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# THE USE OF ACADEMIC VOCABULARY ACROSS PROFICIENCY LEVELS: A STUDY OF EFL STUDENTS' LEXICAL PERFORMANCE IN UNIVERSITY WRITING

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#### **Abstract**

Given the role of academic vocabulary as an important part of university life, investigation of this low-frequency word used by EFL students in their university writing is getting crucial. This study aims to investigate EFL students" performance in recognizing and using academic vocabulary across three different proficiency levels of English, i.e., elementary, intermediate and advanced. A quantitative approach was employed with a cross-sectional design to examine the difference and the correlation between the two variables. By involving 150 subjects from a private university in Jakarta, some interesting results were uncovered in this study. First, there was a significant difference in the overall calculation of students' academic vocabulary across proficiency levels, even though such a difference does not appear between intermediate and advanced level. Second, the overall calculation shows that there was a significant correlation between students' academic vocabulary and proficiency levels with Sig. 0.249, but surprisingly, a more detail calculation did not present any correlation at all between the variables. These results confirm that the gap among proficiency levels was not big, as the majority of the students were at the intermediate level of their English competence. Even though the students could perform academic vocabulary in university writing; however, almost all of them were not aware of the existence of the words, especially because the words belong to the low-frequency band.

**Keywords:** academic vocabulary, proficiency levels, lexical performance

#### Introduction

The term "academic vocabulary' has been recognized in both English for Academic Purposes (EAP) course and English for Specific Purposes (ESP) course. Interestingly, since the 1980s the term "academic vocabulary' has been recognized under several different jargons such as sub-technical vocabulary (Anderson; Yang), semi-technical vocabulary (Farrell) and specialized non-technical lexis (Cohen, Glasman, Rosenbaum-Cohen, Ferrara, & Fine as cited in Coxhead, 2000). It seems that the word "academic' attached to the word "vocabulary' has brought this type of word into a word category with a different register. Interestingly, Coxhead's (2000) AWL seems to have the biggest part of the words which involves extended meaning in specialized vocabulary items, such as nuclear which is commonly used in astronomy, biology, medicine, sociology, psychoanalysis and linguistic (Paquot, 2010).

There are two identifications commonly used by scholars to classify the notion of academic vocabulary, i.e. (1) domain-specific words and (2) general academic vocabulary (Baumann & Graves, 2010). The domain-specific vocabulary, or sometimes known as

content-specific word includes vocabulary items from several disciplines such as biology, geometry, civics, and geography. For example, the words central tendency, mean, median, mode, range, and standard deviations are terms commonly used in the statistical study and maybe not common in other disciplines. Meanwhile, the general academic vocabulary refers to lexical items that are commonly used in broader areas. With some possible variation in meaning, this type of vocabulary was designed and developed for multi-purpose expressions appeared across the content areas (Hyland & Tse, 2007). For example, the words form and process have often considered as common academic words that supposed to be familiar among language learners (p.6). The academic vocabulary was also identified as lexical items to spotlight several words that are relatively common or uniformly and frequently appear in general academic texts (Coxhead, 2000; Coxhead and Nation, 2001).

By considering the classification, a related question on what makes academic vocabulary being "academic' has later become an issue. There are at least two reasons why this type of vocabulary becomes a crucial component in any programs of comprehensive literacy. First, the connection between academic vocabulary and language comprehension should be well-established (National Institute of Child Health and Human Development, 2000; Stahl & Fairbanks, 1986). There is some empirical evidence showing that students' knowledge of academic vocabulary plays a vital role in their language achievement (Nagy & Townsend, 2012; Townsend, Filippini, Collins, & Biancarosa, 2012). Second, the importance of having academic vocabulary knowledge has also been indirectly sounding by the government in the regulation about the three pillars of higher education (Undang-Undang No. 12 Tahun 2012). The role of government in supporting students' literacy should be evident and actual as literacy in the linguistic dimension mainly involves people's reading and writing competencies.

This study was designed to first, see the difference of students" academic vocabulary across students" proficiency levels and second, correlate the vocabulary items with the proficiency levels. The investigation of academic vocabulary in related to proficiency levels is unique and such a similar study has not been conducted in any literature of vocabulary knowledge, particularly in EFL contexts. the decision to employ a quantitative approach with cross-sectional design across students" proficiency levels brings a different perspective of vocabulary learning. Academic vocabulary itself has played an essential part in setting the target of vocabulary learning, which allows the course and material designers to select appropriate texts and to develop language-learning activities (Coxhead, 2000).

#### Academic vocabulary and multi-literacy texts

Research by Coleman in 1988 reveals that about 80% of the books and multi-literacy texts used in higher education level are available in English, which is a bit contradictive with the method of language teaching and learning commonly performed in classroom settings in Indonesia (Long, 2015, p. 102). For example, to comprehend English textbooks and multi-literacy sources, language learners also require abilities to express concepts by using academic vocabulary. With the traditional "transmission' method, many language learners are still focusing their learning experience on memorization, recalling knowledge, recognition, and some other lower thinking skills, rather than working on the critical thinking skills. Therefore, knowledge of academic vocabulary a critical prerequisite that allows the language learners to argue and to engage in inquiry. All these backgrounds of thinking will direct language teachers and institution stakeholders to a question of how academic vocabulary should be nominated for EFL learners.

It was stated previously that knowledge of academic vocabulary has a crucial role in university life. The statement refers to a situation that academic vocabulary plays a

significant position in students" productive competence, especially in high stakes of writing. Therefore, many programs related to English for Academic Purposes (EAP) and English for Specific Purposes (ESP) have included academic vocabulary as one of the focus of attention (Coxhead, 2012); in particular, academic vocabulary and AWL are meticulously considered when designing the curriculum (Coxhead, 2000, 2011a). The decision to introduce and not to introduce some less frequent words has become an issue in teaching English as a foreign language. However, without massive efforts to bring aspects of language proficiency into attention, the students might encounter several difficulties in their future career.

With the development of contextualized language use, including the availability of corpora (a large collection of texts) and computer-based tool to analyze the occurring discourse, researchers in Applied Linguistics and English for Academic Purposes (EAP) have directed their study to aspects of language use appeared in university or higher education contexts. For example, Biber, Conrad, Reppen, Byrd, Helt define how English in a university context may differ from others, the non-register ones (as cited in Csomay, 2006). Moreover, Hyland (2002) asserts that evaluating academic writing should be carried out on text analysis in related to its specific context, register, and particular academic discourse community, and not merely evaluating text as an indicator of proficiency or lexical quality.

#### Three strands in researching vocabulary

Morris and Cobb (2004) propose three essential strands of vocabulary research across disciplines, and the strands involve several aspects such as psychology, semiotics, applied linguistics, and education. The three strands refer to lexical knowledge, literacy, and metalinguistic awareness, and they were designed by considering the background of language learners, such as mother tongues, ages, nationalities, and academic goals. First, the notion of lexical knowledge is necessary to improve students' performance in the academic field, for both written and spoken skills. Second, literacy accommodates the importance of learning medium to low-frequency words from Greek and Latin origin (Corson, as cited in Morris and Cobb, 2004). Many EFL learners find it challenging to achieve the native speakers' level of speaking and writing with the intended AW because many of them do not have sufficient literacy skills of the lexical base, which them to acquire other related words efficiently. Third, metalinguistic awareness is related to the shift from declarative to procedural knowledge among language learners (Cohen, & Squire, 1980). With this strand, non-native speakers of English often show their knowledge in introducing and explaining grammatical issues, and sometimes it is better than the native speakers. To the extent vocabulary knowledge plays its roles in productive competence, such as in communication, is discussed as follows.

#### The notion of text and context in students' productive competence

As a means of communication, language consists of smaller linguistic units such as sounds, words, and sentences. These units become an important combination to express ideas in verbal or written communication. Text in the communication is also recognized as a linguistic term and it refers to the combination of language units. According to Yule (1983), the text refers to a verbal record of a communicative act that, in communication, it is composed and interpreted in a certain context. When uses a language, people need to consider three important issues, i.e. context, text and language system, and these issues were adopted to design the theory of register (Halliday, 2008).

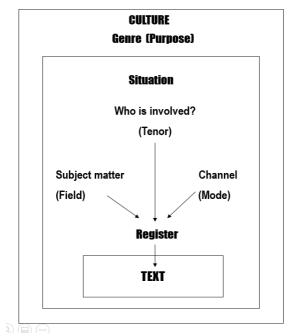


Figure 1. The relationship between context and text

Context refers to features that can influence how communication takes place; a language is constructed based on a context (Butt et al., 1995, p11). Context can control, influence and determine any choices made when composing or interpreting a text. In a certain context, people can use a language to accomplish the following three functions, i.e. ideational function, interpersonal function and textual function (Butt, et.al, 1995, pp.13-14). The ideational function is the function of language to encode our experience and to convey a picture of reality. In other words, the function is used to express or construct ideas and information. Then, the interpersonal function uses language to encode interaction among the language speakers or to demonstrate how defensible or binding our communication, attitude and feeling is. Finally, the textual function uses language to organize people's experiential, logical and interpersonal meanings into cohesion and coherent, linear and whole.

The text was generated from two contexts, i.e. the context of the situation (register) and the context of culture (genre). The process of providing a general interpretation of the text has become the basis for deriving the selected features. The term "written language' does not only about written down language, because when someone writes or speaks in English, he or she is not only using English words but also the grammar of the target language, so that people can understand what the writer writes, or the speaker speaks. Text also involves three dimensions, i.e. field of discourse, the tenor of discourse and mode of discourse. Field of discourse refers to the situation on how a text was composed after considering the topic, subjects and the whole process of the interaction. The tenor of discourse controls the formality of language use and interpersonal relation among language speakers. Finally, the mode of discourse is the channel through which the language is used, either oral or written form.

In evaluating vocabulary words used in academic writing, the combination between text and context does not only allow the language learners to make a different interpretation of the target language but also to examine its linguistic units, such as issues in morphological, semantic, syntax and writing conventions (Coxhead, 2012). In this study, having a vocabulary knowledge, or in particular, academic words does not merely refer to knowledge of the

words" meaning (concept, reference, association), but also knowledge of words" orthography or form (spoken, written, and word parts), and knowledge of the words" use (grammatical function, collocation, and constraints on use) (Nation, 2001).

#### Method

## Research Design

By referring to the purposes of this study, a quantitative approach was employed to display some statistical information from the two variables used in the research. The approach was defined as a systematic investigation of a phenomenon by collecting numerical data and conducting a statistical, mathematical or computational technique. A quantitative approach is known to provide a more vivid result by describing ongoing behavior derived from the original data (Pallant, 2016, p.15). The fundamental issue of the current study is to compare as well as to associate the students' academic words appeared in their academic paper across three different proficiency levels. Therefore, to answer the research questions the quantitative approach with the cross-sectional design was employed to uncover the comparison and correlational between the variables (Ary, Jacobs, Soresen & Razavieh, 2010; Cohen, Manion & Morrison, 2018).

#### Subjects of the study

The subjects of this study were 150 EFL students from a private university in Jakarta, Indonesia. They were selected after attending English for Academic Purposes (EAP) class or any similar type of class such as Composition and Rhetoric dedicated for higher education level. The subjects were categorized into three different levels of English proficiency, i.e. elementary, intermediate and advanced according to the result of their Versant English Test conducted during in October 2016.

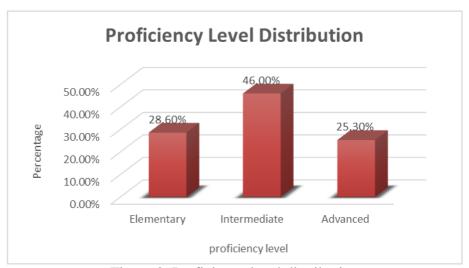


Figure 2. Proficiency level distribution

#### Data Collection and Data Analysis

The students were assigned to write a 1000-word of academic essay with topic "Do violent video games contribute to youth violence in your country" accomplished through a learning process in their academic English class. Then, the students' essays were analyzed with a computer-based program known as Web VocabProfile available online at www.lextutor.ca.

The analysis presented information of students" vocabulary profile, such as a summary of word-frequency, the text with color code indicating the frequency groups and the lists of words in each frequency band based on token, type and word family (Schmitt, 2010). In particular, the frequency band is divided into four categories: (1) the most frequent 1000 words of English (1K), (2) the second most frequent 1000 words of English (2K), (3) The academic word of English (AWL) by Coxhead (2000), and (4) Off-list words, i.e., the rest of words which do not belong to the first three groups.

In terms of data analysis, a statistical calculation was conducted. First, One Way ANOVA was carried out to identify the difference of students" academic words across proficiency levels. Second, to reveal the relationship between students" academic words and their proficiency levels, a correlational calculation was performed.

### **Results and Discussion**

The following statistical description present information about the number of subjects and the means of their performance in using AW across three proficiency levels: elementary, intermediate and advanced.

Table 1. Descriptive statistics of students" academic words across proficiency levels

# **Descriptive** AWL Value

	N	Mean	Std. Dev.	Std.	95% Co	nfidence	Min	Max
				Error	Interval f	for Mean		
					Lower	Upper		
					Bound	Bound		
elementary	43	5.0991	1.31166	.20003	4.6954	5.5027	2.91	8.93
Intermediate	90	6.4529	1.55061	.16345	6.1281	6.7777	3.03	11.40
advanced	17	6.3729	1.48207	.35946	5.6109	7.1350	4.05	10.10
Total	150	6.0557	1.58993	.12982	5.7992	6.3123	2.91	11.40

Table 1 shows that the number of students in each proficiency level was different. As it was presented in figure 2, the majority of the subjects were at an intermediate level, i.e. 90 students or 46% of the total subjects. Therefore, the biggest range of students" academic words was appeared in this level of proficiency, i.e. from 3.03% to 11.40%. Surprisingly, the mean score of intermediate level is almost the same with the advanced level, i.e. about 6%. This result has a strong connection with the statistical calculation on the difference across proficiency levels as presented in the following section.

Table 2. One-way ANOVA of students" academic words across proficiency levels

ANOVA						
AWL Value						
	Sum of	df	Mean Square	F	Sig.	
	Squares					
Between	55.260	2	27.630	12.638	.000	
Groups						
Within Groups	321.395	147	2.186			
Total	376.655	149				

Table 2 shows that there is a significant difference or development in student" academic vocabulary (AWL) across proficiency level with Sig. value 0.000 (<0.05). Details of the difference is presented in the following table.

Table 3. Post hoc test of students" academic words across proficiency levels

Multiple Comparisons

Depende	ent Variable	e: AWL Value					
	(I) Level	(J) Level test	Mean	Std. Error	Sig.	95% Con	fidence
	test		Difference			Inter	val
			(I-J)			Lower	Upper
						Bound	Bound
	-1	Intermediate	-1.35382*	.27411	.000	-2.0028	7048
	elm	advanced	-1.27387*	.42362	.009	-2.2769	2709
Tukey	T4	elementary	$1.35382^*$	.27411	.000	.7048	2.0028
HSD	Int	advanced	.07995	.39103	.977	8459	1.0058
o di	adv	elementary	$1.27387^*$	.42362	.009	.2709	2.2769
	auv	Intermediate	07995	.39103	.977	-1.0058	.8459

<sup>\*.</sup> The mean difference is significant at the 0.05 level.

The result is table 3 shows that there is a significant difference or development from the elementary level up to the advanced level; however, there is no significant difference or development from intermediate level and advanced level. This result answers the surprising fact on the mean scores between intermediate level and advanced level as presented in the descriptive statistic. Besides, this result has also fulfilled the following hypothesis that not all of the population means are equal, or there were some differences, i.e. between elementary level and intermediate level, and between elementary level and advanced level.

#### **Hypothesis**

 $H_0$ :  $\mu_E = \mu_I = \mu_A$ 

 $H_1$ : NOT all population means are equal ( $\mu_E \neq \mu_I \neq \mu_A$ )

 $\mu_E$  = Population mean of elementary level

 $\mu_{\rm I}$  = Population mean of intermediate level

 $\mu_A$  = Population mean of advanced level

The following statistical result presents the calculation result of the correlation between students' academic vocabulary and proficiency levels.

Table 4. The correlation between students" academic words and their proficiency levels

#### Correlations

	Correlations		
		AWL	Prof. Test
		Value	
	Pearson Correlation	1	.249**
	Sig. (2-tailed)		.002
AWL Value	Sum of Squares and	376.655	564.669
AWL value	Cross-products		
	Covariance	2.528	3.790
	N	150	150
	Pearson Correlation	.249**	1
	Sig. (2-tailed)	.002	
Durf Track	Sum of Squares and	564.669	13625.333
Prof. Test	Cross-products		
	Covariance	3.790	91.445
	N	150	150
*** (	1	011 1/0/	11 1)

<sup>\*\*.</sup> Correlation is significant at the 0.01 level (2-tailed).

The result presented in Table 4 shows that there is a correlation on the students' academic vocabulary and the scores of their proficiency test with correlation value .239, however, the correlation was considered weak as it was far from the value of 1.0. Details of the correlations are presented in table 6, table 8 and table 10.

Table 5. Descriptive statistic of elementary students" use of AW and proficiency levels

#### **Descriptive Statistics**

	Mean	Std. Deviation	N
Elementary AWL	5.0991	1.31166	43
Elementary Prof	38.8837	4.70668	43

The mean score of academic words in elementary level was 5.09%, while the mean scores of their proficiency test were 38,88 that performed by 43 students from all subjects. The result shows that the mean scores of academic words were below the required 8% to 10% of coverage in academic writing.

Table 6. The correlation between elementary students" academic words and proficiency levels

		Correlations		
			Elementary	Elementary
			AWL	Prof
		Correlation	1.000	147
	Elem AWL	Coefficient		
		Sig. (2-tailed)		.349
Connection to the		N	43	43
Spearman's rho	Elem Prof	Correlation	147	1.000
		Coefficient		
		Sig. (2-tailed)	.349	
		N	43	43

The result in table 6 shows that there is **no correlation** between students" use of academic words in elementary level with their scores of the proficiency test.

Table 7. Descriptive statistic of intermediate students" academic words and proficiency levels

#### **Descriptive Statistics**

_	Mean	Std. Deviation	N
Intermediate AWL	6.4529	1.55061	90
Intermediate Prof	52.8222	4.03796	90

Table 15 presents the mean score of students" academic words in an intermediate level, i.e. 6.45% with the mean score of their scores of proficiency level, i.e. 52.82. Even though the AWL is higher than students at the elementary level, but the result shows that intermediate students did not perform the required coverage of academic words in their university writing.

Table 8. The correlation between intermediate students" academic words and proficiency

		ieveis		
		Correlations		
			Intermediate	Intermediate
			AWL	Prof
		Correlation	1.000	<del>-</del> .074
	Inter AWL	Coefficient		
	IIILEI AVVL	Sig. (2-tailed)		.490
Cacarman'a rha		N	90	90
Spearman's rho	Inter Prof	Correlation	<mark>074</mark>	1.000
		Coefficient		
		Sig. (2-tailed)	.490	
		N	90	90

The result presented in Table 8 shows that there is no correlation between students" academic words at an intermediate level with their scores of the proficiency test.

Table 9. Descriptive statistic of advanced students" academic words and proficiency levels

#### **Descriptive Statistics**

	Mean	Std. Deviation	N
Advanced AWL	6.3729	1.48207	17
Advanced Prof	67.2941	3.17736	17

The descriptive statistic in Table 9 shows that the mean percentage of students" academic vocabulary in advanced level was 6.37% and the mean score of their proficiency test was 67.29 which is equivalent to IELT band 5 and 6.

Table 10. The correlation between advanced students" use of AW and proficiency test scores

Correlations					
		Advanced	Advanced		
		AWL	Prof		
	Correlation	1.000	<del>-</del> .025		
۸ ط، ۱۸۸۸	Coefficient				
AUV AVVL	Sig. (2-tailed)		.923		
	N	17	17		
	Adv AWL	Adv AWL Correlation Coefficient Sig. (2-tailed)	Advanced AWL  Correlation 1.000  Coefficient Sig. (2-tailed) .		

	Correlation	<del>-</del> .025	1.000
Adv Prof	Coefficient		
Adv Pioi	Sig. (2-tailed)	.923	
	N	17	17

Finally, the statistical results presented in Table 10 also shows similar outcomes to the previous ones. There is no correlation between students" academic vocabulary and their score of proficiency level.

#### Conclusion

The investigation results on the use of academic vocabulary across proficiency levels show that the development students" academic words were actually normal, indicating that lower level students performed less academic vocabulary than those who are in higher proficiency levels. Overall, there was a significant difference or there was a significant development from the elementary level to the intermediate and from the elementary level to the advanced levels, however there was no difference or there was no significant development from the intermediate level to the advanced level. This result reveals that EFL students were aware with common academic words used in university writing, which are often acquired during their study in elementary level, but along with their improvement in language proficiency, the special attention on learning less frequent words, such as academic words have decreased.

In terms of the correlational between students" academic vocabulary and proficiency levels, the surprising results presented in table 4, table 6, table 8 and table 10 show that vocabulary learning is incremental in nature (Henriksen, 2008). It is incremental both in terms of acquiring sufficient amount of vocabulary size and in terms of mastering certain lexical items, such as academic vocabulary which belong to group of less frequent words (Schmitt, 2010). Knowing a word in not only about knowing its definition or meaning, but also its lexical forms and usage. Therefore, the result of this study confirms Nation"s theory of word knowledge and Groot"s idea that knowing a word ranges from a situation in which the language learners may be unclear with the words" spelling to position that shows they have been semantically, syntactically, stylistically correct and able to use the words appropriately according to the contexts (cited in Schmitt, 2010).

In related to the four strands to language learning, Nation (2007) asserts that after experiencing the meaning focused input, the students should have a deliberate process of learning which allows them to notice and to pay attention on the word features, such as recognizing the their orthography, pronunciation, multi-words units or collocations, grammatical use and discourse. Students" knowledge of academic vocabulary demonstrates students" awareness of recognizing less frequent words that commonly used in academic writing. Their insufficient performance shows that EFL students need to learn academic vocabulary through a direct process in any English for academic classes.

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