The Correlation between EFL Students' Vocabulary Knowledge and Reading Comprehension: A Case Study at the English Education Department of Universitas Kristen Indonesia

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Abstract
This study aimed at investigating the correlation between students 'vocabulary mastery and reading comprehension performance. The population of the study was the whole students at the English Education Department of Universitas Kristen Indonesia. The sample was taken using the cluster sampling technique, i.e., by taking 52 students of Batch 2015, 2016, and Batch 2017 as the participants. Data were collected in May 2019 by administering vocabulary mastery and reading comprehension tests. The instrument's reliability was tested employing Cronbach Alpha with the results of 0.733 for the vocabulary test and 0.730 for the reading comprehension test, indicating both instruments are reliable. Using Spearman's non-parametric test, the correlation coefficient between the two variables at the sig. (2 tailed) and 0.05 level of significance was 0.014. This indicates there is a positive moderate correlation between vocabulary knowledge and reading comprehension.

Keywords: EFL, reading comprehension, vocabulary

INTRODUCTION

Reading is a crucial basic life skill. By reading we can develop mind, knowledge, and perspective. Pardede (2017) accentuated that reading is very crucial for every individual's personal, mental, and intellectual and career advancement. For EFL learners, reading is also the main tool for enhancing their mastery of the other parts of English. Since English is not used in their society's daily communication, reading is the main language inputs providers. The repeated exposure to the same English patterns and components through reading can effectively promote students' writing, spelling, vocabulary, and grammatical understanding improvement. What is more, reading also promotes thinking capability (Harrison, 2004). In short, reading is an effective tool for EFL students' academic success.

Since reading is a skill that involves making sense and getting meaning from the printed word (Nunan, 2006), it is obvious that reading cannot be conducted without vocabulary. To comprehend texts easily, the possession of a large number of words is

required. Fauziati (2002) stated that vocabulary is crucial to language and essentially significant to language learners in general. Without adequate vocabulary, one cannot communicate effectively in both oral and written language. According to Kiray (in Muhlise & Akyay, 2009), foreign language learners' lack of vocabulary is one of the main reasons why they do not like reading for pleasure in a foreign language. Besides, Stahl (2003: 246) contended that the difficulty of the words is the most important determining factor of text difficulty. Therefore, vocabulary size is a strong predictor of reading comprehension. In other words, someone with a large number of vocabulary will find reading comprehension easier than those with a limited number of vocabulary.

Various studies investigating the correlation between vocabulary mastery and reading comprehension performance had been conducted. Ratnawati (2006) found that vocabulary mastery and reading comprehension had a moderate positive correlation among the seventh-grade students of SMP N 13 Semarang. Lusianah's (2017) study revealed that vocabulary mastery and reading comprehension had a low positive correlation among junior high and senior high school students. Furqon (2013) found that students' vocabulary mastery and their reading comprehension had a moderate positive correlation among second-grade students. The results of these studies revealed different conclusions. They also involved elementary to senior high school students. Similar studies involving EFL students at tertiary education are very rare. To fill in the gap, the present study was conducted to investigate the correlation between vocabulary mastery and reading comprehension performance of the students at the English Education Department of Universitas Kristen Indonesia (EED UKI), Jakarta

LITERATURE REVIEW
Reading Comprehension
Reading is about understanding written texts. Nunan (1999) states, reading is a skill that involves making sense and getting meaning from the printed words. It is a complex activity that includes a reader and a writer's perception and thought. Reading comprises two interrelated processes: word recognition, or the process of considering how written symbols link to one's spoken language, and comprehension, or the process of making words, sentences and connected text meaningful. In general, readers employ vocabulary, background knowledge, metacognitive information, and reading strategies, reading attitudes, reading comprehension methods usually used in reading classes, versatility, and text form familiarity (Trehearne & Doctorow, 2005; Koda, 2007) to help them understand written text. Reading is not just saying a word, as has been noted reading must always be a process of getting meaning. Reading is an important activity in life that can be updated by the reader's knowledge.

Although numerous studies on reading comprehension have been carried out, due to the complex nature of reading as a cognitive, internal, and invisible activity happening inside the readers' mind (Grabe, 1991, Schwartz, 1984, Wolf, 1993), a conclusive agreement on reading comprehension has not yet reached. Influenced by the two predominant views on reading held some decades ago, i.e., (1) reading is a product (meaning) and (2) the main purpose of reading is to get the message the authors wanted to deliver, early definitions reading comprehension focus on the understanding of the author's message (Pardede, 2019). Both bottom-up and top-down reading models representing earlier ideas of reading confirm that view. The bottom-up model defines reading as a word-recognition response to the stimuli of the printed words, during which the reader pieces together individual units of language to help create an overall

interpretation of the text (Celce-Murcia, 2001). The top-down model views that while reading, one keeps on hypothesizing the meaning of the text by using his existing knowledge and cognitive processing strategies. By so doing, he tries to make sense of the information segments presented in the text he is reading.

The more current approach, however, views reading as an interactive process involving features of the reader, the texts, and tasks. The basis of the interactive model is the idea that from the bottom-up process the reader receives valuable ideas and connects them with the main ideas obtaining from the top-down process. In such a way, "word recognition needs to be fast and efficient; and background knowledge serves as a major contributor to text understanding, as does inferencing and predicting what will come next in the text" (Grabe & Stoller, 2002 p. 8). Following that, Yazdanpanah (2007) defined reading comprehension as the reader's effort to construct the author's intent utilizing all resources available in the text and his previous knowledge. Tarnkesley (2005) stated that reading comprehension is an active thinking process in which a reader simultaneously extracts and constructing meaning through interaction and involvement with written language.

Considering these views of reading, whether reading comprehension is viewed as a word-recognition response to the stimuli of the printed words (bottom-up), or an attempt to hypothesize the meaning of the text by using existing background knowledge and cognitive processing strategies (top-down), or an interactive process involving features of the reader, the texts, and tasks, it is clear that besides background knowledge, thinking (cognition) skills, reading comprehension necessitates vocabulary mastery. As an activity to construct the author's intent, readers do not only look at the meaning of a word by word but decode and combine and interpret the meaning they get from word to word and line to line and connect them with their background knowledge. Thus, reading is an activity involving various phases of thinking process (decoding, interpreting, constructing and understanding) written texts understand what the writer means to communicate. Despite the various elements and processes involved in reading, somehow, his understanding of the words employed by the writer is the first element that a reader employs in reading. In other words, vocabulary is inseparable from reading.

Vocabulary

Vocabulary, which is defined by Hornby (2000) as all the words in a particular language or "A list or collection of words and phrases usually alphabetically arranged and explained or define" (Merriam, 2003), is one of most fundamental components of language. Without vocabulary mastery, nobody can communicate through language. To show the essence of vocabulary in a language, Hammer (2002) emphasized that, "without grammar very little can be conveyed, without vocabulary, nothing can be conveyed." In line with this, Napa (2005) stated that there is no language without using words.

Being a fundamental language component, vocabulary also plays an essential role in language learning. Richard and Rodgers (2001) posited that since vocabulary is the basis of how well learners speak, write, listen and read, it is one of the important elements of language proficiency. Without vocabulary mastery, students may be discouraged to use the language they are learning in daily activities. Therefore, vocabulary acquisition is very central in developing students' ability to communicate using a language, including reading comprehension. The high importance of vocabulary in language learning is emphasized by Renadya (2002) who stated that vocabulary plays an important role and grants much of the basis for how well learners listen, speak, read, and write.

The high importance of vocabulary in language learning is also seen by the great number of ideas and researches published concerning vocabulary. Various studies (Milton, 2009; Ozturk, 2016; Richards et al. 2008) revealed that ESL/EFL students' reading vocabulary growth was lower than their reading vocabulary growth in their first language. ESL/EFL students typically learn about 200-500 words a year but gain 1,000-2,000 new words in their first language. Due to the many factors to consider in vocabulary teaching, Dakhi and Fitria (2019) suggested that vocabulary teaching has to be simple, related to student's known and unknown knowledge, and highly-frequency based. Pardede (2011) suggested and demonstrated that short stories are very useful to improve EFL students' vocabulary. Limbong (2012) carried out an action research to develop EFL Kindergarten students' vocabulary by using songs. After two cycles, the action research managed to increase the students' mean scores from 33.57 (in the pre-test) to and 80 (post-test of cycle II). Marbun (2017) also carried out an action research by using Team Games Tournament to develop junior high school students' vocabulary. The action research managed to develop the participants' vocabulary in two cycles.

Schmitt (1997) investigated vocabulary learning strategies employed by 600 high school, college and adult EFL learners in Japan. The results revealed that dictionary use, oral and written repetition, word spelling, and contextual guessing were the most frequently used strategies; whereas were the less frequently used were semantic map, the keyword method, and first language cognates. Parvareshbar (2016) investigated the effect of using short stories on enhancing vocabulary learning of Iranian intermediate EFL learners. Employing a quasi-experimental pretest-posttest design with 50 students divided into two groups, the results showed that the experimental group that was taught employing short stories outperformed the control group with a significant difference. Nazara (2019) employed a mixed-methods study to investigate primary school students' perception of using short stories to develop vocabulary. The results showed the students' perception towards the use of short story was positive.

Vocabulary and Reading Relationship
Vocabulary mastery naturally helps students to use and learn the four language skills (listening, speaking, reading and writing). Thus, the relationship between vocabulary mastery and language skills performance is clear. However, research has shown that vocabulary's contribution varies to different language skills. This means that the correlation degree of vocabulary differs from listening, speaking, reading and writing. Roche and Harrington (2013) found that vocabulary acquisition is a prerequisite for most other language abilities. Staehr (2008) found that vocabulary contributes more to reading and writing abilities than to speaking and listening skills. He reported that receptive vocabulary size was strongly correlated with reading and writing abilities but moderately associated with speaking and listening performances.

The importance of having an adequate vocabulary for reading is supported by various studies. Huang (1997) reported that a lack of sufficient vocabulary knowledge is one of the major barriers causing Taiwanese college students' difficulties to comprehend English textbooks. Gunning (2005) also found that vocabulary knowledge is one of the major barriers to reading comprehension. According to Nation (2001), one's inability to recognize words and the presence of a high density of unfamiliar words in a text can spoil comprehension. Sternberg (1987) accentuated that 'one's level of vocabulary is highly predictive, if not deterministic, of one's level of reading comprehension' (p. 90).

However, the degree of the relationship between vocabulary and reading comprehension in EFL contexts vary. Current EFL research findings on the correlation between vocabulary and reading comprehension in particular also vary. Ratnawati's (2006) study on the seventh-grade students' vocabulary mastery at SMPN 13 Semarang had a moderate positive correlation (rxy= 0.417) with their reading comprehension. Lusianah (2017) found that the vocabulary mastery and reading comprehension among the junior and senior high school students of Patra Mandiri Palembang had a low positive correlation (rxy= 0.386). Furqon's (2013) study revealed that students' vocabulary mastery and their reading comprehension had a high positive correlation (rxy= 0.7205) among second-grade students. The study of Valentia (2017) involving the students of Senior High School Islamiyah, Pontianak revealed there is a positive moderate correlation between vocabulary and reading with rxy= 0.563. Mayasari (2012) reported there is a positive very high correlation (rxy= 0.99) between vocabulary and reading among the eighth-year students of SMPN 16 Palembang.

In light of the discussion above and to enrich information to the literature, the present researcher was interested to investigate the correlation between university students' vocabulary mastery and reading comprehension. In particular, the proposed study was conducted to address the following question: "Does students' vocabulary mastery correlate with their reading comprehension at EED UKI?"

Following the research question above, the following null and alternative research hypotheses are formulated:

H_0: There is no positive correlation between vocabulary mastery and reading comprehension among the students of EED UKI.

Ha: There is a positive correlation between vocabulary mastery and reading comprehension among the students of EED UKI.

METHOD

This study employed a correlational design to investigate the correlation between vocabulary mastery as the predictor and Y reading comprehension as the criterion. The population of the research was the whole students of the English Education Department of Universitas Kristen Indonesia, Jakarta. The sample was taken using the cluster sampling technique by involving 52 students from Batch 2015, 2016, and 2017. Data was taken in July 2019 by asking the participants to take vocabulary and reading tests.

The first instrument, i.e. the vocabulary test, consists of 25 items designed in multiple-choice form. The test, taken from Davy and Davy (1984) measures the participants' knowledge of word meaning, synonym, and antonym. The second instrument, the reading comprehension test, consists of 25 items in multiple-choice form. The items in the reading comprehension test are questions for finding the main idea, finding supporting detail, skimming, making inference, and comprehending word meaning in context. The reading test was also taken from Davy and Davy (1984). Both instruments were tested for reliability employing Cronbach Alpha. The results were 0.733 for the vocabulary test and 0.730 for the reading comprehension test, indicating both instruments are reliable.

After administering the two tests, the data obtained were tested for validity using SPSS 21.0. The results indicated that 4 out of 25 items of the vocabulary tests were not valid, and 5 out of the 25 items of the reading comprehension test were invalid. Based on the results, the whole 20 items of the reading comprehension test were used in the

analysis. To balance the item number of the reading test. 1 item of the vocabulary test was dropped to get 20 valid items.

The valid data was tested using Spearman's non-parametric test to evaluate the proposed hypotheses. The correlation level of the two variables was then determined by using the level criteria listen in Table 1.

Table 1
The level criteria of coefficient correlation

Correlation coefficient (r)	Relationship
0.00 - 0.25	Low
0.26 - 0.50	Moderate
0.51 - 0.75	High
0.76 - 0.99	very high
1.00	Perfect

RESULTS
Data Description
The scores of the students' vocabulary test were recapitulated in Table 2. As shown in the table, more than half (57%) of the students got excellent and good categories, 21% got fair category, and the rest (21%) got poor and very poor categories. The mean score of the student's vocabulary was 66.25.

Table 2
Scores Distribution of Students' Vocabulary Mastery

Scores	Grade	Category	Number of Students	Percent	Mean
86 – 100	A	Excellent	9	17%	66,25
66 – 85	B	Good	21	40%	
46 – 65	C	Fair	11	21%	
26 – 45	D	Poor	7	13%	
Under 25	E	Very poor	4	8%	
Total			52	100%	

Table 3 presents the scores obtained by the students in the reading comprehension test. As shown by the table, 15% of the students got excellent and good categories, 17% got fair category, and the rests (67%) got poor and very poor categories. The mean score of the student's reading comprehension test was 40.19.

Table 3
Scores Distribution of Student Reading Comprehension

Scores	Grade	Category	Number of Students	Percent	Mean
86 – 100	A	Excellent	1	2%	40,19
66 – 85	B	Good	7	13%	
46 – 65	C	Fair	9	17%	
26 – 45	D	Poor	15	29%	
Under 25	E	Very poor	20	38%	
Total			52	100%	

Hypothesis Testing

To test the hypothesis, the scores of the vocabulary mastery and reading comprehension tests were analyzed by using Spearman correlation. Table 4 displays the results.

Table 4
The Result of Spearman's Rho Correlation

Correlations

			vocabulary mastery	reading comprehension
Spearman's rho	vocabulary mastery	Correlation Coefficient	1.000	.339*
		Sig. (2-tailed)	.	.014
		N	52	52
	reading comprehension	Correlation Coefficient	.339*	1.000
		Sig. (2-tailed)	.014	.
		N	52	52

*. Correlation is significant at the 0.05 level (2-tailed).

As shown in Table 4, the result correlation coefficient of Spearman's that rxy is 0.339. It means that the level of correlation between students' vocabulary mastery and reading comprehension is 0.339, which, by using the criteria listed in Table 1, belongs to a moderate level. The correlation coefficient in the results of Table 4 is positive. So the relationship between two variables is linear. Based on these results, it could be interpreted that if the students' vocabulary mastery is improved, their reading comprehension will improve.

Spearman's Rho Correlation test also showed that the value of the sig. (2 tailed) is 0.014, which is lower than the level of significance (0.05). This means that the null hypothesis (H_0) is rejected and H_a was accepted. Therefore, it can be concluded that there is a positive moderate correlation between students' vocabulary mastery and reading comprehension.

DISCUSSION

Referring to the results of the hypotheses test, i.e. the correlation coefficient of spearman's (rxy) is 0.339, which revealed there was a positive relationship between vocabulary mastery and reading comprehension of students English Education Department of Universitas Kristen Indonesia, and the criteria of the correlation between 0.26 to 0.50 are considered moderate, it can be said that the correlation level of two variables was moderate. Furthermore, since the obtained sig. (2-tailed) 0.014 is lower than 0.05, H0 is rejected and Ha is accepted.

This finding indicated that, besides vocabulary mastery, some other factors also affect the participants' reading comprehension ability. This confirmed Koda (2007) who stated that besides vocabulary knowledge, reading comprehension is affected by other variables, including prior knowledge, metacognitive information, and reading strategies. Trehearne and Doctorow (2005) added other variables, i.e. reading attitudes, reading comprehension methods usually used in reading classes, versatility, and text form familiarity. Overall, these other variables affect 66.1% of the participants' reading comprehension performance.

The finding revealing that vocabulary mastery and reading comprehension positively correlate is consistent with numerous studies (e.g. Huang, 1997; Nation, 2001;

Mayasari, 2012; Furqon, 2013; Ratnawati, 2006; Lusianah, 2017). In terms of correlation level, the finding confirmed Ratnawati's (2006) and Valentia's (2017) study results reporting the contribution level of vocabulary mastery to reading comprehension was categorized as moderate correlation, but disapproved Lusianah (2017) who found vocabulary mastery and reading comprehension was low, Mayasari (2012) who found vocabulary mastery and reading comprehension had a very high positive correlation, and Furqon (2013) who reported that students' vocabulary mastery and their reading comprehension had a high positive correlation.

Differences in the correlational level can probably occur because the studies involved participants from different educational levels. Furqon (2013) got his data from second grade of junior high school; Lusianah (2017) involved junior high school and senior high school as participants; Mayasari (2012) got her data from junior high school. This finding discrepancy seems to indicate that the higher the English learning level, the higher the vocabulary knowledge level is demanded in reading comprehension. However, this is still an assumption. It needs to be investigated by further studies.

CONCLUSIONS

Based on the findings and discussion above, two conclusions were drawn. First, the vocabulary knowledge of the students of EED UKI positively and moderately correlated with their reading comprehension skills. Thus, to improve their reading comprehension performance, vocabulary enrichment is necessary. Second, since other variables like prior knowledge, metacognitive information, reading strategies, reading attitudes, reading comprehension methods usually used in reading classes, versatility, and text form familiarity affected 66.1% of the participants' reading comprehension performance, they also need to consider.

This study has some limitations. First, it includes only two variables in the general scope, the instruments do not cover both vocabulary and reading comprehension performance comprehensively, and the participants were not selected randomly. Considering these, future studies are recommended to include more specific variables, design more comprehensive instruments, and employ a random sampling technique.

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