

Comparison of English Vocabulary Mastery Between Computer-Gamer and Non-Gamer Indonesian Students

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Abstract

Game has been a part of teenagers' lives. The advancement of technology has led to the development of computer games. The vocabularies from games could give ample exposure to those who play them. The present study reports the difference in English vocabulary mastery of the computer-gamer and non-gamer Indonesian students and the correlation between frequency of playing computer games and the English vocabulary mastery. The research designs employed were comparative and correlational studies. The participants, 72 eleventh grade students of SMK Negeri 1 Bangil Pasuruan majoring Multimedia Engineering, were divided into two groups, 36 computer-gamer students and 36 non-gamer students. The data were collected by utilizing a demographic data collection and a free completion test of English vocabularies. The collected data were then analyzed statistically using SPSS 20. The results revealed that there was no statistically difference in English vocabulary mastery between computer-gamer students and non-gamers for the p -value was 0.589. The result of Pearson correlation which was used to answer the second research question showed that there was a positive but very weak correlation between frequency of playing computer games and the English vocabulary mastery. It could be inferred from the result that playing games does not really support the vocabulary acquisition of the students and the amount of time spent to play games barely improve their vocabulary mastery.

Keywords: *computer games; vocabulary; interaction; exposure; acquire; mastery*

1. Introduction

Everyone loves playing game, particularly children and teenagers. The advanced development of technology has been going to the rapid internet consumption nowadays. Today, it is even easier to access internet using mobile phones specifically the smart phones. The technology is not only used as the means of communications or to simplify human's life, but more than that, it is employed to meet the self-actualization, such as expressing themselves through social media and hobbies. The internet has given a large room for other inventions of application programs. Many applications are easily downloaded and installed on the smart phones or computers. Even the young children who have not been unable to read yet can easily operate mobile phones or computers and download many programs. One of the programs commonly installed is game. Games could be installed both on mobile phones and on computers. Many people like playing computer games to spend their spare time. Some games provide ample exposure of English words, phrases, instructions, and interjections. By having frequent interaction with various vocabularies by playing games, people who play games are assumed to absorb the words and expression automatically and unconsciously.

This phenomenon interests the researchers to study English vocabulary mastery of the students who like playing computer-games in comparison to those who do not like playing games. There are two research questions proposed in this study:

1. Is there any significant difference in English vocabulary mastery between computer-gamer students and non-gamer students?
2. Is there any correlation between the students' frequency of gaming and their English vocabulary mastery?

2. Literature Review

Krashen (1981) noted an observation about language acquisition which had been done by Brown. As written by Krashen (1981), Brown observed the interaction of Adam, Eve, and Sarah with their parents in which the parents used many WH-questions at very high frequency. Brown, as stated by Krashen (1981), then came up with a hypothesis that “prefabricated routines in children” (p.86) does not evolve into creative language. The language structure exposed by adults around them are still too difficult for the children to understand.

On the other hand, Krashen (1981) also noted a different opinion by Clark which said that there possibilities that “creative language” (p. 87) is the result of children routines. Clark's conclusion was based on her analysis of her son Adam (not Adam in Brown's study) who was about 3 years old at the time of the study. Her son had no idea about the rules of English grammar; he just absorbed them automatically, and internalized the pattern unconsciously. Later, after kids have recognized the pattern they would be able to be creative in formulating and using the language. The automaticity comes after the routines and frequents simple sentence pattern used by the parents when they are talking to their children.

The vocabulary definition according to Barcroft, Sunderman, and Schmitt (2011) belongs to all words in language. They further explain that if seen from the semantic properties, one meaning can be conveyed by more than one word, for example, the word *die* can be expressed by using different terms such as *expire*, *pass away*, or *kick the bucket*. It means that vocabulary does not always correspond one-to-one. Items used as a single unit to convey one meaning are called lexemes, lexical units, and lexical items (Barcroft, Sunderman, & Schmitt, 2011). Those terms are used interchangeably. Schmitt (2012) also extends that vocabulary is not single word solely but also including the lexical chunks such as *Good bye* and *Have a nice day*, phrases of two or more words which research suggests children and adults learn as single lexical units. Those definitions are appropriate to be applied in vocabularies obtained from games. When playing games, students are not only exposed to a single word but they often hear and see the lexical chunks such as *good luck*, *drop your gun*, *try again*, *resume the game*, etc.

In producing sentences, the vocabulary as well as grammar plays significant role. As language components vocabulary and grammar have complementing functions. Wilkins (1972) stated that “...while without grammar very little can be conveyed, without vocabulary *nothing* can be conveyed” (pp. 111–112). That means that vocabulary is the core of language. One cannot communicate without mastering the vocabularies needed (Nation & Meara, 2010). Lewis (1993) went further to argue that “lexis is the core or heart of language” (p. 89). If the students have developed greater fluency and expression in English, they will acquire more productive vocabulary knowledge and to develop their own personal vocabulary learning strategies (Lewis, 1993).

Computer games offer many levels starts from the easiest one to the hardest one certainly after passing the previous level. Each level usually has different terms and vocabularies. The gamers will read and follow the instructions as they play and begin to learn the terms and understand the meanings which are mostly in English. Although they do not refer to any dictionaries when meeting difficult terms, they try to guess the meaning from its context. When second language students are motivated to learn, they will be able to learn independently, outside the classroom (Krashen & Seliger, 1975). The students have already absorbed the languages in games unconsciously as the words or lexical chunks often appears during the play as Nakata (2006) states that vocabulary acquisition requires continual repetition in order for effective vocabulary learning. The frequent appearance or repetition of the words and lexical chunks in playing games according to Mehring (2010) is systematic repetition that can help students learn vocabularies with or without contexts. The use of cooperative learning and technology is also considered useful and relevant to vocabulary learning (Mehring, 2010).

Playing computer games which are presented in English can be considered as an informal way to acquire English vocabularies for the EFL students. The effectiveness of having such informal way to learn English particularly acquiring and mastering English vocabulary somehow is still questioned as Krashen (1981) argued that “it is not simply the case that informal environments provide the necessary input for *acquisition* while the classroom aids in increasing *learned* competence” (p.47). In order to be effective, the informal environment must be intensive and involve the learner directly (Krashen, 1981).

According to Krashen and Seliger (1981), linguistic rules and feedback are two important components in language teaching systems. Both components always exist, especially in classroom environment. Therefore the ample time of interaction of games will not be beneficial for students unless the students are provided with formal instruction in the class. Krashen and Seliger (1981), in result of comparing the effects of exposure and formal instruction, then conclude that more instructions will lead the students to higher proficiency, while more exposure does not always mean more proficiency.

The effects of games on students' English vocabulary learning have been studied by some researches. Muhanna (2012) studied about the use of online games to teach vocabularies for Jordanian students using experimental design. The findings of the study indicate that there were statistically significant differences in the post-test between the control and the experimental groups in favor of the experimental group, and there was no statistically significant difference in the students' achievement due to gender or to the interaction between gender and group.

Ashraf, Motlagh, and Salami (2014) conducted a research studying about the usefulness of online games in vocabulary learning of Iranian students. They involved 24 low-intermediate EFL learners which were divided randomly into experimental and control groups. The experimental group was asked to learn some new words via online computer games in 15 weeks and the results showed that their performance in the post-test was better.

Another research conducted by Reinders and Wattana (2015) involving 30 Thai learners of English. They were enrolled in a 15-week university language course completed 18 face-to-face classroom lessons and six sessions playing Ragnarok Online, a popular online role-playing game. The results showed that there was a significant effect of game play and it contributed more to the students' interaction than the English interaction in class.

3. Methodology

This study is a comparative study. The study involved 72 eleventh grade students from two classes of vocational high school, SMK Negeri 1 Bangil, Pasuruan, East Java, Indonesia with age between 16-17 years old and they were from Multimedia Engineering major. The technique used to decide the samples was purposive sampling. Purposive sampling is a method of choosing the samples based on certain criteria. In this study, the criterion was whether the students were computer-gamers or not. They were then grouped into 36 students who played computer games and 36 students who did not play computer games.

The data were collected by using the demographic data collection and free completion test. The demographic data collection was used to categorize the students and to find out the amount of time spent to play games in a week. The free completion test was used to know the students English vocabulary mastery. The students had to write vocabularies they know, whether those obtained from computer games they played or from other sources. The results were scored by two raters. If there were any lexical chunks written by the students, they would be treated the same as single words. It is supported by Alali and Schmitt (2012) who stated that vocabularies are not merely singles words, but including lexical chunks used as single units. The scores were obtained by calculating the correct number out of the total amount of vocabularies that the students have written in the sheet. The scores were then analyzed by using *SPSS 20*. In answering the research questions, *t-test* and *Pearson correlation* were used respectively.

Two hypotheses were proposed for each research question. For the first research question, the H_0 proposed was "there is no difference in English vocabulary mastery between computer-gamer students and non-gamer students" and the H_a was "computer-gamer students have better vocabulary mastery than non-gamer students". Meanwhile, the hypotheses proposed for the second research questions were "there is no correlation between frequency of gaming and English vocabulary mastery" ($H_0: r=0$) and the second was "there is a positive correlation between frequency of gaming and English vocabulary mastery" ($H_a: r \neq 0$).

4. Findings

The first research question would like to find out whether there is any statistically significant difference in English vocabulary mastery between computer-gamer students and non-gamer students. Free completion test was given to the students to know their English vocabulary mastery. The Figure 1 shows the mean scores of the computer-gamer students and the non-gamer students. It was found that the mean of the computer-gamer students was higher by 2 points only. Their mean score was 42 and the mean of non-gamer students was 40.

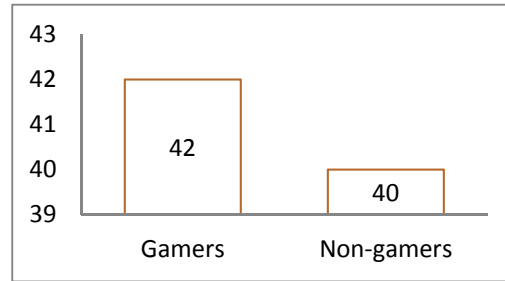


Figure 1. Mean Scores of Gamer and Non-gamer Students

The obtained data were then analyzed using *t-test* in SPSS 20. *T-test* is a statistical test to find out the significant difference between the means of two independent groups. After inputting the data, the result can be seen from Table 1.

Table 1. Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Score	Equal variances assumed	6.439	.013	.542	70	.589	2.083	3.841	-5.577	9.744
	Equal variances not assumed			.542	62.408	.589	2.083	3.841	-5.594	9.761

Table 1 presents further the result of the comparison. In the previous chapter, it has been explained that there are two hypotheses proposed for the first research questions. The null hypothesis (*H₀*) was “there is no statistically difference between the English vocabulary mastery of computer-gamer students and non-gamer students”. The alternative hypothesis (*H_a*) was “computer-gamer students have better vocabulary mastery than non-gamer students”.

From Table 1, the position toward the hypotheses can be inferred clearly. Since the result of Levene’s Test was 0.013, which was < 0.05, the data were considered heterogeneous. Therefore, the Sig. (2-tailed) value seen was the one in the “Equal variances not assumed” row. There is a significant difference if $\rho < 0.05$, i.e. the level of the significance. However, the result of the computation shows that the ρ -value was 0.589, which was > 0.05. It means that there was no significant difference and the *H₀* could not be rejected.

The second research question would like to know whether there is any correlation between the students’ frequency of gaming and the English vocabulary mastery. Pearson Correlation in SPSS 20 was used for the computation. There were two hypotheses proposed. The first was “there is no statistically significant relationship between frequency of gaming and English vocabulary mastery” (*H₀*: $r=0$) and the second was “there is a positive correlation between frequency of gaming and English vocabulary mastery” (*H_a*: $r\neq 0$).

The results of the computation are presented in Table 2 and Table 3. In Table 4, it is shown that there were 36 students (N) who like playing computer games. In a week, the mean of their frequency of playing games was 13 hours. Their mean score was 42.

Table 2. Descriptive Statistics

Descriptive Statistics			
	Mean	Std. Deviation	N
Score	41.58	18.926	36
Hours	13.03	8.607	36

Table 3. Correlation between Frequency of Gaming and English Vocabulary Mastery

Correlations			
		Frequency	Score
Frequency	Pearson Correlation	1	.149
	Sig. (2-tailed)		.385
	N	36	36
Score	Pearson Correlation	.149	1
	Sig. (2-tailed)	.385	
	N	36	36

Table 3 shows the Pearson Correlation coefficient was 0.149 ($r = .149$), meaning that the correlation was positive but it was very weak for it was really close to 0. Based on the result, the Null hypothesis for the first research question was rejected. Therefore, it can be concluded that the students' frequency of playing games is positively but weakly correlated with the students' English vocabulary mastery.

5. Discussions

Based on the result, it was known that there was no statistically significant difference in English vocabulary mastery between computer-gamer students and non-gamer students. It can be seen from Table 3 which shows the sig. (2-tailed) value was 0.589, which is >0.05 . The result implied that students who do not like playing games were at the same level as those who like playing games. The exposure of English words given by the games does not seem to have positive effect on their English vocabulary acquisition. The difference in the means shown in Figure 1 supported this implication. Although gamer-students tend to write more vocabularies than non-gamer students, the difference was not significant.

It is contrastive to what was mentioned by Ghanbaran & Ketabi (2014) about the ability of multimedia games to be able to motivate and encourage the vocabulary learning. In line with Ghanbaran & Ketabi, Peterson's study (2011) revealed that games, specifically digital games, had positive influence on language learning. Nevertheless, a study conducted by Anderson & Dill (2000) found an interesting finding that video games was related negatively to GPA achieved by the students, although the correlation was not significant ($r = -.80$). Related to playing games and English vocabulary mastery, Godwin-Jones (2014) mentioned that the environment where someone plays the games could affect the incidental vocabulary acquisition process. Different environment could result to different engagement and enjoyment.

All in all, the result of this study shows that students who like playing games do not always have better English vocabulary mastery than the students who do not like playing games, and vice versa. There are still many factors, besides games, which can affect the students' English vocabulary learning. Boonkongsaen (2012) synthesized that there are three factors affecting the learners' vocabulary learning, namely the individual factors, situational and social factors, and learners' learning outcomes. The individual factors include belief, attitude, motivation and learning experiences. The field of study, class level, course type, gender, and language learning environment belong to situational and social factors. Meanwhile, the learning outcomes deal with the learners' language achievement, proficiency, and vocabulary knowledge. In EFL classrooms, teachers are encouraged to use any media to help the students' learning process, including in vocabulary acquisition.

Another research question to answer in this study is whether there is any correlation between the students' frequency of gaming and their English vocabulary mastery. The result in Table 5 shows the Pearson correlation value was 0.149. The value showed that the relationship between students' frequency of gaming and their English vocabulary

mastery was positive but very weak. A study by Aswirawan (2014) supported the result of this study. She found out that the frequency of playing games had positive and moderate correlation with the scores of the students' vocabulary tests ($r= 0.489$). Despite the positive correlations, Godwin-Jones's (2014) study found out the significant and negative correlation between GPA and frequency of playing games ($r= -.20$).

From this study, it can be inferred that the students who play games longer hardly have better English vocabulary mastery than those who play less. A study conducted by Al-Shehri (2014) found out that the frequency of exposure of the vocabularies could help the students recall the meaning. The more exposure of English vocabularies given to the students, the better their performances will be.

6. Conclusions

Playing game is one of the ways of processing the vocabulary acquisition incidentally because the players receive exposure of English vocabularies from reading or listening. Therefore, it is assumed that there is significant difference in English vocabulary mastery between gamer students and non-gamer students and that the longer time spent to play games the better English vocabulary mastery the students have. However, the results of this study show that the students who like playing computer games and those who do not like playing games have the same level of English vocabulary mastery. Furthermore, it is also revealed that the amount of time spent to play games has positive yet weak correlation to the students' English vocabulary mastery.

For EFL teachers, some suggestions that can be considered are: (1) the English teachers should enhance the students' English vocabulary mastery both incidentally and intentionally with the appropriate method because the students have their own learning models, and (2) employing the appropriate computer games in the classroom could be beneficial to engage the students in learning process.

For further researchers, the limitations of the present study open a wide research area. Other factors influencing the vocabulary acquisition of both young and adult learners could be explored profoundly. Since there are many kinds of computer games, the use of a certain game in the classroom to improve the students' English vocabulary mastery still could be studied. Those who have advanced technology skills even could develop a sophisticated educational game which engages the students to learn more vocabularies incidentally through the games.

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