# INVESTIGATING THE PREDICTIVE ROLE OF VOCABULARY IN WRITTEN PERFORMANCE 

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ABSTRACT
Existing research recognises the critical role of vocabulary in the acquisition of a second (L2) or foreign language. In the context of L2 writing, it has been established that as vocabulary size increases, so does the ability to write more effective texts. The purpose of this study was to investigate the relationship between vocabulary size and ESL students' written performance. The participants were 69 Malaysian university students whose writing skills were assessed as part of their English course requirement. Vocabulary size was measured using Laufer and Nation (1990) Vocabulary Level Test (VLT). Performance on the VLT was correlated with writing scores as a measure of written performance. Findings indicated that a majority of participants achieved a mastery level of the 2000 -word test but had difficulty in the 3000 -word and 5000 -word level. Participants' vocabulary size was also found to be strongly associated with their written performance.These results elucidate the importance of vocabulary knowledge in L2 writing. The pedagogical implication of the current work calls for the integration of vocabulary in writing classrooms.

Keywords: second language writing, vocabulary acquisition, vocabulary size, receptive vocabulary

## 1. Introduction

The act of writing is considered one of the most difficult language skills to master in a student's academic life. Producing a text in a second language (L2) is even more challenging as L2 writers need to expend considerable time and effort in composing, brainstorming, and exploring ideas in the target language. This process can be a struggle for many L2 students as it requires the complex activation and coordination of cognitive-linguistic skills (Scott, 1999). In this regard, L2 writers need to use a second language writing system and simultaneously perform complex cognitive tasks such as making a decision on points related to a topic, choosing proper vocabulary, organising sentences into a paragraph and determining the writing purpose and audience. Among all these cognitive tasks, knowing the appropriate vocabulary appears to be one of the most critical concerns among ESL students. Indeed, without a sufficient level of vocabulary knowledge, one will not be able to write effective texts. Past studies have confirmed that lack of vocabulary is one of the major drawbacks in written performance. Darus and Subramaniam (2009) in their study of error analysis in English essays found that Malaysian students who had relatively weak vocabulary ended up writing incomprehensible texts. Similarly, Ashrafzadeh and Nimehchisalem (2015) who examined Malaysian students' business reports found that students achieved the lowest scores for the vocabulary component in their writing samples. According to Karakoça and Köse (2017), vocabulary knowledge and writing have a reciprocal relationship in the sense that vocabulary size impacts writing performance and writing improves vocabulary knowledge. As postulated in these studies, vocabulary knowledge is a significant predictor of writing ability. Thus, from this point of view, an inquiry into the vocabulary and writing connection is warranted.

## 2. Literature Review

### 2.1 Writing in a second language

From an academic perspective, L2 writing can be viewed as "a product constructed from the writer's command of grammatical and lexical knowledge, and writing development is considered to be the result of imitating and manipulating models provided by the teacher" Hyland (2003). Although Hyland's perspective on L2 writing seems straightforward, the actual process involved in L2 text construction is actually very complex. Writing in L2 is comparatively more challenging than writing in L1 as writers' linguistic knowledge and writing strategies in the second language are less sophisticated. It cannot be denied that L1 writers' linguistic abilities are more superior to that of L2 writers due to different knowledge bases (Richards, 2003). Furthermore, L1 writers are equipped with the instinctive ability to deal with the grammar of the language. L2 writers on the other hand, need to go through the process of learning to write and learning English simultaneously. Apart from linguistic ability, metacognitive knowledge, particularly the ability to use appropriate writing strategies, is also crucial in developing L2 writing skills. Having meta-cognitive ability in writing means that the writer knows how to select and use particular writing strategies in a given task. It is believed that the combination of linguistic knowledge and writing strategy could be a good predictor of writing performance of L2 writers in the academic setting.

### 2.2 Second Language (L2) Vocabulary Size and Writing Performance

One of the factors that has been said to predict L2 writing performance is language proficiency. In second language acquisition (SLA) studies, the term 'language proficiency' is defined in a number of ways. According to Unsworth (2005), "language proficiency can be used as a global indicator of an L2 learner's abilities in the target language, as well as specific aspects of linguistics competence, such as phonological, syntactic, morphological, lexical and/ or discourse skills" (p.153). The term L2 proficiency has also been used to refer to lexical knowledge and is often regarded as the foundation in acquiring the four skills in English. Nation (2001) argues that sufficient lexical knowledge is important in language learning as it determines the extent of learners' language literacy and helps them to learn the target language. Similarly, many L2 studies have highlighted the role of lexical knowledge as a predictor of academic success (Ashrafzadeh \& Nimehchisalem, 2015; Engber, 1995; Laufer \& Nation, 1995; Lee, 2014; Pennington \& So, 1993).

Given the importance of lexical knowledge in academic success and literacy development, an extensive amount of research has been done on the predictive role of vocabulary in L2 learning. Within the context of L2 writing, a number of studies have postulated that lexical knowledge and writing quality are connected (Engber, 1995; Llach \& Gallego, 2009; Nation 2001). As reported by Engber (1995), the competent retrieval of vocabulary is crucial in timed-essay tasks. In his study, Engber used four lexical richness measures to assess lexical proficiency. These measures were then correlated with six placement essays written by L2 students from mixed backgrounds. The findings suggested that the diversity of lexical choice and the correctness of lexical form have a significant effect on the readers. In other words, the readers are more prone to awarding higher marks to students who have good lexical choices. In another study, Laufer and Nation (1995) used Nation's Vocabulary Profile to produce a Lexical Proficiency Profile (LFP) of student compositions. The aim of the study was to determine to what extent the profile would correlate with students' scores on the PVLT. It was revealed that students who had larger vocabulary size used fewer high frequency words than students with smaller vocabulary size.

In a different study, Beglar (1999) conducted a study by correlating vocabulary scores and scores of the TOEFL Structure and Written Expression subsection. His study revealed that the Written Expression subsection correlated highly with scores in the Vocabulary Level Test (VLT) and University Word Level (UWL). In the same vein, Linnarud (1986) who analysed writing samples produced by first and second language users of Swedish discovered that the compositions were correlated in terms of the number of words for each composition, number of words per sentence, lexical individuality and lexical sophistication. From the analysis, Linnarud concluded that vocabulary size was the single largest factor in writing quality. Several studies have also found that a lower level of L2 proficiency is related to more difficulty in L2 writing, while a higher level of L2 proficiency is related to higher L2 writing ability (Cumming, 1989; Schoonen et al, 2003; Zainuddin and Moore, 2003). Overall, the studies reviewed have shown that students' vocabulary size can be a good predictor of writing performance.

Given the importance of vocabulary knowledge in L2 writing, it is imperative for writing instructors to integrate it in the writing classrooms. In this regard, writing instructors should promote intentional vocabulary learning through explicit instruction in specific words and word-learning strategies. According to Hulstijn (2001), "it is the quality and frequency of the information processing (i.e., elaborations on aspects of word form and meaning, plus rehearsal) that determine retention of new information" (p.275). Lee (2003) asserts that L2 learners should be shown how to use vocabulary in production tasks and be made aware of how lexical variation can impact the quality of their essays. Lee adds that explicit vocabulary instruction helps the conversion of recognition vocabulary into productive vocabulary in writing. Laufer (1994) proposes that basic vocabulary be taught in an explicit manner in the early stages as skilled intervention could help students with long term vocabulary development.

Although many studies have shown the value of vocabulary in writing, it has not been given justified pedagogical attention (Segler, 2001). Hassan and Fauzee (2002) discovered that in terms of frequency of use, vocabulary activities only ranked fourth out of the nine language activities in the classroom. Apart from the lack of pedagogical emphasis in vocabulary, the role of vocabulary in L2 learning has also received scant attention in the research literature particularly in the Malaysian context. Hence, an investigation on this field is warranted.

## Research Questions

This study addressed the following research questions:
What is the students' writing ability as measured by a timed-essay task?
What are the students' receptive vocabulary size?
What is the relationship between students' vocabulary size and text length?
What is the relationship between students' vocabulary size and writing performance?

## 3. Method

### 3.1 Design

The aim of the present study was to investigate the vocabulary size of ESL university students in Malaysia, their writing ability and the relationship between vocabulary and writing. The study was primarily quantitative in nature. Two sessions were set aside for data collection: the vocabulary test was the first to be administered followed by the writing task.

### 3.2 Participants

The data for the current work were collected from 69 Malaysian students enrolled in a public university in Sabah, Malaysia. $72 \%$ of participants were female while $28 \%$ were male. In terms of ethnicity, a majority of the study sample comprised of Malay (79\%), while Kadazan, Bajau and Bugis formed the minority group. Before enrolling in the university, the participants would
have learnt English for fourteen years throughout their primary and secondary education. The target population of this study is undergraduates learning English as a Second Language.

### 3.3 Data collection and instrument

The data for this study were collected using a series of tests, which included a timed essay in English and vocabulary tests. This section outlines the description of the said instruments and the rationale for choosing them.

### 3.3.1 Timed essay in L2

Participants were given 60 minutes each to compose an essay in English. There was no word limit for this task and participants were free to write as much as they wanted. The selection of the topic was decided after careful consideration by the researcher. The following prompt was used in the data collection:

Some people think they can learn better by themselves than with a teacher. Others think that it is always better to have a teacher. Which do you prefer? Use specific reasons to develop your essay.

### 3.3.2 Vocabulary Level Test (VLT)

Vocabulary is an essential component in any model of language competence and vocabulary size is believed to be a good indicator of a learner's linguistic knowledge. Therefore, in this study, four vocabulary size tests developed by Nation (1999) were used to measure participants' vocabulary proficiency. The 1000 -level test which was slightly adapted consists of 39 questions. Meanwhile, the remaining $2000-\mathrm{level}, 3000-\mathrm{level}$ and 5000 -level tests, each consisted of 10 questions. Each question tested 3 different target words presented in the left column. In the right column were five different definitions for the target words. Of the 5,2 were distracters. Participants had to choose the best meaning for each target word in the items by matching them to the correct definitions. The test was printed on a 3-page double-sided test booklet. Participants were instructed to record all their answers on the booklet for easy scoring. The maximum possible score for each section was 30 and participants were given 40 minutes to complete the test.

### 3.3.4 Writing Assessment

## i. Analytic rating scale

Participants' essay responses were rated analytically, using the ESL Composition Profile designed by Jacobs, Zinkgraf, Wormuth, Hartfiel, and Hughey (1981). This writing profile has become very popular since its publication in 1981 (Farvardin and Zare-ee, 2009 as cited in Alsamadani, 2010). The Profile consists of five component scales, each focusing on an important aspect of composition and weighted according to its importance. The scales in the Profile are Content, Language, Vocabulary, Language and Mechanics. Content, organisation and language account for $25 \%$, vocabulary for $15 \%$ and mechanics for $10 \%$. The total weight for each component is further broken down into numerical ranges that differentiate four levels of mastery: excellent to very good, good to average, fair to poor and very poor. The maximum possible scores that participants may achieve is 100 and the minimum is 34 (see Appendix A).

## ii. Analysis of Text Length

All written samples were transcribed into a computer database according to Systematic Analysis of Language Transcript conventions or SALT (Miller \& Chapman, 2001). SALT was originally designed as an oral language analysis tool but it can also be used to analyse written language.

One of the writing features the researcher was interested in was the students' text length. Text length was the number of words produced in writing by the participants. This variable has been widely used in various studies to measure productivity in both spoken and written language (Mackie \& Dockrell, 2004; Nelson, Bahr, \& Van Meter, 2004). The value was calculated automatically by SALT.

### 3.3.5 Data Analysis Method

In order to analyse the data, SPSS (Version 23) was used. Descriptive analysis (frequency distribution) was carried out to describe participants' reading habits, vocabulary levels and writing performance. Meanwhile bivariate correlations using Pearson product moment coefficient were carried out to investigate the relationship between the variables in this study.

## 4. Results

## Research Question 1 (RQ1): <br> What is the students' writing ability as measured by a timed-essay task?

To address RQ1, participants' essays were rated analytically, using the ESL Composition Profile designed by Jacobs et al. (1981). The Profile consists of five component scales, each focusing on an important aspect of composition and weighted according to its importance. The scales in the Profile are Content, Language, Vocabulary, Language and Mechanics. Content accounts for $30 \%$, organisation, language and vocabulary for $20 \%$ each, and mechanics for $10 \%$.


Figure 1: Students' performance in terms of text content according to 4 rating levels
Figure 1 presents students' written performance in terms of content. As can be seen, $49 \%$ of the students are at Level 3 while $42 \%$ are at Level 2. At Level 3, students may have some knowledge of the subject matter but tend to portray limited development of thesis. Although they have relevant points for their essays, they lack details. At Level 2, students would have limited knowledge of the subject matter resulting in inadequate development of the topic.


Figure 2: Students' performance in terms of text organisation according to 4 rating levels

Figure 2 presents students' written performance in terms of text organisation. As presented, $57 \%$ of the students achieved Level 3 whereas $38 \%$ achieved Level 2. Very few students achieved Level 1 and Level 4. At Level 3, essays are rated as being in the good to average category. Students at Level 3 can write somewhat choppy sentences, have loosely organised ideas, limited supporting details, and display incomplete sequencing in writing. At Level 2, essays are rated as being in the fair to good category. Texts at this level would exhibit disconnected ideas and lack logical sequencing and development.


Figure 3: Students' performance in terms of vocabulary according to 4 rating levels
Figure 3 presents students' written performance in terms of vocabulary. As can be seen, a majority of the students (52\%) are in Level 2 while $42 \%$ of students are in Level 3. Students at Level 3 have some knowledge of subject and may portray limited development of thesis. Despite having relevant points for their essays, they lack details. With regard to Level 3, students would have limited range of vocabulary, commit frequent errors of word/idiom form and at times, meaning can be obscured.


Figure 4: Students' performance in terms of language according to $\mathbf{3}$ rating levels
Figure 4 presents students' written performance in terms of language. As presented, a majority of the students are at Level 2. Students at this level have some knowledge of subject, portray limited development of thesis, have relevant points for essays but lack details. Very few students belong in Level 1 and Level 3. No students were reported to be at Level 4 (excellent category).


Figure 5: Students' performance in terms of mechanics according to 4 rating levels
Figure 5 presents students' written performance in terms of mechanics. As can be seen, a majority of the students are at Level 2: Fair to Poor. With regard to their writing ability, students at this level may have some knowledge of subject, can portray limited development of thesis, have relevant points for essays but lack details.

## Research Question 2 (RQ2): <br> What is the English vocabulary knowledge of L2 Malaysian students?



Figure 2: Pattern of mastery level of the Vocabulary Level Tests
Figure 2 presents the pattern of mastery of the receptive vocabulary level test among participants in the study. As presented, a majority of participants (55\%) mastered the 1000word test whereas $56 \%$ of participants reached the criteria of mastery for the 2,000 -word test. Very few participants $(24 \%)$ achieved the level of mastery for the 3,000 -word test. In a similar trend, only $30 \%$ of the participants achieved the mastery level for the 5,000 -word test. Overall, the data suggest that participants did not do well in the VLT.

Further analysis of students' receptive vocabulary size is shown in Table 2. As can be seen, scores for 1,000 -word-level test, scores ranged from 18 to 39 with a mean of 31 and a standard deviation of 5.3 . For the 2,000 -level test, scores ranged from 7 to 30 , with a mean of 23 and a standard deviation of 5.9 . For the 3,000-level test, scores ranged from 2 to 30 , with a mean of 17 and a standard deviation of 7.4 . For the 5,000 -word level test, scores ranged from 5 to 28 , with a mean of 17 and a standard deviation of 6.9. These distributions suggest that the 3,000-word-level and the 5,000-word level were difficult for the students given the relatively low mean scores.

Table 1. Scores in Vocabulary Level Tests

| Table 1. Scores in Vocabulary Level Tests |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | Minimum | Maximum | Maximum <br> possible score | Mean | SD |
| 1000 Level | 18.00 | 39.00 | 40 | 31 | 5.3 |
| 2000 Level | 7.00 | 30.00 | 30 | 23 | 5.9 |
| 3000 Level | 2.00 | 30.00 | 30 | 17 | 7.4 |
| 5000 Level | 5.00 | 28.00 | 30 | 18 | 6.9 |
| 69 |  |  |  |  |  |

Research Question 3 (RQ2):
What is the relationship between vocabulary size and text length?
Table 2. Correlation between vocabulary size and text length


Bivariate correlations between the vocabulary test and text length are presented in Table 2. As can be seen, there was a significant relationship between text length and the 1000 -word level test ( $\mathrm{r}=.2$ 29**) $^{*}$. In a similar trend, positive and significant correlations were found between text length and the 2000 level $\left(\mathrm{r}=.615^{* *}\right)$ and the 3000 level $\left(\mathrm{r}=.558^{* *}\right)$. In a consistent manner, there was also a significant positive correlation between text length and the 5000 level ( $\mathrm{r}=$ $.608^{* *}$ ). The overall findings indicate positive relationships between vocabulary size and text length. These results suggest that students' vocabulary size can be a significant predictor to students' ability to write longer texts.

## Research Question 4 (RQ 4):

What is the relationship between students' vocabulary size and writing performance?
Bivariate correlations between the vocabulary test and writing scores are presented in Table 3. As can be seen, there were significant correlations between scores for content and all the word level tests. However, the highest degree of correlation was found between content and 5000word level $\left(\mathrm{r}=.654^{* *}\right)$. With regard to organisation scores, positive correlations were found for all the word level tests with the highest value recorded for the 5000 -word level test ( $\mathrm{r}=$ $.656^{* *}$ ). Similarly, there were also significant positive correlations between the word level tests and vocabulary score, with the highest value for the 3000-word level test ( $\mathrm{r}=639^{*}$ ). In terms of linguistic proficiency, positive correlations were found between all word level tests and language scores with the highest being the 5000 -word level test $\left(\mathrm{r}=.608^{*}\right)$. In a consistent manner, positive correlations were also reported between the word level tests and scores in mechanics. Finally, positive correlations were found between students' overall essay scores and all the word-level tests in this study. The overall significant and positive relationships between students' writing performance and vocabulary knowledge suggest that as vocabulary size increases so does students' writing performance.

Table 3. Correlation between vocabulary scores and essay scores

|  | 1000 level | 2000 level | 3000 level | 5000 level |
| :---: | :---: | :---: | :---: | :---: |
| Content score | $.308^{*}$ | $.610^{* *}$ | $.595^{* *}$ | $.654^{* *}$ |
| Organisation score | $.303^{*}$ | $.605^{* *}$ | $.617^{*}$ | $.656^{*}$ |
| Vocabulary score | $.294^{*}$ | $.585^{* *}$ | $.639^{* *}$ | $.594^{* *}$ |
| Language score | $.316^{* *}$ | $.469 * *$ | $.604^{* *}$ | $.608^{* *}$ |
| Mechanics score | .099 | $.486^{* *}$ | $.487^{* *}$ | $.464^{* *}$ |
| Total Essay Score | $.312^{* *}$ | $.647^{* *}$ | $.648^{* *}$ | $.674^{* *}$ |
| $\mathrm{~N}=69$ |  |  | ${ }^{*} p<.05,{ }^{* *} p<.01$ |  |

## Limitations

Although the current work is based on a small sample of participants, the findings substantiate the important role of vocabulary knowledge in second language writing performance
particularly in Malaysian tertiary classrooms. Some issues that were not addressed in this study were students' level of productive vocabulary knowledge and its association with writing performance. Future studies should consider investigating these factors to provide more insights into the complex nature of second language writing predictors.

## 5. Discussion

The present work was conducted to determine students' writing ability, vocabulary size and the relationship between second language (L2) vocabulary size and ESL students' written performance. Based on the analysis on students' performance in the VLT and writing task, several important findings can be drawn. Firstly, it was discovered that students at the tertiary level had limited vocabulary proficiency. Among all the vocabulary measures tested in the study, the 2000 -word level was the least difficult for the students whereas the 3000 -word level and 5000 -word level were the most difficult for the students. This indicates a poor command of L2 proficiency among Malaysian undergraduates. This vocabulary discrepancy poses a worrying concern as a threshold level of vocabulary is needed for successful writing. This finding echo that of Harji, Balakrishnan, Bhar and Letchumanan (2015) who discovered that undergraduates are not equipped with sufficient vocabulary proficiency for university studies. In order to achieve success in language learning, a second language learner must at least acquire a lexical base of 3000 -word level (Coady \& Huckin, 2003 cited in Harji, Balakrishnan, Bhar \& Letchumanan, 2015.). University students on the other hand must acquire at least a lexical base of 10000-11000-word level to understand university text (Hulstijin, Hollander \& Greidanus, 1996). Findings from past literature and the current study point out that students have not acquired the required vocabulary knowledge for successful language learning. In a similar vein, past studies have also argued that vocabulary knowledge is a requirement for academic success especially where second language is concerned (Hsueh-Chao \& Nation, 2000; Morris \& Cobb, 2004; Waring \& Nation, 2004).

Another important finding relates to participants' writing ability. Data from the current work suggests that students were weak in language and vocabulary. A majority of them could only achieve Level 2 in both components. At this level, students have major problems in simple and complex constructions, and have the tendency to commit frequent grammar errors which include errors of negation, tenses, pronoun, agreement, and run-ons. In terms of vocabulary, students tend to make frequent errors of idiom and word choice which resulted in confused or obscured meaning. All these drawbacks will hinder students from writing effective texts and this may affect their performance in English courses. In view of this, writing instructors should put an emphasis on the use of correct language in writing by getting students to learn and apply effective pre- and post-writing skills such as editing and revising.

The third key finding of the present study affirms that there is a relationship between vocabulary size and writing performance. This finding is consistent with previous literature (Ashrafzadeh \& Nimehchisalem, 2015; Lee, 2014; Pennington \& So, 1993) which links vocabulary size to writing performance. Indeed, this further emphasizes the significant role of vocabulary as one of the strongest predictors of writing performance.

## 6. Implications and Conclusion

The findings of the current work complement those of earlier studies done on vocabulary and writing connection. Taken together, insights from this study offer some practical implications for the second language writing classroom. Given the lack of vocabulary proficiency found among undergraduates in this study, it is suggested that L2 instructors should start seeing vocabulary as an integral part of English teaching. Past studies have argued that the teaching of
vocabulary has often been overlooked in the English classrooms. Segler (2001) argued that vocabulary has not been given the attention it deserves in the classroom while Hassan and Fauzee (2002) discovered that in terms of frequency of use, vocabulary activities only ranked fourth out of the nine language activities in the classroom. In light of this, teachers should play an active role in teaching vocabulary regularly and employing a range of effective vocabulary teaching strategies in the classroom. Hulstijn (2001) postulated that the key to retention of new words and information is the quality and frequency of information processing. In the context of an ESL classroom, this translates to explanations on features of word form, meaning and regular practice. In this perspective, it is crucial for teachers to apply explicit vocabulary learning approach by explaining new words to students and getting them to practice using the words in context. It is believed that explicit vocabulary teaching yields faster vocabulary gains and a higher level of retention than learning vocabulary through reading (Schmit, 2008). For this reason, Nation (2001) proposed a deliberate approach to teaching vocabulary by using word cards to accelerate students' vocabulary development. Secondly, it is suggested that writing teachers place an important emphasis on vocabulary at the initial stages of the writing lesson so that students are aware of the connection between vocabulary and writing. At the earlier stages, it is suggested that ESL students be taught high frequency words through explicit vocabulary lessons to ensure that they would be able to use them in writing. Teachers can integrate vocabulary in writing lessons by modelling the way to use newly learned vocabulary in writing tasks. Students should be shown how to use new vocabulary in production tasks and be made aware of how vocabulary can impact the quality of their essays. This scaffolding technique coupled with regular, explicit vocabulary teaching approach could potentially develop and enhance L2 students' vocabulary proficiency in the long term.

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## APPENDIX A



