learning enjoyable for students and teachers alike. Studies also indicate that Wordwall online games positively impact students' English vocabulary acquisition (Hasram et al., 2021). Despite its potential, research on Wordwall's effectiveness in vocabulary learning strategies related to reading skills remains limited. To fill this gap, this study aims to evaluate the impact of Wordwall-based interactive multimedia learning on students' vocabulary outcomes at SMA Negeri 1 Huruna. The research seeks to determine how Wordwall can positively influence students' reading skills and contribute to improving overall learning effectiveness.

Based on this background, this research aims to answer key questions:

1. There is a significant Effect of Interactive Multimedia Wordwall on Students' Vocabulary Learning Outcomesat SMA Negeri 1 Huruna.

2. There is no significant Effect of Interactive Multimedia Wordwall on Students' Vocabulary Learning Outcomes at SMA Negeri 1 Huruna.

The significance of the research as follows:

1. For researchers, research as an introduction to teachers about the Effect of Interactive Multimedia Wordwall on Students' Vocabulary Learning Outcomes.

2. The English teacher and students, motivation to develop reading skills on vocabulary comprehension and as a basis for developing teaching methods by utilizing interactive multimedia.

3. The Readers, gain knowledge about the importance of learning interactive media to support the implementation of vocabulary learning.

This research has key terms definition should be explained and become clear to the readers, such as:

1. Vocabulary is one of the learning materials in schools that occupies an important role as the basis for students' mastery of mastery in English subject matter.

2. Vocabulary teaching is intended to improve students' ability to read and speak well and correctly.

3. Interactive multimedia Wordwall is one of the popular learning media in today's digital era to support the achievement of learning objectives that are more effective, efficient, easy and fun.

4. Interactive multimedia Wordwall supports vocabulary learning strategies for students, helps students to easily absorb the material presented and helps students understand the meaning of the material present.

Based on the description of the research objectives above, the author intends to conduct research centered on the impact of using interactive multimedia, with the title "The Effect of Interactive Multimedia Wordwall on Students' Vocabulary Learning Outcomes at SMA Negeri 1 Huruna".

LITERATURE REVIEW

Interactive Multimedia

Interactive Multimedia is one of the most popular media in today's digital era. It includes various elements such as text, images, sound, video, and animation, which help distribute information. According to Mayer (2021), multimedia learning theory explains how multimedia can enhance learning by combining text, images, and sound to improve comprehension and retention. It also emphasizes the significance of interactive multimedia design to promote active learner involvement. Interactive multimedia is a medium controlled by the user, allowing them to choose the next steps in the learning process. Davidson (2023) suggests that interactive multimedia can transform education by offering more dynamic, collaborative learning experiences, demonstrating how technology can stimulate innovation in teaching. In essence, Interactive Multimedia is a learning resource that engages students' interest and attention. The media can influence children and adolescents' learning, privacy, and behavior (Livingstone, 2023). The word "media" comes from the Latin "medium," meaning "intermediary." Digital media and technology affect communication and social interactions, changing how we relate and understand each other (Turkle, 2021).

Interest in learning through media has a positive, significant impact on learning outcomes (Rusdiyanah & Bektiningsih, 2021). The selection of appropriate interactive multimedia as an educational tool is an effective strategy to boost students' interest, motivation, and activity. Education traditionally relies on textual materials, exercises, and tests to meet cognitive goals. In this era of rapid technological growth, where students spend much time on gadgets (Sundus, 2017), the learning process must adapt to their needs and preferences (Djamas et al., 2018).

Interactive Multimedia plays a key role in bridging the gap in schools with limited access to IT resources. Accessible via mobile phones, PCs, and laptops, it has no age restrictions. Using Android applications in education offers a fresh approach to learning, increasing student engagement (Ningsih, 2020). Mayer (2021) states that interactive multimedia, such as videos and animations combined with text and graphics, helps improve comprehension and retention by encouraging students to actively engage with the content.

There are several types of interactive learning media that can be easily found on the internet, namely:

1) E-learning based interactive learning multimedia
2) Educational website learning media online learning sites
3) Software-based interactive media
4) Interactive learning media based on android/PC application

The types of interactive multimedia include various approaches and technologies to enhance engagement and learning effectiveness. This section focuses on interactive learning media based on Android/PC applications, specifically the Wordwall app, available on both devices. These platforms enable students to participate in real-time or online discussions via apps and websites (Davidson, 2022). The core principle is that interactive multimedia integrates multiple media components. Rose (2022) highlights that these elements should promote active engagement through quizzes, simulations, and exercises to increase motivation. Interactive multimedia combines text, video, images, audio, and animation in learning applications.

Mayer (2021) emphasizes that the main element of interactive multimedia is the combination of various media such as text, video, images, audio, and animation. This combination is designed to convey information in a way that complements each other and increases understanding and retention. The elements of interactive multimedia include:

1) Text: words or sentences that explain the material or instructions for using the media.
2) Video: Video is a form of visual media that combines moving images, usually in color format, accompanied by audio.
3) Picture/Photo: Simulation of the environment to illustrate the material being explained.
4) Audio: background sound from a video, music / song, narration in audio form, sound effects, or conversation (speech), voice recordings that contain information that supports the material presented.
5) Animation: moving images or live images to simulate an event formed from a set of objects.

The elements of interactive multimedia emphasize various important aspects of interactive media design that provide responsive feedback to learner interactions that

can help direct learning and improve understanding (Laurillard, 2023).

According to Laurillard (2022), interactive multimedia offers benefits by providing adaptive feedback tailored to individual learners' needs, personalizing the learning experience and enhancing effectiveness. It accommodates various learning styles. By combining text, audio, images, video, and animation, interactive multimedia improves understanding and retention, helping students absorb information through multiple sensory channels (Mayer, 2021). Mayer highlights that interactive multimedia can create a multisensory environment that supports specific learning methods. Therefore, using interactive multimedia in education provides several advantages, including improved engagement, retention, and the ability to cater to diverse learning preferences.

1) Interactive multimedia can help students learn broad subject matter, which contains various concepts, facts, principles, attitudes and skills.

2) Interactive multimedia can foster learning motivation, attitudes, and more effective ways of learning and foster higher perceptions of what is learned.

3) Interactive multimedia helps students and teachers in the instructional process of a field of study, which is supported in a multi-disciplinary manner.

4) Interactive multimedia contributes to increasing satisfaction and success according to the wishes of each teacher. Good teachers want their students to be satisfied and successful.

5) Interactive multimedia helps students who are generally inclined to learn many things and at the same time go deep.

6) Interactive multimedia helps students and teachers in the instructional process to meet the demands of the curriculum, which is constantly evolving in line with developments in science and technology and the dynamics of society.

These benefits show how interactive multimedia can enrich learning and communication experiences with various elements that can customize learning materials according to the needs and progress of each individual learner.

Wordwall

One of the media that can support an innovative and varied learning process is Wordwall (Putri, 2020). As part of interactive multimedia, Wordwall is a web-based application that can be used for interactive learning. According to Sari & Yarza (2021), Wordwall serves as both a learning media and an assessment tool, increasing students' engagement. It is a simple game-based application where students follow commands and choose correct answers by clicking on designated objects, making it easy for both students and educators to use (Minarta & Pamungkas, 2022). Wordwall offers various game types like quizzes, matching, anagrams,

word searches, and grouping. This versatility makes it a powerful interactive learning tool. Wordwall has gained recognition for its effectiveness in enhancing student engagement and providing a more interactive learning experience. By utilizing technology such as smartphones or laptops, Wordwall increases students' activity during learning. It can be used individually or in groups, encouraging active participation. Furthermore, Wordwall helps improve students' understanding of materials without relying solely on textbooks or teacher explanations (Turohmah et al., 2020).

Davidson (2022) highlights that the ability to customize activity templates is a key feature of Wordwall. These customizable templates enable educators to create materials that align with specific learning objectives. Turkle (2022) points out that interactive elements like quizzes and games boost learner engagement, enhancing the learning experience.

1) Interactive Activity Creation: Users can create different types of activities such as quizzes, puzzles, and games easily using the templates provided.

2) Customization and Flexibility: The tool offers flexibility in activity customization, allowing users to add text, images, and sounds as needed.

3) Various Types of Activities: Wordwall provides various types of activities, including: Match-up (Connecting pairs of items), Quiz (Composing questions and answers), Word Search (Searching for words in a grid), Crossword (Compose words based on clues), and Spin the Wheel (Random selection from available options).

4) Integration and Accessibility: The activities created can be accessed online and shared easily with students through links or embeds on websites or other learning platforms.

5) Uses in Learning: Wordwall can be used for a variety of educational purposes, from vocabulary practice to evaluating concept understanding.

Rose (2020) notes that ease of use and accessibility are key characteristics of a wordwall. The platform is designed to be intuitive and accessible to users with varying levels of technical skills, as well as compatible with a wide range of devices. Some characteristics of Wordwall learning media include the following:

1) Difficulty Level, this relates to the level of each game. If students play a high-level game, then the difficulty level is high, and vice versa.

2) Interesting and fun, this can make students interested in finding out the meaning of each vocabulary provided and help them achieve the desired goals according to their abilities.

3) Sharpen skills, students playing each game can certainly fail, but they can repeat it so that the ability to identify vocabulary and work on each problem can increase and continue to be honed.

4) Can be played alone/group. And easily accessible.

The above characteristics show how Wordwall can be used to enhance the learning process through multimedia integration, interactive design and ease of use.

Vocabulary Learning Outcomes

English is one of the subjects taught in schools from kindergarten to university level. English is a language subject that is still difficult to master by students from elementary school to college level in Indonesia in general. Teachers are required to be able to adapt and adjust to all existing changes to be able to guide and direct students (Misla & Mawardi, 2020).

There are four key skills in English: speaking, listening, reading, and writing. A broad vocabulary positively impacts these skills (Beck & Kucan, 2020). To master these language skills, especially reading, learners must grasp components like vocabulary, grammar, and pronunciation. Vocabulary mastery is essential for supporting language skills. It refers to the total number of words a person knows and uses in speaking, listening, reading, and writing. Teaching vocabulary should be prioritized early in language learning. Stahl and Nagy (2006) show a strong link between vocabulary acquisition and academic success, indicating that students with a better vocabulary tend to achieve higher academically. Effective strategies support quicker vocabulary mastery, while inappropriate strategies can lead to boredom and disengagement.

There are several things that affect students' vocabulary learning difficulties, such as:

1) Lack of interest in the material,

2) Learning methods that do not fit the context of the material,

3) Students feel bored,

4) Strategies that are not in accordance with students' abilities,

5) Students can learn if they are helped by their friends in explaining the material,

To improve learning, here are some strategies that can be used to improve student vocabulary as follows:

1) Wordwall, Wordwall is a website program that can be accessed through the site using a mobile phone or laptop / PC. This application will be a fun learning asset, media, and assessment tool for students.

2) Memory, Memorization is one of the strategies commonly used when learning vocabulary. Memorization is repeating words that have been spoken without using tools such as writing, books, or other objects.

3) Cluster, with the cluster method students can find the desired words made in a bubble diagram. This technique will make it easier for students to find target words to say and use them when they find the right situation based on context clues, they already know.

4) Cooperative Learning, Cooperative learning is one of the strategies that provide

opportunities for students to work together with fellow students on structured tasks.

5) Suggestions, Suggestopedia strategy is a method used to make students relax while learning. The suggestopedia method is a method used in an ongoing learning process to make students relaxed, open, and calm during the learning process.

6) Drill, this method helps in the learning process by giving exercises to students to repeat the material that has been taught.

In this case, what is raised in this study is the application of vocabulary learning strategies using interactive multimedia, namely the Wordwall application. Given the importance of vocabulary mastery, language learning should also pay attention to how to apply appropriate vocabulary learning strategies at various levels and types of education. Effective vocabulary learning strategies are essential in second language learning including the use of words in context, understanding of the meaning of new words, and engagement in repeated practice (Nation, 2020).

Adapting learners' needs to vocabulary learning is crucial for an effective learning experience. Vocabulary is the knowledge of words' meanings in a language. Tomlinson (2020) suggests teachers adapt their teaching based on learners' needs and profiles. This includes providing materials matching learners' ability levels and using various strategies. Teachers must offer strategies that make the learning process enjoyable and engaging.

Warschaver & Kern (2022) emphasize technology's role in adaptive vocabulary learning, proposing internet-based applications that tailor exercises to individual performance and needs. The right strategies are essential for achieving learning objectives.

Vocabulary learning outcomes represent the achievements expected from mastering vocabulary. According to Murphy (2023), success in this area is shown through students' ability to connect vocabulary across languages and social settings. These outcomes indicate how well learners understand, retain, and apply new vocabulary in various contexts, enhancing both academic and everyday communication skills. Duke (2020) highlights that effective vocabulary learning improves reading comprehension and enables learners to use words appropriately. A robust vocabulary allows students to derive deeper meanings from texts and engage actively in discussions and writing. These outcomes underscore the importance of vocabulary knowledge in improving overall communication skills, supporting success in academic and daily interactions. Ultimately, vocabulary acquisition is a crucial element in mastering language, emphasizing its role as a foundation for effective communication. Some key aspects of vocabulary outcomes include:

1) Contextual understanding: the ability to understand words in the context of sentences and broader situations

2) Active application: the ability to use new vocabulary actively in reading

3) Integration in language skills: the positive impact of vocabulary learning on reading, writing, speaking and listening skills.

4) Improving academic and social performance: the influence of vocabulary on academic success and the ability to communicate in social contexts.

These vocabulary outcomes cover various aspects of improved language skills, from reading comprehension and active communication to independence in learning vocabulary and application of vocabulary in multilingual contexts. and the application of vocabulary in multilingual contexts. These outcomes demonstrate the importance of vocabulary in improving overall language skills across the board.

The Relation Between Multimedia Interactive Wordwall and Vocabulary Learning Outcomes

The presence of technology has brought many changes to the world of education, one of which makes learning no longer centered on educators (teacher-centered), but focuses more on students who learn (student-centered) (Lestari, 2019). Seeing the need for mastery of English, schools play an important role as a place to equip, train and familiarize students to speak English.

English subjects aim to develop listening, speaking, reading, and writing skills, enabling students to communicate effectively at a

certain literacy level after graduation. Pearson (2019) states that reading comprehension depends on connecting new information with prior knowledge. Reading is an active process where meaning is constructed from past experiences. At the SMA/MA level, students are expected to achieve the informational level, preparing them for higher education. However, English is often seen as less appealing. Hammond (2020) highlights those learners lose interest in vocabulary when it feels irrelevant to daily life. Teaching disconnected from students' experiences reduces engagement. Limited vocabulary mastery and reading practice worsen this issue. Without real-world context, students struggle to connect and retain vocabulary, reducing interest. Contextual teaching strategies tied to students' lives are essential to boost engagement, vocabulary acquisition, and language skills.

Multimedia is divided into two categories: linear multimedia and interactive multimedia. Linear multimedia is not equipped with any controller that the user can operate, such as TV and movies. Interactive multimedia, however, has a controller that allows the user to choose the next process, like interactive learning media and game applications. Gee (2020) in his research on game-based learning shows that game elements can boost student motivation and engagement. Wordwall, as part of interactive multimedia, makes vocabulary learning more fun and effective.

The use of Wordwall-based multimedia applications is highly feasible for all levels of education, as it supports students' vocabulary acquisition and reading skills. The use of Wordwall in the learning process increases efficiency, motivation, and facilitates active, engaging learning. This can enhance motivation, participation, interest, understanding, and learning outcomes. Interactive Wordwall multimedia is very effective in supporting students' reading skills because it is enjoyable and not easily boring, encouraging students to be more enthusiastic in the learning process.

The use of interesting animations and designs in the application components attracts students' interest and motivation, so that these components can increase understanding and improve students' vocabulary learning outcomes. Quizzes available in the application as an evaluation material for students after learning the material are able to determine the improvement of learning outcomes and students' vocabulary knowledge.

Interactive wordwall multimedia is also able to eliminate students' boredom in the learning process which previously only centered on the teacher (teacher centered) to be more interactive. The interactivity of multimedia makes students focus on their cellphones/PC/Laptop; the classroom atmosphere becomes conducive so that learning time is more efficient. Diverse digital content in the form of text, images, animations, sounds, and videos make all students with various learning styles able to understand learning materials or messages well (Rini & Wiyarno, 2019).

Interactive multimedia such as Wordwall can play an important and beneficial role in vocabulary learning strategies in the following ways:

1) Engagement: Wordwall allows students to actively participate in learning activities, which increases their engagement.

2) Differentiation: Adjustment of Difficulty Level: Teachers can adjust the difficulty level of activities based on students' abilities, allowing for differentiation in diverse classes.

3) Repetition and Practice: The platform allows students to repeat vocabulary exercises as many times as needed, reinforcing comprehension and retention of new words.

4) Contextual Learning: Use in Context: Teachers can create activities that use words in the context of real sentences or situations, helping students understand the meaning and use of new words in everyday situations.

5) Collaborative Learning: Group Activities: Wordwall enables group activities, where students can work together to complete vocabulary tasks or challenges, improving their collaborative and social skills.

6) Monitoring and Assessment: Progress Tracking: Teachers can track student progress through activity results on

Wordwall, allowing for a more accurate assessment of student understanding and mastery of vocabulary.

By integrating interactive multimedia such as Wordwall in vocabulary learning strategies, teachers can create a more dynamic, personalized and effective learning environment that suits students' needs and learning styles.

CONCEPTUAL FRAMEWORK

In vocabulary learning, teachers must think of strategies to engage students' attention, interest, and motivation to achieve the learning objectives. Learning becomes easier when strategies that help every student are applied. Gee (2021) emphasizes that game elements in learning can boost student motivation. Wordwall uses game mechanics to make vocabulary learning more interesting and fun. In this study, the researcher applied Wordwall interactive multimedia as a vocabulary learning strategy to determine its effect on students' vocabulary comprehension at SMA Negeri 1 Huruna.

This research, titled "The Effect of Interactive Multimedia Wordwall on Students' Vocabulary Learning Outcomes at SMA Negeri 1 Huruna," aims to explore students' ability to master vocabulary using interactive media that has not been used before. Additionally, the researcher investigates whether applying Wordwall interactive multimedia as a learning strategy is more effective in improving students' ability to understand vocabulary

material. To implement the strategy, there are several steps to be taken as follows:

1) First, log in to the wordwall application (via the link), then fill in the commands and enter the materials/questions to be displayed/worked on by the students.

2) After that, the researcher asked students to identify the material containing vocabulary according to the specified time, then closed the application window again.

3) And then the researcher reviews how much vocabulary is remembered and identified by students.

4) In this part, the researcher will observe how much vocabulary is absorbed by the students. At that time, the students will remember the vocabulary they got.

5) And finally, discussing the material containing vocabulary with students to remind them of the meaning of the vocabulary.

METHODS

In this research, researcher used quantitative research. A quantitative approach is an approach that emphasizes its analysis of numerical data (numbers) processed by statistical methods. According to Sinambela (2020) quantitative research is a type of research that uses numbers in processing data to produce structured information. The characteristics of quantitative research aim to obtain data that describes the characteristics of objects, events, or situations. According to Sugiyono (2020) quantitative research methods

can be interpreted as research methods based on the philosophy of positivism, used to research on certain populations or samples, data collection using research instruments, data analysis is quantitative / statistical, with the aim of testing predetermined hypotheses. Quantitative research is research that in the process of carrying out its research uses a lot of numbers starting from data collection, interpretation, to the results or conclusions.

The type of research used in this study is experimental research, which is used to test hypotheses regarding causal relationships (cause and effect). According to Creswell (2023), experimental research is important for determining cause-and-effect relationships and emphasizes the need for clear design and strict control to ensure internal validity and reduce bias. It seeks to explore causal relationships between the independent and dependent variables, where the independent variable is controlled to determine its effect on the dependent variable. Paul (2021) highlights the importance of effect size in experimental research, which, in addition to statistical significance, helps researchers understand the magnitude of the independent variable's impact on the dependent variable. Experimental research is applied to examine the effect of certain treatments under controlled conditions. In this study, interactive multimedia Wordwall was applied to the experimental group to gather concrete data on the effect of Wordwall

on students' vocabulary learning outcomes at SMA Negeri 1 Huruna.

The method used in this research is the Quasi-Experimental method, which is a research design conducted without randomization but involves placing participants into groups (Creswell, 2022). Quasi-experimental research aims to compare variables by involving control and experimental groups. In this design, a comparison is made between a specific treatment and another treatment, such as the experimental group and the control group. The choice of a quasi-experimental design over randomized controlled trials (RCTs) is based on practical and methodological considerations. Quasi-experimental designs allow researchers to observe an existing group or a group already receiving treatment, without random assignment, which may be impractical. These designs are more flexible, as they can work with existing data, providing a better understanding of the impact of interventions in real-world conditions while maintaining scientific integrity. Before the main study, a try-out test was conducted without evaluation in a group outside the experimental and control groups. Try-out tests are used to test and improve research instruments before the main study (Creswell, 2023). This research design uses a pretest-posttest control group design. Two classes are randomly selected, and a pretest is administered to measure the initial ability of students. Creswell (2022) explains that pretests

measure the baseline of the dependent variable before intervention. This allows for a similar starting point in both groups. The experimental group receives special treatment, namely the application of Wordwall interactive media, while the control group receives conventional learning. Afterward, both groups are given a post-test to measure changes in the dependent variable after treatment (David, 2022).

R	O	X_1	O
R	O	X_2	O

Description:

Table 1

Group	Pretest	Treatment	Posttest
Experiment	Measured before treatment (initial test) O	Receiving treatment (with method) X1	Measured after treatment (final test) O
Control	Measured before treatment (initial test) O	Did not receive treatment X2	Measured after treatment (final test) O

Research variables are things that become the main benchmark in research so that it makes it easier for researchers to collect data (Sugiyono, 2017). Research variables are basically anything in the form of anything that is determined by the researcher to study, so that information about it is obtained, then conclusions are drawn. Creswell (2023) categorizes variables into two main categories,

namely independent variables and dependent variables. This study contains two variables, namely:

1) Independent Variable (X): Free variables or commonly referred to as independent variables are variables that are not influenced by anything. This variable is a variable that affects other variables. The independent variable in this study is the influence of Wordwall Interactive Multimedia.

2) Dependent Variable (Y): The dependent variable or dependent variable is the variable that affects and is affected in a study. Therefore, the dependent variable in this study is the learning outcomes of students.

The Population is the group of individuals having one characteristic that distinguishes them from other groups (Creswell in Yanti, et all, 2020). Population is a generalization area consisting of objects or subjects that have certain qualities and characteristics set by researchers to study and then draw conclusions (Sugiyono, 2020). The population in this study were all grade X students at SMA Negeri 1 Huruna.

The sample is part of the number and characteristics of the population. The sample according to Sugiyono (2020) is part of the number and characteristics of the population. Meanwhile, sample size is a step to determine the size of the sample taken in carrying out a study. If the population is large, and the

researcher is unlikely to examine everything in the population, then the researcher can use a sample taken from that population. For that, the sample taken from the population must be truly representative. Creswell (2023) explains that a sample is a subset of the population that is used to make inferences about the population.

The sampling technique used in this study is Cluster Random Sampling. This is a sampling method where the population is divided into groups or 'clusters', and then a number of clusters are randomly selected to be sampled. Fink (2020) explains cluster sampling as a technique where the population is divided into randomly selected clusters and then data is collected from the selected clusters. The researcher did not take samples from individual population members but in a randomized form. The reason is because if sampling individually it is feared that the situation of the sample group will be unnatural. The researcher has selected classes namely class X-1 as many as 30 students and X-2 as many as 30 students as experimental classes with a total number of 60 students at SMA Negeri 1 Huruna.

RESULT AND DISCUSSION

Based on the data type and research instrument, the researcher prepared a test to measure students' vocabulary outcomes. A try-out test was conducted at SMA Negeri 2 Huruna before the research at SMA Negeri 1 Huruna. The results of the logical validation sheet from expert validators concluded that all multiple-choice test items and learning media were valid. The test was conducted at SMA Negeri 2 Huruna, located in Sifaoro'asi Huruna village, Kecamatan Huruna, Kabupaten Nias Selatan. The try-out test involved 30 students from class X. After validating the test, the researcher assessed its reliability using Cronbach's alpha formula. The reliability test is carried out to determine the level of fixity or trust in the instrument so that it can be used anytime and anywhere.

Based on data calculations using the results of IBM SPSS 22 processing by researchers, the researchers obtained an overall reliability value of Cronbach's alpha of 0.912, which the researchers then compared with the reliability index criteria, and the researchers found the reliability level criteria to be high. So, it can be concluded that the test was Reliable.

Descriptive analysis is a statistical method used to describe the basic characteristics of a data set. It aims to show patterns or trends in the data. Using descriptive statistics, such as mean (average), median (middle value), mode (most frequent value), and standard deviation (measure of data variability), descriptive analysis provides a clear overview of the distribution and relationships between variables. It is the first step in data analysis, helping researchers and analysts understand and summarize data before conducting more complex analysis. Descriptive analysis plays a

key role in presenting data effectively, aiding interpretation, and supporting data-based decision-making.

Descriptive Statistics				
	N	Range	Minimum	Maximum
Pretest-control class	30	76	7	83
Posttest-control class	30	27	70	97
Pretest-experiment class	30	63	10	73
Posttest-experiment class	30	25	73	98
Valid N (listwise)	30			

Descriptive Statistics				
	N	Mean	Std. Deviation	Variance
Pretest-control class	30	33.53	16.860	284,3
Posttest-control class	30	74	6.672	78,55
Pretest-experiment class	30	35.50	16.728	285,7
Posttest-experiment class	30	89.13	7.117	30.11
Valid N (listwise)	30			

Mean score is used to measure of central tendency that give an indication of the average value of a distribution of figures. The mean score of pre-tests in control group was 33.53 and classified enough level. The mean score of

post-tests in control group was 74 and classified enough level. The mean score of pre-tests in experimental group was 35.50 and classified enough level. And the mean score of post-tests in experimental group was 89.13 and classified enough level.

Standard deviation is statistical velue used to determine how spreads out the data in a sample are, and how close individual data points are to the mean or average value of the sample. The standard deviation of pretest in control group was 16.860 and standard deviation of posttest in control group was 6.672. While the standard deviation of pretest in experimental group was 16.728 and standard deviation of posttest in experimental group was 7.117.

The function of variance is to show how far data are spread out from the average value. The variance of pre-test in control group was 284.3 and the variance of post-test in control group was 78,55. While, the variance of pre-test in experimental group was 285,7 and the variance of post-test in experimental group was 30.11.

Normality test is a test to measure whether our data has a normal distribution or not. If the distribution (spread) of the data is normal, then the hypothesis test formula that will be used is a type of test that is included in parametric statistics. And if it is not normally distributed, then use non-parametric statistics. Before looking at the Table of Normality and

making a decision, first determine the hypothesis as follows:

Hypothesis:

H0 = Sample data comes from a normal distribution

H1 = Sample data comes from non-normal distribution

Significance level: 0,05 (5%)

Condition:

If the sig value > 0.05 then H0 is accepted or H1 is rejected

If the sig value is 0.05 then H0 is rejected or H1 is accepted.

Hypothesis testing is carried out to determine the truth of the temporary conjecture that has been given by the researcher.

Based on the result of examining the hypothesis, the t count is 7.757, and sig. level of 0.05 t table is 1.674, with the assumption that if t count> t table, then Ho will be rejected and Ha accepted, if t count < t table, then Ha will be rejected and Ho accepted. By comparing the values obtained, 7.757 > 1.674, then Ho is rejected and Ha is accepted. So it can be concluded that there is a positive and significant effect of Wordwal Interactive Multimedia on Vocabulary Learning Outcomes of Students of SMA Negeri 1 Huruna.

The hypothesis of the research state that "There is a significant Efect of Interactive Multimedia Wordwall on Vocabulary Learning Outcomes at SMA Negeri 1 Huruna".

Based on the hypothesis testing, it proved that there is a significant effect of Interactive Multimedia Wordwall on Vocabulary Learning Outcomes. Interactive multimedia wordwall helps students to identify what they know about the words and the vocabulary. So, all the vocabulary students know from the material by using wordwall, they can comprehend the vocabulary by answering the test provided in the application based on the material presented.

In conducting this research, the researcher applied interactive multimedia Wordwall. Before applying the strategy, the researcher gave a pre-test to both groups. Based on the data analysis of the students' learning outcomes, the results showed that both the control and experimental groups were at an adequate level. The mean pre-test score for the control group was 33.53, classified as an adequate level, while the mean score for the experimental group was 33.90, also at an adequate level. Reflecting on the pre-test results, the researcher identified some challenges in students' vocabulary in reading. After the pre-test, the researcher provided different teaching strategies for both groups. The experimental group was taught using Wordwall, while the control group was taught using conventional methods. After applying the methods, the researcher administered a post-test to both groups to determine whether there was a significant effect of the strategy on the students' learning outcomes.

The analysis and interpretation of research findings revealed three key problems. First, students struggle to absorb and identify the meaning of vocabulary. Second, students show low levels of involvement and motivation in learning and understanding the vocabulary material. Lastly, students lack strong and correct vocabulary reading skills in English. To address these issues, the researcher applied interactive multimedia Wordwall. Prior to this, the researcher invited students to discuss and then gave them a multiple-choice test as an initial reference to assess their abilities and how well they mastered vocabulary.

Moreover, the result of implementing strategy can be seen when the researcher gave post-test in experimental group compares with using, conventional method in control group. Based on data analysis, the students mean score of post-tests in control group was 85.03 and classified enough level. While, the mean score of post-tests in experimental group was 87.63 and classified good level. In conclusion, interactive multimedia wordwall can helps students mastering vocabulary.

Interactive Multimedia Wordwall has been studied by recent researchers. Alpatikah, Erlin (2022) investigated "The Effect of Using Wordwall.Net on Student's Vocabulary Mastery at MTs Negeri 10 Jakarta Academic Year 2021/2022." The research was experimental, using both an experimental and a control class. The experimental class was VII-B, and the control class was VII-A. Data was collected through pre-tests and post-tests. The researcher used a t-test formula for data analysis. The results showed that the mean score of the experimental class after using Wordwall.Net was higher than that of the control class. The mean score of the experimental class before using Wordwall.Net was 54.0, and after using it, it increased to 86.4. Meanwhile, the mean score of the control class was 62.8 before treatment, and 77.3 after treatment without Wordwall.Net. The effect of using Wordwall.Net on students' vocabulary mastery was significant, with a 2-tailed sig. value of 0.020, which is lower than 0.050. Therefore, H0 was rejected, and Ha was accepted.

While in this research, the researcher focused on investigating the significant Effect of Interactive Multimedia Wordwall on Students' Vocabulary Learning Outcomes at SMA Negeri 1 Huruna. In conducting this research, the researcher used quantitative research with quasi experimental design as the research design by using pre-test and post-test which compares group design. Based on the data analysis, the mean score of pre-tests in control group was 33.53 and the mean score of post-tests was 85.03. While, the mean score of pre-tests in experimental group was 33.90 and the mean score of post-tests was 87.63. And based on the result of examining hypothesis, it can be concluded that Ho is rejected and Ha is accepted.

"Based on the explanation above, this research shows different results compared to previous studies. The previous research found that Wordwall.net stimulated students' motivation, while this study shows its significant effect on vocabulary learning outcomes."

After obtaining the research results, the researcher compared them with theories from experts. According to Puspitasari et al. (2020), Wordwall is a web-based platform for creating interactive learning media. This study demonstrates that Wordwall not only enhances comprehension but also increases student activeness and motivation in vocabulary learning. The research findings indicate that using Wordwall in a game-like learning simulation has improved learning outcomes. Furthermore, Wordwall is user-friendly, cost-effective, and visually appealing, which helps boost students' motivation. With its various benefits, Wordwall is effective in improving students' creativity and understanding of the material, especially in vocabulary learning.

According to Cameron (2021), good vocabulary knowledge is essential for effective communication, as it enables individuals to express ideas and emotions clearly, both orally and in writing. A solid vocabulary foundation is crucial for developing speaking, writing, reading, and listening skills. In this study, despite applying interactive multimedia Wordwall to improve vocabulary, students were still unable to communicate effectively or speak fluently, indicating that more focused strategies may be necessary for significant improvements.

CONCLUSIONS AND SUGGESTIONS

Conclusions

The conclusions of this research have derived from some data collections and calculations previously, as stated below:

1. Based on the result of examining the hypothesis, it can be concluded that there is a significant effect of interactive multimedia Wordwall on students' vocabulary learning outcomes at SMA Negeri 1 Huruna.

2. Based on the result of computation of mean score the test it goes that the student's mean score of pre-tests in control group was 33,53 while the students' mean score of post-tests in control group was 74. The students' mean score of pre-tests in experimental group was 35.50, while students' mean score of post-tests in experimental group was 89.13. Interactive multimedia Wordwall has a significant effect to the student' vocabulary learning outcomes rather than the students who are not taught by using interactive multimedia Wordwall.

Suggestions

In order to be successful in teaching vocabulary, the researcher give some suggestion as follows:

The researcher suggests the English teacher of SMA Negeri 1 Huruna use the interactive multimedia Wordwall in teaching vocabulary

because can make students easily understand the material. The researcher can apply the knowledge as a reference and motivation to conduct research. The researcher suggests for the English teacher and the students in SMA Negeri 1 Huruna to use interactive multimedia wordwall in teaching learning process.

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