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The Implementation of the Hidden Object Interactive Game Using Powerpoint in Improving Students' Vocabulary Mastery

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Abstract

This research aims to find out whether the implementation of the Hidden Object interactive game using PowerPoint can improve students' vocabulary mastery or not. A quantitative pre-experimental research type was used in this study. All seventh-grade students at SMP Negeri 1 Watansoppeng made up the population of this study. The sample was taken by selecting one class randomly as a representative of a cluster (cluster random sampling) of 25 students. The instrument used was the vocabulary test while data collection was carried out using pretest, treatment, and posttest techniques. Descriptive statistical analysis was the technique of data analysis that was applied where the average pretest score of the 25 students in this study was 72.84, and the average posttest score was 87.84. In addition, it is evident that the two-tailed significance value in the pretest and posttest results was 0.000 which denotes that the two-tailed value is less than 0.05 (significant level), and based on decision-making, this indicates that H0 is rejected while H1 is accepted. In addition, the analysis results obtained from each aspect of vocabulary, namely: meaning has a mean pretest and posttest difference of 19.40, spelling, 11.72, pronunciation 3.32, word classes, 1.52 and word use has a mean difference of 43.04. Other results also show that there were four aspects of vocabulary, namely meaning, spelling, pronunciation, and word use which can show that the two-tailed value was less than 0.05 while the value for the two-tailed aspect of word classes was more than 0.05. It is stated that the four aspects of vocabulary other than Word Classes reject H0 while H1 is accepted. This means that there is a significant difference between student scores before and after implementing the Hidden Object interactive game using PowerPoint. Thus, it can be inferred that in general the implementation of the Hidden Object interactive games using PowerPoint significantly improves students' vocabulary mastery. But for each aspect of vocabulary, only word classes had the smallest mean difference and did not have a significant improvement in students' vocabulary while the biggest mean difference was in the word use aspect.

Keywords: game-based learning, vocabulary mastery, hidden object games, interactive games, PowerPoint, English.

1. Introduction

One of many ways to easily understand all the material in learning English is to understand and always improve vocabulary. Because vocabulary is one of the important components that can be used as a foundation for this English subject. According to Neuman Dawyer, Richard, and Renandya (2002) propose that vocabulary is a center or basic element that is used to be proficient in a language. Therefore, every individual is required to always be able to expand and improve their knowledge in terms of vocabulary, particularly on the five aspects of vocabulary, including meaning, spelling, word classes, and word use (Lado as stated in Mardianawati, 2012).

a. Meaning, in order to avoid mistakes in recognizing the meaning of vocabulary, Consequently, it is crucial that students learn both the vocabulary and its meaning. An example of a word with a double meaning is "second". "second" can mean *"detik"* in Indonesia, the seconds referred to here are the seconds that exist in time. In addition, "second" can also mean *"kedua"* in Indonesia, which is included in the ordinal number category.

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b. Spelling, the second important aspect is spelling, to find out the correct writing on a word, students need to be able to spell letter by letter correctly and clearly. Spelling can also help students understand the meaning of a word.

c. Pronunciation, Similar to meaning and spelling, doing the correct pronunciation can also help students know the actual context of the word so that listeners can more quickly grasp the meaning of the words expressed. But sometimes this can also make students confused because the way of pronouncing a word is sometimes not related to the spelling.

d. Word Classes, recognizing various word classes can assist students in understanding the objective of word use and can also guide and facilitate students in arranging words into good and complete sentences. Word classes can be divided into several categories, namely verbs, adverbs, nouns, adjectives, and prepositions.

e. Word Use, According to Nation (2001) as cited in Rahmawati (2012) word use can be recognized by paying attention to its grammatical functions, such as whether the word is countable or uncountable, transitive or intransitive, etc., the collocations, which means words that have almost the same meaning and constraints on use or language restrictions such as whether the word issued includes formal, informal, impolite, only used with children, etc.

However, the mastery and improvement of this vocabulary are often hampered by motivational factors such as being lazy about learning English and being lazy about practicing English. Afidah and Machfudi (2022) proved this in their research entitled “Students' Difficulties in Vocabulary Mastery” which found that students often struggle to increase their vocabulary for a variety of reasons, including rarely opening a dictionary or not having a dictionary, not having a sense of interest or lack of motivation to learn English, lack of practice speaking English, and external factors such as poor classroom amenities and peer pressure.

Several things that can overcome this problem are the use of game-based learning and learning media. Hidden Object will be one of the game-based educational or interactive games that will be employed. According to Roush (2008) and Oei (2013), a hidden object game is a game that aims to find several items or objects that have been hidden or camouflaged among other objects based on a predetermined list of items in each picture. This kind of game will be shown visually and repeatedly so that students can more easily and quickly remember the vocabulary they have just learned. In this game, players must find all objects based on the word that has been determined as quickly as possible because what determines the player's score is the duration of time and accuracy in finding hidden objects. In some scenes in one of the games, namely the Hidden Objects game, sometimes there is repetitive vocabulary, this repetition of vocabulary can help students to be able to continue to remember and make their vocabulary improve. This hidden object game will later be collaborated on and included in a PowerPoint as supporting material for the material to be explained. PowerPoint is a learning media that is often encountered and believed to be able to attract the attention of students. The presentation software PowerPoint may be used to create a stunning and imaginative slide show that can exhibit text, photos, audio, and video. (Frandsen, 2011). The design, tools, and how to use them are simple. In order to enhance student learning results, many teachers incorporate them into the teaching process. This learning media is also very likely to be time efficient because learning is not done manually anymore by using paper or books. This is very suitable to be combined with the hidden object interactive game which was previously done paper-based and time-consuming. By using PowerPoint, the duration of time used may be reduced so that other lessons can also be taught at the same time.

Research on Hidden Objects has previously been studied by several researchers. Some of them were researched by Widyantomo (2017) and Khaerunisa (2018) who both found that there was an improvement in student scores from the first meeting to the last meeting. However, both studies are limited to how they use this game Widyatomo requires students to play hidden object games using hardware such as computers or smartphones while Khaerunisa only uses paper that is distributed to each student where students are required to find pictures or objects that have been listed by marking or coloring the objects found in the picture. Apart from that, these two studies only provide general final results without explaining the results on the five aspects of vocabulary.

Therefore, this research was done to better understand the characteristics of today's students and to make it simpler for students to improve their vocabulary in a more pleasurable way. This research will try to implement game-based learning, namely hidden object interactive games using PowerPoint Media. Activities for teaching and learning should be made more engaging, effective, motivating, and challenging through the use of game-based learning and media like this. The researcher will also discuss the enhancement of students' vocabulary in each aspect, including meaning, spelling, pronunciation, word classes, and word use. In light of the aforementioned reasons, the interested in

carrying out the research entitled 'The Implementation of the Hidden Object Interactive Game using Powerpoint in Improving Students' Vocabulary Mastery'

Based on this, the researcher develops the following hypotheses, which will be tested:

a. The null hypothesis (Ho) states that there is no significant difference in students' scores before and after implementing the Hidden Object Interactive Game using PowerPoint.

b. The alternative hypothesis (Ha) states that there is a significant difference in students' scores before and after implementing the Hidden Object Interactive Game using PowerPoint.

2. Research Methods

2.1. Research Design

Only one group was used in this experimental study by the researcher to be tested without any other group as a comparison or control group. Therefore, the appropriate research design employed in this study was pre-experimental research with a one-group pretest-posttest design. The stages that must be passed in this research design are pretest, treatment, and posttest.

2.2. Place and Time of the Research

This research was accomplished in a Junior High School in the city of Watansoppeng, namely SMPN 1 Watansoppeng, and was carried out for approximately 6 meetings in 2 months. The research was conducted in the middle of the second semester.

2.3. Population and Sample

All seventh-graders at SMPN 1 Watansoppeng, which consist of seven classes, from class 7.1 to class 7.7, and 210 total pupils, comprised the population of this study. The researcher employed probability sampling in this study, namely, cluster random sampling. The data source or population to be studied can be considered broad, namely all seventh-grade students at SMPN 1 Watansoppeng. This allowed the researcher to be able to select a sample randomly as representative of the cluster. Therefore, based on the predetermined sample selection criteria, it can be determined that only one class was selected as a sample, namely class 7.3 which consists of approximately 25 students.

2.4. Research Instrument

The vocabulary test was the research instrument employed. This test was used in the hope of measuring the achievement of students on basic vocabulary especially on the five aspects of vocabulary namely meaning, spelling, pronunciation, word classes, and word use. The test was conducted twice: once before the treatment (pretest) and once after the treatment had been administered (posttest). The test's materials are presented as objective tests which can be in the form of multiple choice and short answers about the English vocabulary. The test consists of five parts with a total of 36 questions. The five parts are listed in Table 3.2 of the value guidelines below which contain aspects, the form of questions, the number of questions, and weights.

Table 1. Assessment Guidelines

Aspects	Question Form	Weights/Questions	Number of Questions	Total
A. Meaning	Short Answer	3	8 Items	24
B. Spelling	Multiple Choice	2	8 Items	16
C. Pronunciation	Oral Exam	4	4 Items	16
D. Word Classes	Matching	2	12 Items	24
E. Word Use	Short Answer	5	4 Items	20
Total/Maximum Value			**36 Items**	**100**

2.5. Technique of Data Collection

a. Pretest

During the pretest, the researcher did not give any treatment to the student's teaching and learning process. The researcher collected the students' initial scores through several vocabulary comprehension tests, and the students were

given a pretest to gauge their level of language comprehension. The researcher allowed the students to respond to every exam question using the understanding they had acquired while studying English in school.

b. Treatment

At this stage, students as the subject were given treatment in the form of applying the hidden objects interactive game using PowerPoint in teaching and learning activities to improve student's vocabulary mastery. The researcher used this game in the form of groups, not individuals, this is a form of minimizing the time that the teacher used. All of the students were split into a number of groups, and each group took turns learning and playing using the hidden object interactive game. Materials for hidden objects were presented to students via PowerPoint media where students no longer had to play manually with a sheet of paper (paper-based). Each group is expected to cooperate with each other by thinking and identifying the concealed items in the vocabulary search list. The existence of a combination like this is also expected so that in the process of learning there is still interaction between teachers and students so that students do not get bored of learning using this game-based learning. In this activity, the teacher acts as a moderator and manages the game. This treatment was carried out by each student studying English subjects for approximately six meetings in two months. Activities in the treatment that the researcher carried out in the six meetings.

c. Posttest

This stage is the last stage after the implementation of the hidden objects interactive game is implemented in the classroom in order to improve students' vocabulary. At this posttest stage, the researcher collected scores of students' vocabulary comprehension levels obtained by giving a vocabulary test. The results of this posttest determined whether the hidden object interactive game learning applied using PowerPoint is successful in improving students' vocabulary or not.

2.6. Technique of Data Analysis

To evaluate the experimental results of the pretest and posttest accurately, therefore, the SPSS Version 26 program was used in this study to calculate the results. The following are the steps taken in this study's descriptive statistical analysis:

a. Calculating students' test scores with a score range of 0-100

$$S = \frac{R}{N} \text{ x } 100$$

b. Classification of the assessment scale of students' pretest and posttest scores

Table 2. *Classification of The Assessment Scale*

Scale	Classification
93-100	Very Good
84-92	Good
75-83	Average
<75	Poor

(Kemendikbud,2017)

c. Finding the average value, percentage, and frequency of students' pretest and posttest scores using SPSS Version 26

d. Finding the standard deviation of students using SPSS

e. Finding the t-test value to evaluate the significant difference between the mean values of the pretest and posttest

3. Results and Discussion

3.1. Experimentation

At the first meeting, the researcher tested students' previous knowledge of English vocabulary by giving them a pretest sheet consisting of five aspects of vocabulary. The results or scores obtained by students at the pretest stage will be used as a comparison with the posttest stage to discover whether the learning methods and media used have

succeeded in improving student vocabulary. The researcher also conducted the first experiment using the Hidden Object interactive game using PowerPoint. The pictures are displayed in PowerPoint along with a list of vocabulary words to be searched for.

To carry out this game, students are grouped into four groups where finding the thing in picture one's hidden object is a contest between groups one and two. The students were given three minutes to find as many hidden objects as possible. After the game was finished, the researcher provided material namely "There are and There is" for the first and second meetings, countable and uncountable for the third meeting, prepositions of place for the fourth meeting, and Simple Present Tense for the last meeting. These learning materials are provided by using the vocabulary that has been previously played by students through hidden object interactive games using PowerPoint.

Finally, at the sixth meeting, the researcher again gave question sheets to students to work on. The question sheet is a posttest sheet or final test which can specify whether there is an improvement in students' vocabulary knowledge after experimenting with five meetings or not. The format of the posttest worksheet is the same as the pretest worksheet and includes five aspects of vocabulary namely meaning, spelling, pronunciation, word classes, and word use. But the difference was only the vocabulary. The duration of the test given also remains the same, namely 40 minutes.

3.1.1. Students Vocabulary Mastery in Pretest and Posttest (Five aspects of vocabulary)

The classification of the results of the students' pretest and posttest scores on the five aspects of vocabulary is conspicuous in Table 4.1 below. The researcher aims to calculate how skillful students understand the meaning, spelling, pronunciation, word classes, and word use of a given vocabulary.

Table 3. Students' pretest and posttest results, expressed as a percentage and frequency

Aspect of Vocabulary		**Meaning**		**Spelling**		**Pronun-ciation**		**Word Classes**		**Word Use**	
Scale	**Classification**	**Pre test**	**Post test**	**Pre test**	**Post test**	**Pre test**	**Post test**	**Pre test**	**Post test**	**Pre test**	**Post test**
						Frequency					
93-100	Very Good	11	14	4	21	3	7	4	2	6	10
84-92	Good	1	9	12	3	6	2	11	13	2	11
75-83	Average	3	2	5	1	8	9	3	5	2	3
<75	Poor	10	0	4	0	8	7	7	5	15	1
TOTAL		**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**

Based on the frequency table of the five aspects of the vocabulary above, it is evident that:

a. Meaning, at the pretest stage 10 students were still in the "poor" category and 11 students managed to enter the "Very Good" classification. Meanwhile, there were no more students in the "poor" classification in the posttest stage, 9 in “good” and 14 in the “very good” classification

b. Spelling, students' pretest scores at the pretest stage were 4 people "poor", 12 "good" and 4 "very good" while after the treatment 21 students were classified as "very good" and no one was included anymore classification "poor"

c. Pronunciation, at the pretest stage there are 8 people who are still in the "poor" classification and 3 people are classified as "Very Good" while in the posttest stage, 7 people are still in the "poor" classification and in the "Very good" classification an increase of 4 students to 7 students.

d. Word Classes, at the pretest, stage a total of 7 students were in "Poor", 4 students were in "Very Good" while only 2 students were rated as "Very Good" in the posttest stage and there were still 5 students who received the "Poor" classification.

e. Word Use, there were 15 students in the "poor" section during the posttest and 6 students in "very good". Whereas after the treatment or posttest, there were 10 students classified as "very good" and only one student remained in the "Poor" classification.

Table 4. Paired Sample Statistics (Mean Score and Standard Deviation of the Student's Pretest and Posttest)

Paired Sample Statistics					
		Mean	**N**	**Std. Deviation**	**Std. Error Mean**
Pair 1	Pretest	72.2400	25	28.27290	5.65458
"Meaning"	Posttest	93.6400	25	4.28058	.85612
Pair 2	Pretest	83.0800	25	9.46450	1.89290
"Spelling"	Posttest	94.8000	25	5.09902	1.01980
Pair 3	Pretest	76.1200	25	13.52873	2.70575
"Pronunciation"	Posttest	79.4400	25	12.80325	2.56065
Pair 4	Pretest	81.6400	25	15.35383	3.07077
"Word Classes"	Posttest	83.1600	25	11.14929	2.22986
Pair 5	Pretest	83.0800	25	9.46450	1.89290
"Word Use"	Posttest	94.8000	25	5.09902	1.01980

The mean scores, standard deviations, and standard errors of the students' pretest and posttests are detailed in Table 4. According to that table, it is known that the total score of the students' mean pretest on the "Meaning" aspect is 72.24 and the standard deviation score is 28.27. Meanwhile, it was discovered that the mean increased to 93.64 at the posttest stage and the standard deviation became 4.28. Furthermore, in the "spelling" aspect, the student's mean pretest score was 83.08 and the standard deviation was 9.46 while the posttest mean score also increased to 94.80 and the standard deviation to 5.09. In the aspect of "Pronunciation," the mean pretest score was 76.12, and the standard deviation was 13.52 whereas after being given treatment the mean pretest score had an increase of 79.44 and the standard deviation was 12.80. The fourth aspect of vocabulary is Word Classes with a mean pretest score of 81.64 and a standard deviation of 15.35 while the posttest mean score only increased by 83.16 with a standard deviation of 11.14. The last is the word use aspect. The average pretest result obtained in this aspect is 83.08 and the standard deviation is 9.46, while it is known that the posttest result is 94.80 with a standard deviation of 5.09.

The five components of vocabulary have shown an improvement in student performance, according to the mean results found above. However, of the five aspects, of course, there are those with high levels of improvement and some with low ones. Besides that, based on the standard deviation values, which are all lower than the mean value, it can be said that the variability of the data from the average value is reliable or can be said to be good.

Table 5. Paired Sample T-Test

Paired Differences									
		Mean	**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**		**T**	**Df**	**Sig. (2-tailed)**
					Lower	**Upper**			
Pair 1 Meaning	Pretest - Posttest	19.40000	26.75350	5.35070	30.44330	8.35670	3.626	24	.001
Pair 2 Spelling	Pretest - Posttest	11.72000	9.91850	1.98370	15.81416	7.62584	5.908	24	.000
Pair 3 Pronun ciation	Pretest - Posttest	3.32000	5.16978	1.03396	5.45398	1.18602	3.211	24	.004
Pair 4 Word Classes	Pretest - Posttest	1.52000	11.04581	2.20916	6.07949	3.03949	.688	24	.498
Pair 5 Word Use	Pretest - Posttest	43.04000	43.10595	8.62119	60.83326	25.24674	4.992	24	.000

To clarify the results of differences and increases in students' pretest and posttest scores in each aspect, a t-test (test of significance) was carried out, where the two-tailed significant value obtained was compared to the significant level of 0.05. The value of the results obtained will later be concluded whether there is a significant difference between the pretest and posttest scores of students or not.

According to Table 5 meaning has a mean pretest posttest difference of 19.40, spelling of 11.72, pronunciation of 3.32, word classes, of 1.52, and word use of 43.04. If you look at the difference in mean, it is known that it is the aspect of word use that has the highest level of difference in value followed by meaning and spelling while the lowest is word classes and pronunciation. This can also prove that the implementation of hidden object interactive games using PowerPoint has a greater influence on the three aspects of the vocabulary, namely meaning, spelling, and word use.

However, if the two-tailed significant scores of the five vocabulary aspects are tested by T, it is discovered that 0.001 is the significant two-tailed value for the attribute of meaning which is smaller than the significant level (0.05), spelling with a value of 0.000 is smaller than the significant level (0.05), pronunciation, 0.004 is also smaller than the significant level (0.05), word classes, which is 0.498, is greater than the significant level (0.05), and word use, which is 0.000, is also smaller than the significant level (0.05). So, it is known that of the five aspects of the vocabulary, only word classes have a significant two-tailed value that is greater than the significant level (0.05), which means there is a significant difference between students' pretest and posttest scores in four aspects of vocabulary (meaning, spelling, pronunciation, and word use). Additionally, this indicates that the alternative hypothesis (H1) is accepted. As for the aspect of word use, it is stated that there is no significant difference between students' pretest and posttest scores which means that the Alternative hypothesis (H1) on word classes is Rejected.

So, it can be concluded that the implementation of the hidden object interactive game using PowerPoint does not significantly improve students' vocabulary mastery in the aspect of word classes but significantly improves students' vocabulary mastery in the other four aspects, namely meaning, spelling, pronunciation, and word use.

3.1.2. Students Vocabulary Mastery in Pretest and Posttest (General)

To determine whether there had been a general improvement in the student's vocabulary mastery, the results and averages from the pretest and posttest were compared.

a. The classification of the assessment scale, percentage, and frequency of students' pretest and posttest scores in general

The classification of the student rating scale overall following the administration of the pretest and posttests is described in the table below. The student scores include the five aspects of vocabulary and are calculated in general.

Table 6. The Frequency and Percentage of Students' Pretest and Posttest Scores in General

Scale	Classification	Pretest		Posttest	
		F	%	F	%
93-100	Very Good	3	12.0	5	20.0
84-92	Good	3	12.0	18	72.0
75-83	Average	2	8.0	1	4.0
<75	Poor	17	68.0	1	4.0
	TOTAL	25	100	25	100

According to the table above, it is clear that before the treatment the hidden object interactive games using PowerPoint had not been implemented in learning activities yet, A total of 17 children were still in the "poor" category in the classification table, and as many as two people received classification "average" and each of the three students gets "good" and "very good". The value after the treatment of the implementation of the hidden object interactive game using PowerPoint commonly referred to as the posttest, the results are different from the pretest. According to the frequency classification table above, 18 students scored "Good", five people got "Very Good" and one person each got "Poor" and "Average".

b. The mean score and standard deviation of students in pretest and posttest in general

The researcher then added a paired samples statistics table, which displays the overall mean score as well as the standard deviation of the student's pretest and posttest findings, after computing the outcomes of the student scores.

Table 7. The Mean Score and Std. Deviation of Students' Pretest and Posttest in General

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	72.8400	25	13.53600	2.70720

	Posttest	87.8400	25	6.26285	1.25257

The table 7 shows that as many as 25 samples or students studied in class 7.3, at the pretest or before treatment, their average score was only 72.84 where this average value is included in the "Poor" classification whereas after treatment or posttest. The average value of students has improved to 87.84 and this average value is included in the "Good" classification. Based on the descriptive description of this analysis, on average, the posttest or after-treatment results in a higher score than the pretest, it can be said.

In addition, the student's pretest standard deviation score was 13.53 and the student's posttest standard deviation score was 6.26. This shows that the posttest standard deviation value is less than the mean value and the value of 6.26 is closer to 0 than the pretest standard deviation value of 13.53. Based on this description of the standard deviation, thus, it may be said that in the posttest values, there is lower data variability, which means that the average value is more reliable and this can also indicate that there is no data deviation in a variable.

c. The t-test value to assess the substantial difference between the pretest and posttest mean values in general

The two-tailed significant value in this case decides the research's findings, not the mean difference results, which are not typically used in decision-making. If the significance value is more than 0.05 (significant level) then it can be determined that the Null Hypothesis (H0) is accepted whereas the Alternative Hypothesis (H1) is rejected or in other words, there is no significant effect on the difference in the treatment given to each variable, but vice versa if the significance value is less than 0.05 (significant level) then the statement that the Null Hypothesis (H0) is rejected whereas the Alternative Hypothesis (H1) is accepted or there is a significant influence on the difference in the treatment given to each variable. The following are the findings of the t-test pretest and posttest that have been conducted, as estimated with the aid of the SPSS application version 26:

Table 8. Paired Sample T-Test in General

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	Df	Sig. (2-tailed)
Pair 1	Pretest - Posttest	15.00000	10.08299	2.01660	19.16205	10.83795	7.438	24	.000

The paired sample test table above reveals that there is a significant difference between the two student vocabulary tests, with the mean difference between the pretest and posttest being 15.00. In addition, Pretest and posttest results can be shown to have a two-tailed significance value of 0.000, which denotes that the two-tailed value is less than 0.05 (significant level), and based on decision making, this indicates that the alternative hypothesis (H1) is accepted whereas the null hypothesis (H0) is rejected. The conclusion is that the paired sample test table above reveals that there is a significant difference before and after the implementation of the Hidden Object Interactive game using PowerPoint in learning activities and increasing student vocabulary. More briefly, the Implementation of the Hidden Objects interactive game using PowerPoint significantly improves students' vocabulary mastery.

3.2. Discussion

The implementation of the Hidden Object game slowly helps students retain the vocabulary they play at the start of each class. This can be demonstrated by taking a look at the findings from the preceding section, after implementing the Hidden Object interactive game using PowerPoint, it is clear that the vocabulary of the students has improved. However, if the five aspects are explained one by one (meaning, spelling, pronunciation, word classes, and word use) then it can be found that there are several aspects that significantly improve students' vocabulary mastery after implementing the Hidden Object interactive game using PowerPoint and there are also which did not have a significant improve.

Based on the differences in the mean scores of pretest and posttest in each of the five aspects of vocabulary described earlier, it can be seen that students understand more about three aspects of vocabulary, namely meaning, spelling, and word use. This is demonstrated by looking at some of the student performance gains between the pretest and posttest, as well as by comparing the mean scores of the two tests. where the aspect of word use has a more significant difference in mean score which is 43.04, “meaning” with a mean difference of 19.04, and "spelling" 11.72. Meanwhile, in the "pronunciation" aspect, the mean difference is only 3.32, and "word classes" is only 1.52.

However, from the paired differences table, it was found that meaning has a significant two-tailed value which is 0.001, spelling, 0.000, pronunciation, 0.004, and word use, 0.000. The four aspects of this vocabulary have a value of less than 0.05 (significant level) while the two-tailed significant value for word class is 0.498, which is greater than the 0.05 significant level value. Hence, if each of the five aspects of vocabulary is assessed from the T-test, thus, it may be said that only the word class aspect did not have a significant improvement after implementing the hidden object interactive games using PowerPoint. This also means that students did not really understand word classes of the vocabulary.

The results of this study are also in line with such several previous studies as the one conducted by Khaerunisa (2018), Widyatomo (2017), and Hong et al. (2022). The three researchers discovered that using hidden object games to teach English vocabulary to students improved their vocabulary mastery and increased their enthusiasm to study. However, what makes the difference in the findings of this research is that apart from concluding the overall improvement in vocabulary, this research also describes one by one the improvement in each of the five aspects of vocabulary, namely meaning, spelling, pronunciation, word class, and word use. In addition, the researcher also combined hidden object interactive games with PowerPoint media, where research like this had never been done before.

Before the treatment was conducted, in the meaning aspect most students did not even know what the words "Garbage", "Lightbulb" "Grocery Bag" etc. meant. However, after the treatment, the students became able to know all of these things and even also memorized some of the vocabulary that might be a bit complicated, such as "Flip-flops" and "lifebuoy". Likewise, in the second part, namely "spelling", before the treatment was carried out, some students only chose randomly the spelling of a word, but after being given the treatment, they were able to recognize which spelling was correct and which spelling was wrong. This game can also indirectly make it easier for students to remember and recognize the meaning and spelling of a new vocabulary. This is in line with the opinion of Mayer (2005) that presenting comparable words and images together helps people learn better also according to Hong, Shen, Chin, and Chen's (2022) research, playing this hidden object game encourages learners and makes it easier for them to recognize and retain terminology. The next aspect of vocabulary is "word use". If seen from the outcomes of the calculation of the average pretest and posttest comparison values for this word use aspect, it is obvious that the increase's value exceeds that of the other four factors. This is because previously most students blanked their answer sheets in this section because they did not know how to make sentences at all. Students do not know how to develop vocabulary into sentences. However, after the treatment, the students were able to make simple sentences based on the given vocabulary

Other aspects, namely pronunciation also show an increase even though the increase is somewhat lower than the three aspects above. However, even though it is like that, it has been proven through the t-test that the aspect of student scores in the "pronunciation" aspect significantly increase after the treatment is carried out. In this aspect, some students are only able to pronounce words and sentences that they often hear, such as the words in “There are and There are” lessons. For words or sentences that they only hear 1-2 times, it is not enough for them to remember the pronunciation of the word. Next, the same thing happened to the “Word Classes” aspect. Even though the students' pretest scores were good enough, after being given treatment, the student's scores on the word class aspect did not really show any improvement. This was also proven by the t-test which concluded that student scores in the word classes aspect did not increase significantly like the other four aspects. In this aspect, most student scores are only stuck in the "Good" classification. Even though the students know the meaning of a vocabulary, they are still quite difficult to understand and determine the class of the vocabulary. This hidden object interactive game actually features word classes, but only more in the noun class because the aim of this game is to find several items or objects that have been hidden among other objects (Roush, 2008 & Oei, 2013).

On the basis of the aforementioned research findings, it is known that the mean difference between the student's pretest and posttest in general is 15.00 and the significant value of the two-tailed pretest and posttest is 0.000, which shows that it is less than the significant level (0.05). This is to say, the alternative hypothesis (H1) is accepted whereas the null hypothesis (H0) is rejected. This signifies that there is a significant difference between student scores before and after implementing the hidden object interactive game using PowerPoint. In other words, in general, the implementation of the hidden object interactive game using PowerPoint significantly improves students' vocabulary mastery. However, of the five aspects of vocabulary, only the word class score could not increase significantly with a mean difference of 1.52 and a two-tailed value of 0.498 while the one with the highest increase was Word Use with a mean difference of 43.04.

4. Conclusion

Based on the findings and discussion at the previous part, it is concluded that in general the implementation of the hidden object interactive game using PowerPoint in class 7.3 SMPN 1 Watansoppeng significantly improved students' vocabulary. The t-test findings showed that 0.000 is less than the significant level (0.05). However, if we look at the scores for each aspect, we might therefore say that the vocabulary aspect with the highest mean difference score is word use, followed by meaning, spelling, and pronunciation whereas the lowest score is word class. In other words, it can be said that the only aspect of vocabulary whose score did not improve significantly after implementing the hidden object interactive game using PowerPoint is word class. This implies that word class is the most difficult aspect of vocabulary to develop and requires extra efforts from EFL teachers.

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