VOCABULARY LEARNING USING AGATHA CHRISTIE PERIL AT END HOUSE GAME

THESIS

Submitted in Partial Fulfillment

of the Requirements for the Degree of

SarjanaPendidikan

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ENGLISH LANGUAGE EDUCATION PROGRAM

FACULTY OF LANGUAGE AND ART

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SALATIGA

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VOCABULARY LEARNING USING AGATHA CHRISTIE PERIL AT END HOUSE GAME

THESIS
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INTRODUCTION

English has become an international language and a most spoken language in the world. In language environment, vocabulary plays a crucial role for learners to acquire a language. According to Barcroft (2004), “The ability to use language fluently and grammatically correctly is directly related to knowledge of vocabulary that is built up over time and depends, on exposure to large amounts of language” (pp. 303-304). Meara (1996) adds that vocabulary competency contributes greatly to second language (L2) proficiency. Based on this argument, learners who have more knowledge of vocabulary are believed to be more proficient in basic skills of language such as reading, writing, listening and speaking. However, learning vocabulary is not easy, because learners have to memorize all the unfamiliar or new words in their memories. Unfortunately, there are some negative factor occurred for the learners to learn vocabulary. The most common problem that often arises in learning vocabulary is the boredom factor when the source is simply derived from the reading text.

At the present time, there are some studies that use technology such as computer games in language learning environment. The use of computer games as a learning tool has influenced many learners in recent years. Some studies have been conducted in to see the effectiveness of computer game in learning vocabulary, especially English vocabulary.

To begin with, Sorayaie's research (2012) revealed that games contribute to vocabulary learning if they give students a chance to learn, practice, and review the English language in a pleasant atmosphere. The research involved 23 Iranian students at language center in Maragheh, Iran. The participants were between the ages of 10 and 13 all in beginner level in the class.
Yang & Chen’s (2013) found that the learners enjoy playing commercial adventure video games and consider these games as useful tools to facilitate second/foreign language learning. Their participants were sixty undergraduate freshmen at a national university in Taiwan. Their participants were all non-English majors from different subject disciplines, including Education (n=34), Liberal Arts (n=9), Science (n=8), Business Management (n=4), Fine Arts (n=3), Music (n=1), and Technology (n=1). Both male (n=10) and female (n=50) students participated in this study, and their average age was around 19.

The study of Bakar & Nosratirad (2013) showed that games can be beneficial in sustaining language learning especially in improving space to independent learning. Their participants were three adults ESL learners, aged between 22 and 30 and with low English proficiency. Each participant had MUET Band 2. Is the Malaysian University English Test, and entry test for university; 6 is the highest score. They were from different backgrounds; Participant A (PA) was a freshman working in a local restaurant; participant B (PB) had a diploma certificate and intended to study further in a university; Participant C (PC) had a diploma certificate and worked as a salesman in a furniture shop.

Based on the previous studies, this study was aimed to determine whether the learning vocabulary using a computer game will have a positive impact for ESL or EFL learners and to answer the following research question, “Does Agatha Christie Peril at End House game helps students learning vocabulary effectively?”. In this study, the writer used Agatha Christie Peril at End House game which has interesting features. In this game, learners play as a detective who wants to solve murder cases. In order to complete the missions and find who is the murderer, learners need to find the correct hidden objects based on the word provided in the list. Understanding the meaning of every word is the key success in this game. The knowledge of
understanding the meaning of every word will lead the players to find the correct hidden objects and complete the mission. Though Agatha Christie Peril at End House has the potential for vocabulary learning, it is interesting to find whether the game is an effective way to learn English vocabulary.

This study hopefully gives benefits in teaching and learning vocabulary for both teachers and students. Through computer games, teachers may create an enjoyable atmosphere in English class to introduce new words to the students when they learn vocabulary. Computer games can be used as an easier tool for students for memorizing every new word and improving English vocabulary in a fun and relaxed situation. Learning vocabulary using computer games also can be used as a tool to avoid learners’ boredom.

LITERATURE REVIEW

The further explanation will be discussed in this section. This section provides a brief explanation about vocabulary learning. The definition of computer games and vocabulary learning using computer games as the background of this study will also be discussed in this section.

Vocabulary Learning

Takac (2008, p.4) argues that vocabulary could be defined as a “dictionary” or set of words. Vocabulary is the same with word and word becomes the most common element in sentences because language is a collection of words. From vocabulary, learners will improve their English skill and it is similar with Linse’s (2006) statement that language ability of learners will be improved overall by vocabulary improvement. Which is means that learners’ skill of English in reading, writing, speaking and listening areas will be improved because vocabulary
plays a crucial role in language learning. Without understanding the vocabulary meaning, learners will not be able to use the English language well.

Unfortunately, vocabulary learning is one of the most common problems occurred in L2 learning. Limited knowledge of vocabulary and sentence structure is considered as the main problem in learning language (Gunning, 2002; cited in Sripramong 2004). Huyen and Nga (2003) argue that learners often feel bored with the vocabulary learning activities that only take the source from reading texts.

**Computer Games**

In recent years, the development of technology has become an important part in human life. Almost every human in this whole world use technology in their daily life. Technology such as computer, Internet, mobile phone, etc. have been become a useful tool in assisting people in doing their daily activities. In other words, technology makes people’s life easier. The development of technology is mainly used for communication. Nowadays, however, technology also takes part in educational environments. Teachers at this time often used technology media such as laptop and internet to teach, because it is very supportive and can be accessed easily. Recently, the use of computer game is utilized in teaching English as a second or foreign language.

Game is an interesting and fun activity for everyone. So, game can be used as a set of tools to attract students’ interest in learning a second language, especially in teaching vocabulary. Huyen and Nga (2003) state that learners are bored with learning language without activities but listening. Previously, teachers only used reading texts for source of gaining vocabulary items. This activity made students bored and caused negative impact in learning second language.
Game is defined by Hadfield (1990, p.5), as an activity with rules, a goal, and element of fun. Hadfield’s argument was also supported by Uberman (1998, p.18) that games can maintain students’ motivation in vocabulary learning because they are amusing and interesting. Prensky (2002, as cited in Sarsar 2008) argued that “Whenever one plays a game, and whatever game one plays, learning happens constantly, whether the players want it to, and are aware of it, or not. And the players are learning ‘about life’, which is one of the great positive consequences of all game playing. This learning takes place, continuously, simultaneously in every game, every time one plays. One need not pay much attention”(p. 2). From this statement, we can conclude that learning using computer games can be one of the strategies of learning because while playing game, learners will unconsciously learn something from the game, which in this situation is the language. Another benefit is that computer game can draw a good atmosphere for students and avoid boring situation in learning a new language.

According to Grace (2005), there are six genres of computer games. The first genre is simulation game. This is an attempts copy of various activities from a real life situation. In this game, players are allowed to freely control a character. The second is action game. Action game is always requires players to use quick reflexes, accuracy and timing to solve the obstacles. It emphasizes on combat or battle among the characters. The third is Role Playing Game (RPG). This is a game that casts the players in the role of one or more adventures in specific skills such as melee combat and magic skills while progressing through a storyline of the game. Strategy Game is the fourth genre. This is a game that focuses on game play requiring careful and skillful thinking and planning in order to achieve victory. The fifth is word and puzzle game that usually designed to test the ability with language or to explore its properties. The last one is Hidden Object Game that requires the players to find the correct objects from the word list.
Purushotma (2005) argues, “Computer games can be highly motivating because they can even cause addictive behavior” (pp. 80-96). When playing a game, players will be addicted to the game itself because the game provides relaxing and fun activity. Through the game, learners will be motivated to learn a language, especially learning the vocabulary in a fun way.

Vocabulary Learning Using Computer Games

According to Al-Nafisah (2012), “games are ignored by teachers as the unimportant part of the teaching language in classroom” (pp. 22-28). Some teachers still think that games, especially computer games as one of the negative factors in learning environment. Computer game is categorized as a negative factor because it can destruct students’ passion in learning. In real life situation, children prefer to spend their time playing computer games than learning. However, in recent years, some studies have revealed that computer games can be used as a learning tool. Yip and Kwan (2006) state that student prefer learning that is supported by digital educational games to traditional activity based-lesson. In this era, students are more attracted in using digital technology to learn because they use technology in their daily life. Compared to students in the past who were less dependent to the use of technology, students in present day prefer to learn with the help of technology. Computer games, for example, might be a suitable tool to improve English language as it provides language learning environment (Mich. et.al, 2004). This is because, by playing the games, the players need to know basic English language in order to understand the instructions. Mich’s statement was supported by Smith and Mann (2002) that “Students will develop their knowledge of English as they play the game. Through a well-planned game, learners can practice different English skills, most importantly vocabulary” (pp. 397-402).
To be short, games can be considered as useful and effective tools that may be used in vocabulary learning classes. The use of games in teaching vocabulary is a way to make the lessons more interesting, enjoyable, relaxed, and effective.

THE STUDY

This section is going to describe the study in details. In regards to the data collection and analysis, this section consists of types of research, participants, and sampling techniques. Variable of research and instruments of the research will also be discussed in this section.

Data Collection

Types of Research

A quantitative research method was used to conduct this study. Quantitative research itself is a research where usually the data collected is analyzed statistically or by using computer software and presented in numbers. In order to measure the improvement between pre-test and pos-test scores, so the data will be presented in numbers.

Participants

Thirty (30) Grade 2 senior high school students participated in this study. All of them acquired English lesson experience for about 10 years and basically they can operate computer. The total subjects were n ≥ 30 in order to get normal distribution of data (Coakes and Steed, 2001). In this study, all the participants played the Agatha
Christie Peril at End House game. This study was conducted outside the classroom activity at computer lab of one of the senior high school in Central Java.

**Sampling Techniques**

The participants were selected using convenience sampling. According to Teddlie and Yu (2007), convenience sampling is a technique where the researcher chooses or uses the participants based on their availability. In other words, the participants are willing to participate in this study and easy to access.

**Variable of Research**

This study used dependent variables because the research measured the score of tests. It is due to the necessity of both pre-test and post-test from the participants. Therefore, the scores that are in numbers need to be analyzed in quantitative way.

**Instrument of the Research**

One of the research instruments in this study was Agatha Christie Peril at End House game. This game was developed by Oberon Media that was launched on 10 July 2009. Agatha Christie Peril at End house is a hidden object game in which the player has to find the correct object according to the list. Appendix A shows the screenshot of the game. In Agatha Christie Peril at End House game, the player plays a role as a detective who wants to solve murderer cases. In order to accomplished the mission, finding the correct objects will bring the player closer to the success. This game is divided into chapters, consisting of hidden object and adventure scenes. Hidden object scenes require the player, as the name already suggests, to find certain
hidden objects according to the list in every scene, while adventure scenes ask the player to find clues and reveal the murderer. The higher score will be achieved if the player can find the objects faster than the time limit. The game also provides some hints to help the player in finding the correct objects. However, if the players click randomly at any objects in the screen, they will get a penalty time for ten (10) seconds. Therefore, the players have to think and choose the objects carefully to avoid the penalty time.

To be able to play the next chapter, the player should finish the previous chapter. The subjects of this study were required to play this game only at scene one (Hotel Garden), two (Hotel Lobby), and three (Garage).

The second instruments for data collection were Vocabulary Knowledge Scale (VKS) from Wesche and Paribakht (1993). VKS is a scale used to know how well the word is known as perceived by the learner. It has scale of 1-5 like as illustrated in the following:

<table>
<thead>
<tr>
<th>Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>I don’t remember having seen this word before.</td>
</tr>
<tr>
<td>II</td>
<td>I have seen this word before but I don’t know what it means.</td>
</tr>
<tr>
<td>III</td>
<td>I have seen this word before and I think it means________________ (Indonesian translation).</td>
</tr>
<tr>
<td>IV</td>
<td>I know this word. It means________________ (Indonesian synonym).</td>
</tr>
<tr>
<td>V</td>
<td>I can use this word in a sentence, e.g________________</td>
</tr>
</tbody>
</table>

The scale represents the learners’ knowledge level in vocabulary. According to Wesche and Paribakht (1997), “The scale ranges from total unfamiliarity through
recognition of the written word and some idea of its meaning, to the ability to use the
word in a sentence” (p. 15).

There were one pre-test and two post-tests for the participants. The pre-test was
given before the participants played the game, while the post-tests were taken two
times, two days after the participants played the game and approximately two weeks
after the treatment. This study was conducted according to Ellis’s model (1999). In
his model, he conducted the study by giving one pre-test, a treatment, and five post-
tests within different times. Because of the limitation of time, this study only
conducted two post-tests which were conducted two days and two weeks after
participants played the game. The pre-test in this study was also different from Ellis’s
model (1999). He asked the participants to produce words and match them with the
picture while this study used Vocabulary Knowledge Scale (VKS). The vocabulary
items that were used in the pre-test and the post-tests were the same.

This study used Vocabulary Knowledge Scale (VKS) and Ellis’ method because
the objective of this study was to determine the effectiveness of computer game in
learning vocabulary for ESL learners and vocabulary retention after break period. By
implementing VKS and Ellis's method, this study could learn about the vocabulary
acquisition and retention from the participants' test results.

The last instrument was the list of words that is used in the pre-test and the post-
tests. To find out the level of the students’ competence, the English teacher of the
senior high school in Central Java selected the words. The writer provided a list of
words from Scene 1, Scene 2, and Scene 3, and, the English teacher acted as the
second rater of the word list. From the list of words that had already been checked by the teacher, the writer selected some words that had been selected by the teacher as the difficult words. The writer also marked some words in every scene that became the word clue of the game. The lists of words were presented in Appendix B.

**Data Analysis Procedure**

The results of the pre-test and the post tests were analyzed using Paired-Sample T-Test. Based on Coakes and Steed (2001) and Hidayat (2012), generally t-test is used to find out or determine whether a set or sets of scores are from the same population. Paired Sample T-Test or also known as repeated measures T-Test, is used to determine whether the results from the pre-test and the post-tests have differences or not. The T-Test analysis was conducted using statistics program, called Statistical Package for Social Sciences or Statistical Product and Service Solutions (SPSS), made by IBM. However, before using the Paired Sample T-Test, there were four assumptions that should be met in order to do the analysis. Those four assumptions, based on Coakes and Steed (2001) are Scale of Measurement which is the data that should be at the interval or ratio level of measurement. Random Sampling is where the scores should be randomly sampled from the population of interest. Normality is the scores should be normally distributed in the population. The last one is Normality of population difference scores that the difference between the scores for each participant should be normally distributed.

If one or more parameters are not met, an alternative of non-parametric tests can be used. Based on Hoskin (2012), the non-parametric tests rely on no or few assumptions about the
shape or parameters of the population distribution. Wilcoxon Signed Rank Test is the alternate Paired T-Test if the data do not fulfill the assumptions.

FINDINGS AND DISCUSSION

As mentioned in the previous section, before doing the t-test, it is important to check whether the four assumptions for conducting the t-test are fulfilled (Coakes and Steed, 2001), in order to decide whether the t-tests employed should be the parametric or the non-parametric one.

The following is the result of the assumption check. The first one is scale of measurement. In this section, the data of the variables of the pre-test and post-tests were in interval scale. Therefore, the assumption was met. The second assumption is random sampling. The sample of this study was taken from one class of Grade 2 in one of the senior high school in Central Java. Based on the interview with the teacher, the inclusion of students in certain class was done randomly. However, this study employed convenience sampling which may not be able to randomly select the participants. Therefore, it was assumed that the assumption for random sampling was not met. Normality and normality of the population difference score is the last assumption according to Coakes and Steed (2001). The assumption of normality is a prerequisite for inferential statistical techniques such as t-tests. Histograms one of the techniques to explore the assumption, was used to check the normality. The results of the test are in the following:
Figure 1. Pre-Test Histogram

Figure 2. Post-Test 1 Histogram
The bell-shaped curve line in the figures presents the normality. As shown in Figure 1-3, none of the bars of the histogram resembled the normality curve. Therefore, the assumption of normality could not be met.

Based on the tests of the assumptions for parametric tests, the data in this study did not meet the three requirements of a t-test: the random sampling, normality, and normality of the population difference score. Therefore, the data in this study should be analyzed using a non-parametric test, which was Wilcoxon Signed-Rank Test as the alternative non-parametric test for paired sample t-tests.

Table 1 is the complete scores that the participants achieved in the pre-test, post-test 1 and post-test 2. All the scores were achieved after the participants completed the three scenes of the game. The results were on the following table:
<table>
<thead>
<tr>
<th>Participants</th>
<th>Pre-Test</th>
<th>Post-Test 1</th>
<th>Post-Test 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>27</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Participant 2</td>
<td>27</td>
<td>37</td>
<td>40</td>
</tr>
<tr>
<td>Participant 3</td>
<td>20</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>Participant 4</td>
<td>26</td>
<td>34</td>
<td>36</td>
</tr>
<tr>
<td>Participant 5</td>
<td>26</td>
<td>35</td>
<td>38</td>
</tr>
<tr>
<td>Participant 6</td>
<td>25</td>
<td>42</td>
<td>40</td>
</tr>
<tr>
<td>Participant 7</td>
<td>19</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Participant 8</td>
<td>24</td>
<td>42</td>
<td>44</td>
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<tr>
<td>Participant 9</td>
<td>23</td>
<td>37</td>
<td>40</td>
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<tr>
<td>Participant 10</td>
<td>23</td>
<td>36</td>
<td>38</td>
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<tr>
<td>Participant 11</td>
<td>23</td>
<td>30</td>
<td>36</td>
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<td>Participant 12</td>
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<td>Participant 13</td>
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<td>Participant 14</td>
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<td>Participant 15</td>
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<td>31</td>
<td>39</td>
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<td>Participant 16</td>
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<td>Participant 17</td>
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<td>Participant 30</td>
<td>25</td>
<td>39</td>
<td>41</td>
</tr>
</tbody>
</table>
The results of the t-test analysis are going to be presented in the next sections. The sections consist of results of the vocabulary acquisition and retention.

**Vocabulary acquisition (Pre-Test vs. Post-Test 1)**

Table 2 and Table 3 present the result of Wilcoxon Signed-rank test on the pre-test vs. the post test that shows vocabulary acquisition.

### Table 2. Ranks Pre-Test vs. Post-Test 1

<table>
<thead>
<tr>
<th>Ranks</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>Positive</td>
<td>30</td>
<td>15.50</td>
<td>465.00</td>
</tr>
<tr>
<td>Ties</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: a -- post-test 1 < pre-test, b -- post-test 1 > pre-test, c -- post-test 1 = pre-test

### Table 3. Statistics Test of Pre-Test vs. Post Test 1

<table>
<thead>
<tr>
<th>Wilcoxon Signed Ranks Test</th>
<th>post-test 1- pre-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>-4.786*</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note: * based on negative

Referring to Table 2, there were 30 students whose got better scores in post-test 1 than in the pre-test (refer to b. in the rank test).
Table 3 shows that there is significance difference between the results of pre-test and post-test ($t(30) = .000, p<0.05$) with the post-test scores being higher than the pre-test scores ($z = -4.786$).

**Vocabulary Retention (Post-Test 1 vs. Post-Test 2)**

Table 4 and Table 5 present whether there was a difference between the Post-Test 1 and the Post-Test 2 that shows vocabulary retention.

**Table 4. Ranks Post-Test 1 vs. Post-Test 2**

<table>
<thead>
<tr>
<th>Ranks</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>post-test 2 - post-test 1</td>
<td>2$^a$</td>
<td>9.00</td>
<td>18.00</td>
</tr>
<tr>
<td>Negative Ranks</td>
<td>2$^a$</td>
<td>9.00</td>
<td>18.00</td>
</tr>
<tr>
<td>Positive Ranks</td>
<td>25$^b$</td>
<td>14.40</td>
<td>360.00</td>
</tr>
<tr>
<td>Ties</td>
<td>3$^c$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: $a$ -- post-test 1 < pre-test, $b$ -- post-test 1 > pre-test, $c$ -- post-test 1= pre-test

**Table 5. Test Statistics of Post-Test 1 vs. Post-Test 2**

<table>
<thead>
<tr>
<th>Wilcoxon Signed Ranks Test</th>
<th>post-test 2 - post-test 1</th>
<th>Z</th>
<th>Asymp. Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$-4.169^*$</td>
<td></td>
<td></td>
<td>$.000</td>
</tr>
</tbody>
</table>

Note: $^*$ based on negative

Based on Table 4, in the negative ranks, there were 2 students whose got lower scores in post-test 2 than the ones in the post-test 1 (refer to $a$ in the rank test). However, in the positive
ranks, there were 25 students who got better scores in post-test 2 than the one in post-test 1. While in the table ties, there were 3 students who got the same scores in Post-Test 2 with the ones in Post-Test 1.

Table 5 shows the significance of -4.169. It indicates that there is a significant difference in the result for post-test 1 and post-test 2 (p<0.05) although it was not as the same as the result for the pre-test and post-test.

Based on the finding in this study, there may several explanations to the phenomenon occurred in this study. First phenomenon is almost all the participants achieved lower scores in the pre-test. This phenomenon could be seen as the result of unfamiliar word for the participants. This might happen because they never see the words in English class or taught by the teacher.

The second phenomenon was the negative change between the result of post-test 1 and post-test 2. In the post-test 2, even though almost all participants achieved higher scores than pre-test, sadly they achieved lower scores than the scores in the post-test 1. This might happen because the intervention of time in conducting the pre-test, post-test 1 and post-test 2. For post-test 1, because it was conducted two days after pre-test, the participants' mind might still be fresh with the game and the vocabulary, resulting in higher scores than the pre-test. However, two weeks after pre-test, the participants' performance in the post-test 2 was not as good as post-test 1. This might happen because usually people only save new information in declarative memory or short-term memory. Based on Ullman (2001), as someone grows up, they will depend more on short-term memory rather than long-term memory in learning second language. In this study, the participants might only save their new vocabulary items in short-term memory, resulting in higher scores in post-test 1 than post-test 2 which is conducted in a longer break period. It might also happen because the participants only played Agatha Christie Peril at End House for a short
time, e.g. 30 minutes to one hour, so they did not have the chance to catch all the vocabulary that were in the game.

The last phenomenon is when the participants achieved higher scores or get the same scores with post-tests 2. Twenty five (25) participants got higher score and three (3) of them got the same score, although post-test 2 was conducted two weeks after post-test 1. The possible reason might be because of the participants used long term memory where they remembered the vocabulary and they gave answers that were more confident in post-test 2. This meant that Agatha Christie Peril at End House game played its role successfully as the tool for vocabulary learning, so games can be used by teachers or learners in order to teach or learn vocabulary rather than considered as a destructor factor. Based on this result, Presnksy’s (2002) statement might be true, that learning happen constantly, consciously or not and whenever or whatever game the learners played.

CONCLUSION

The aims of this study were to examine how learners learned vocabulary while playing the game and also help learners improving their vocabulary items outside the classroom activity. This study was aimed to answer the following research question “Does Agatha Christie Peril at End House game helps students learning vocabulary effectively?”

From the results of the tests above, there were indeed significant changes between the pre-test and the post-tests scores after playing the Agatha Christie Peril at End House game. Compared to the study by Sorayaie (2012), the result of this study showed similar response where game can contribute in learning English vocabulary. The participants could learn vocabulary in a relaxed atmosphere and that was what happened in this study as some
participants were happy in playing Agatha Christie Peril at End House. Another similar result was shown in Ellis's research (1999). In his research, Ellis (1999) found out that there was a significant difference in the scores of pre-modified and modified group. The pre-test and post-tests' results themselves were consistent with previous studies conducted by Ellis (1999), Sorayaie (2012) and Bakar&Nosratirad (2013) in which their studies displayed a significant change in the result between the pre-test and the post-tests.

The changes occurred were both positive and negative. The pre-test and post-test 1 results showed significant changes to the scores in which the post-test 1 scores were higher after the participants did the treatment. This result indicates vocabulary acquisition in the participants. By doing pre-test and then followed by treatment on two days later, almost all the participants of this study could remember the meaning of the words. Similarly, the results of post-test 1 vs. post-test 2 showed there was vocabulary retention among the participants. However, there were five participants who scored lower or the same in post-test 2. Two participants got lower scores in post-test 2, three of them got the same scores as the post-test 1, and the rest of them could achieve higher scores than post-test. This may be caused by the period of two weeks of not playing the game that could influence the participants’ memory.

Based on the findings of this study, there are two factors occur for the pedagogical implications. The first factor is that this game can be used by English teacher as a tool to learn vocabulary because, based on this study, learners can acquire new vocabulary while playing the game. The second factor is the learners could not memorize the vocabulary items in a long period because they only played the game once. In order to achieve the higher score for longer period, time playing should be more than one time.
The limitation of the study came from two factors. First factor was the writer could not analyze the data using parametric test because it was not distributed normally. The population of the second graders in this senior high school was large but the English teacher permitted the writer to collect the data only from one class. The second factor is the time limit. As this study needs some times to be conducted, finding the right time for every participant was very hard because they were busy with school activities. With the limited time to do the study, the time for playing Agatha Christie Peril at End House was also reduced to 30 minutes to one hour for one play. The impact of the limitation of the time, learners could not memorize all the vocabulary items in a longer period.

For the future research, the writer hopes that it can be conducted with more participants from another class and in a longer time, so that the result will be more accurate and the data can be distributed normally. The findings in this study may affect the teaching and learning process in the language environment. Therefore, in the future teachers should consider the use of computer game as the medium of vocabulary learning, especially learning English vocabulary.
ACKNOWLEDGEMENT

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REFERENCES


APPENDIXES

Appendix 1. Screenshot of Agatha Christie Peril at End House

Appendix 2. List of Words in Scene 1 (Hotel Garden), Scene 2 (Hotel Lobby), and Scene 3 (Garage)

**Scene 1 (Hotel Garden)**
- Bullet
- Shamrock
- Gramophone
- Spy glass
- Toadstool
- Moth
- Ring
- 2 chocolate pastries
- Pinecone
- Golf ball
- Hat

**Scene 2 (Hotel Lobby)**
- 5 keys in their bins
- Water lily
- Cabbage
- Oar
- Scroll
- 2 canes
- 2 radios
- Graduation cap
- Eagle
- Tube of paints
- Peak cap
<table>
<thead>
<tr>
<th>Scene 3 (Garage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoe print   Binoculars  Padlock  Figurine  Mouse</td>
</tr>
<tr>
<td>Wire cutter  Tachometers Saw  Brakes  Butterfly</td>
</tr>
<tr>
<td>Scoop        Vise         Sundial</td>
</tr>
</tbody>
</table>

Selected words scene 1

<table>
<thead>
<tr>
<th>Bullet</th>
<th>Gramophone  Moth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pinecone</td>
<td>Shamrock</td>
</tr>
</tbody>
</table>

Selected words scene 2

| Cane  | Oar        | Peak cap |
|-------|------------|
| Scroll | Tube of paints |

Selected words scene 3

| Shoe print | Brakes   | Padlock |
|------------|----------|
| Sundial    | Figurine |
Appendix 3. Pre-test, Post-test 1, and Post-test 2

Kepada peserta,


Berilah tanda centang (√) pada salah satu pilihan (I-V) yang menurut anda paling sesuai. Untuk pilihan III silahkan memberikan arti sesuai, pilihan IV silahkan isikan sinonimnya, sedangkan pilihan V silahkan gunakan kata tersebut dalam sebuah kalimat.

I. Sayabelumpernah melihat kata ini sebelumnya.
II. Sayasudah pernah melihat kata ini, namun tidak tahu artinya.
III. Sayasudah pernah melihat kata ini. Kata ini memiliki arti ……
IV. Sayamengetahui kata ini. Kata ini memiliki persamaan makna (sinonim) dengan ….
V. Sayabisamenggunakan kata ini dalam sebuah kalimat

<table>
<thead>
<tr>
<th>No.</th>
<th>Vocabulary</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>Arti</th>
<th>IV</th>
<th>Sinonim</th>
<th>V</th>
<th>Kalimat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bullet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Shamrock</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Shoe print</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4.</td>
<td>Pinecone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Brakes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Figurine</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7.</td>
<td>Moth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Gramophone</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Tube of paints</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Cane</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>11.</td>
<td>Scroll</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Peak cap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Oar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Padlock</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Sundial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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