Academic Vocabulary Knowledge among Malaysia ESL Undergraduates

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Abstract
It is widely recognized that vocabulary proficiency is essential for language acquisition and comprehension. English Language Learners (ELLs) may encounter difficulties in processing various texts, particularly academic texts, if they possess only a minimal level of vocabulary proficiency. The specialized academic vocabulary used in these texts can impede students' ability to engage effectively with the material. This study aims to investigate the level of academic vocabulary knowledge among Malaysian ESL undergraduates as well as to identify if there is any difference between the level of academic vocabulary knowledge and language proficiency. The total items tested in the instruments were 140 academic vocabularies adopted from two main vocabulary lists; Academic Word List (AWL) and Academic Vocabulary List (AVL). The 66 participants had sat for their Malaysian University English Test (MUET) prior their tertiary academic entry and were taking English academic writing as part of their courses. The result revealed the academic vocabulary knowledge of the participants remains inadequate and there is a different between different language proficiency and level of academic vocabulary knowledge. It is recommended for future studies to identify other variables such as instructional methods, pre and post exposure to academic vocabulary.
Keywords: Vocabulary, Academic Vocabulary, Academic Vocabulary List (Avl), Academic Word List (Awl).

Introduction
Vocabulary is indispensable in language learning for learners to convey their ideas, express opinions, and seek understanding in any language learning. McCarthy (1990) asserted that L2 learners who did not master extensive vocabulary would have a difficulty in expressing a meaningful conversation in that language despite mastering the grammar part of the language. The same idea was expressed by Schmit et al., (2017) that lexical development and knowledge are crucial in acquiring the language. Despite the significant role of vocabulary, the process of acquiring it according to Oxford (1990) involves a complex cognitive process making it challenging for language learners to remember the vast number of words needed for fluency. Nation (2006) agreed that learning a word is indeed a dauting task faced by

learners especially English as a Second Language (ESL) learners as it requires learners to grasp the meanings, stylistic appropriateness, pronunciation and even grammar of the words.

In Malaysian national curriculum, English is a Second Language for students which it is a compulsory subject to be learned at school since primary to secondary schools. Malaysian students typically spend about 10 to 11 years learning English. By the time they complete high school, it is assumed they will have acquired a substantial vocabulary, ranging from 3,000 to 5,000 words, which should adequately prepare them for tertiary-level studies (Chu et.al., 2019). Nevertheless, past literature has shown that Malaysian university students generally have low threshold vocabulary level (Mathai et.al., 2004) and struggle with academic texts. Harji, Balakrishnan, Bhar, and Letchumanan (2015) found that Malaysian undergraduates had only achieved a 2000-word level, with none mastering the University Word List (UWL) of Nation and Laufer's (1999) Vocabulary Levels Test. A more recent study by Chu et al. (2019), utilizing receptive vocabulary tests for Malaysian secondary school students, revealed that most respondents failed to achieve vocabulary proficiency beyond the 2000-word level. Consequently, it is unsurprising that upon entering tertiary education, these students lack knowledge of many common academic words. This aligns with the findings of Sulaiman, Salehuddin, and Khairuddin (2018), who noted that even high-proficiency university students were unfamiliar with many common academic terms. Overall, these studies indicate that Malaysian students have not reached a threshold level of vocabulary competency despite years of English education.

The inability to master vocabulary beyond the 2000-word level is concerning, as it suggests that students will struggle with academic texts at the tertiary level. This is due to the fact that most academic reading materials such as report, journal articles and academic textbooks are mostly published in English. It is aligned with Nation and Warring (1997) who suggested that mastery of the 3000-word level, 5000-word level and academic words level is crucial especially for ESL learners to perform their academic studies in the target language. As Paquot (2010) suggested to undergraduates to master three main vocabulary lists that includes a core vocabulary of 2000 high frequency words, academic vocabulary and technical terms. For academic vocabulary, it could pose a significant challenge for readers, even those who are skilled, as these words are not commonly found in everyday texts (Krashen, 2011). A number of previous studies have investigated on Malaysian undergraduates' vocabulary knowledge such as Kamariah et al., 2016; Harji, Balakrishnan, Bhar & Letchumanan, 2015; Ahmad Azman et al., 2010. Meanwhile, Sulaiman et al. (2018) have conducted a study on the academic vocabulary proficiency of Malaysian ESL undergraduate students. The study revealed that students reported the highest-percentage of unknown AWL words from sub lists 8 through 10, which consist of low-frequency and low-utility academic words, compared to the other sub lists. In 2021, a study by Aziz et al., (2021) investigated lexical richness of Malaysia ESL tertiary students in their writing. The result concluded that mostly the respondents have low lexical threshold for General Service List 2 (GSL 2) and AWL (5% and 2% respectively). This limitation raises concerns about students limited lexical knowledge and their ability to function independently in an academic setting, particularly in academic writing.

Thus, this study aims to investigate the level of academic vocabulary knowledge among ESL undergraduates and to determine whether there is any difference between the size of their academic vocabulary knowledge and their English language proficiency. To the best of the

researchers' knowledge, few studies have been carried out on this topic among Malaysian ESL learners. By identifying ESL learners' level of academic vocabulary knowledge, this research underscores the potential for educators and scholars to implement and adopt more strategically designed vocabulary acquisition approaches. Furthermore, this would contribute to enhancing learners' academic vocabulary knowledge, which scholars have shown to be positively correlated with their academic achievement.

Literature Review
Academic Vocabulary

Vocabulary itself according to Nation (2001), as cited in Masrai and Milton (2021), is distinguished into four different types; frequent vocabulary, infrequent vocabulary, academic vocabulary and specialist vocabulary. Nation further differentiates between academic vocabulary and specialist vocabulary. He considers both of them as subsets of his less common word category, which are viewed as words that, although not frequently used in everyday texts, hold greater importance and prevalence in academic conversations. Meanwhile, Coxhead (2020) used a different approach to define academic vocabulary. She would place academic vocabulary between general and technical vocabulary lexis. With this starting point, it is aligned with other scholars' ideas such as Charles & Pecorari, 2016; Coxhead, 2000; Gardner & Davies, 2014; Townsend et al., 2016) as cited in Coxhead (2020) that an academic vocabulary in general is characterized by words that are widely used across various academic fields and have a higher frequency of occurrence in academic writings

Concurrently, academic vocabulary as agreed to Marzano and Pickering (2005) could be categorized into two types. First is domain-specific academic vocabulary and the second one is general academic vocabulary. As for domain-specific academic vocabulary it refers to content-specific words used in disciplines such as biology, geometry, civics, and geography. On the other hand, general academic vocabulary encompasses broad, all-purpose terms that appear across various subject areas but may have different meanings depending on the discipline. This also has been agreed by Masrai and Milton (2021) that academic vocabulary can be classified into two; specialist academic vocabulary and typical academic vocabulary. Examples include words like "analyse" and "concept," which are commonly used across various academic disciplines. As for specialist vocabulary, terms like "acetyl" and "accumulator" are relevant in engineering but have little use in fields like linguistics or management studies.

Learning academic vocabulary is crucial and highly useful for students pursuing their academic studies according to Coxhead (2020), as cited in (Alsahafi 2023). This is because according to Coxhead (2020) academic vocabulary is prevalent across various academic texts, making up between 10% and 14% of the total words (tokens) in the reading text making it "one word in ten or one word in seven in a line of written academic text might be an academic word". Dang and Webb (2014) also stated that knowing academic vocabulary such as from the corpus of British Academic Spoken English (BASE) corpus and Academic Word List (AWL) by Coxhead (2000) would provide a 95% coverage of academic spoken English. Conversely, they argued that without the knowledge of academic corpus such as AWL learners would struggle to familiarize the academic reading texts.

Vocabulary Knowledge
Vocabulary knowledge is agreed to many scholars to be complex and multifaceted (Laufer et al., 2004). Qian (2002), stated the vocabulary knowledge includes two primary aspects; knowledge of word meaning and levels of accessibility to this knowledge. The former involves generalization (the ability to define a word), breadth of meaning (recognizing its various meanings), and precision of meaning (applying the word accurately in different contexts). The latter aspect includes availability (using the word effectively) and application (choosing the right context for the word). It's essential to note that this classification does not encompass other facets of lexical knowledge, such as spelling, pronunciation, morpho-syntactic features, and collocations.

Meanwhile, Nation (2000), came with receptive and productive aspects of knowing a vocabulary. According to his explanation, in a receptive context, learners receive language input through listening or reading from others and strive to understand it. Conversely, in a productive setting, learners used the vocabulary either by speaking or writing with the aim to deliver messages to others using the vocabulary they know. However, Schmitt (2014), and Daller and Milton (2007), argued that this concept lacks of clarity on what receptive and productive entails. Daller and Milton (2017), as cited in Dagnaw (2023), came with different conceptualization known as 'lexical space'. Lexical space refers to the learners' vocabulary knowledge as in three-dimensional space where each dimension signifies an aspect of knowing a word. It includes lexical breadth, lexical depth and lexical fluency. Lexical breadth refers to the quantity of words a learner is familiar with, irrespective of the depth of their knowledge about each word. As for lexical depth, it refers to the extent of a learner's knowledge about the words they are familiar with. This includes understanding concepts and referents, making associations, recognizing grammatical functions, understanding collocations, and recognizing usage constraints as explained by Nation (2000) as cited in Dagnaw (2023). And the final aspect of the lexical is fluency. It relates to how easily and instinctively a learner can utilize their vocabulary and knowledge about word usage. This also encompasses the speed and accuracy with which a word can be recalled or used in speech and writing.

Assessing Academic Vocabulary Knowledge
In this study, instruments used to gauge the academic vocabulary knowledge is Academic Word List (AWL) by Coxhead (2000), and Academic Word List (AVL) by (Gardner and Davies, 2014). The Academic Word List (AWL), an expansion of the General Service List (GSL) introduced by West in 1953, was assembled by Coxhead in 2000 and comprises 570-word families. This list is significant as it encompasses common academic vocabulary not limited to any particular field but deemed crucial for university students to grasp. Coxhead's corpus contains 3.5 million running words. This number was the target as being affirmed by Coxhead (2000); and Francis and Kucera (1982), because a corpus needs to have at least 3.5 million running words to have a family occur 100 times in the corpus. Such a word count would allow around 25-word occurrences of a word family in each of the four disciplines: arts, commerce, law, and science. This ratio is important because the corpus needs to have a sufficiently large sample size to allow a reasonable frequency of academic words. Most researchers have used AWL for their academic researchers as Yang (2014), stated AWL has been as "the main representative list of academic vocabulary" and one "which has revolutionised English for Academic Purposes (EAP) learning". The same goes for Banister (2016), who promotes AWL

as the valuable resource for learners to prioritize learning words that are relevant to specific disciplines because of the coverage of the corpus disciplines.

However, Gardner and Davies (2014), demonstrated, the AWL itself contains many words found to be high frequency in large modern corpora like the *Corpus of Contemporary American English* (COCA) (Davies, 2012). In fact, they show that 451 of the 570 AWL word families are in the 4,000 most frequent words of COCA, with 41% appearing in the 2,000 most frequent words of COCA. Thus, they published Academic Vocabulary List (AVL) developed from a 120-million-word academic sub-corpus extracted from the 425-million-word *Corpus of Contemporary American English (COCA).* The criticisms of the AWL outlined in the previous were considered as the guidelines for AVL being created (Gardner & Davies, 2014). AVL has following several standards which include that the new list must initially be determined by using lemmas, not word families. Next, the new list also must be based on a large and representative corpus of academic English, covering many important academic disciplines. Furthermore, the new list must be statistically derived (using both frequency and dispersion statistics) from a large and balanced corpus consisting of both academic and non-academic materials. And most importantly the materials must represent contemporary English, not dated materials from 20 to 100 years ago. The final criterion states that the new list must be tested against both academic and non-academic corpora, or corpus-derived lists, to determine its validity and reliability as a list of core academic words.

Methodology
The researcher utilized a quantitative methodology to address the research inquiries. This approach encompasses the quantification and analysis of phenomena by gathering and interpreting measurable data. Survey research falls within the quantitative methods category (Rashid & Sipahi, 2021). According to Creswell (2009), survey research examines a sample of a population to provide a numerical overview of trends, attitudes, or perspectives within that population, aligning with the goals of this study.

Research Participant
For this study, the participants comprised 66 of ESL undergraduates' learners from public university in Malaysia who were chosen via purposive sampling. Purposive sampling, also known as judgment sampling, involves the researcher using their judgment or selecting participants for a specific purpose (Rahi, 2017.) In this research, students were required to take the Malaysian University English Test (MUET) before entering tertiary studies, regardless of their academic specializations. And since most of them were still in their first-year study they were required to take English for Academic Writing as part of their semester course.

Research Instrument
For the data instrument, this study has used the wordlists from Academic Word List (AWL) by Coxhead (2000), and Academic Vocabulary List (AVL) by Gardner and Davies (2015). The total number questions tested is 140 academic vocabulary knowledge that was grouped in 35 questions/items. The participants need to choose the accurate meaning that explains about the targeted academic vocabulary knowledge. In the instrument, there are two sections one is demographic which is to know the basic information of the participants' study background and the second section is the questions for the participants to answer.

Research Procedure

Before the questionnaire was distributed, a validity from experts' insights were gain. To establish content validity in a study, researchers typically seek validation from a panel of judges or experts (Creswell, 2014). Consequently, two experts were consulted in this study for validation and both of them have vast experienced in this research field and shared valuable insights. Then, pilot study was run to ensure the reliability of the instrument. Reliability in research refers to the consistency and stability of a measurement tool when applied over time and across various conditions (Mellinger, 2020; Sürücü & Maslakçi, 2020). Ensuring the reliability of an instrument is crucial for guaranteeing that the data collected in a study is dependable and trustworthy thus a pilot study with 30 participants was conducted beforehand. Next, the questionnaire was distributed to participants through Google Forms. They were given a link to access it. In line with ethical considerations, participants' identities remained anonymous and confidential. No identifying information, such as names or other sensitive personal details, was requested in the questionnaire.

Data Analysis

Data cleaning procedure was performed before proceed with Statistics for Social Science Package (SPSS Version 27) for descriptive analysis. The result of descriptive analysis was presented through frequency, mean and standard deviation, percentage.

Findings and Discussion

Demographic Background Analysis

In this study, it employed descriptive analysis, including frequency and percentage, to examine the demographic profile of respondents.

Table 1
Demographic Profile of The Respondents

Demographic	Frequency	Percentage
Gender		
Male	18	27.3
Female	48	72.7
MUET Band Score		
Band 3	40	60.6
Band 4	26	39.4
Year of study		
Year 1	58	87.9
Year 2	1	1.5
Year 3	0	0.0
Year 4	7	10.6

Table 1 shows descriptive statistic of respondents. The significant of this demographic result is firstly most of them are female with 72.7% (48 female respondents) as compared to male respondents 27.3% (18 male respondents). Another highlight of this demographic is most of them are in medium language proficiency level with 60.6% (40 respondents) for MUET Band 3 meanwhile less respondents for high language proficiency MUET Band 4 with 39.4% (26 respondents). And the most dominated respondents for their year of study is majority of them are in year one of tertiary education with 87.9% (58 respondents) and only 10.6% for year 4 students.

Research Question 1: What are the levels of academic vocabulary knowledge among Malaysian ESL undergraduates?
Table 2 presents the descriptive analysis of the level of academic vocabulary knowledge among Malaysian ESL undergraduates.

Table 2
Descriptive Statistics of Academic Vocabulary Knowledge Score by Respondents

		Percentage			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 - 10	1	1.5	1.5	1.5
	11 - 20	13	19.7	19.7	21.2
	21 - 30	27	40.9	40.9	62.1
	31 - 40	11	16.7	16.7	78.8
	41 - 50	5	7.6	7.6	86.4
	51 - 60	5	7.6	7.6	93.9
	61 - 70	1	1.5	1.5	95.5
	71 - 80	2	3.0	3.0	98.5
	91 - 100	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

Table 2 shows descriptive statistics of academic vocabulary knowledge score by respondents. Based on the table the highest frequency of respondents scoring academic vocabulary knowledge is 27 out of 66 respondents scored between 21% to 30%. The second highest frequency of respondents is 13 out of 66 respondents scored between 11% to 20% and 11 of them managed to score 31% to 40%. Meanwhile, the lowest frequency of respondents scoring academic vocabulary knowledge is 1 out of 66 respondents scored 3 scores which are 91% to 100%, 0% to 10% and 61% to 70%. Figure 1 below shows the histogram chart for Table 2 descriptive results.
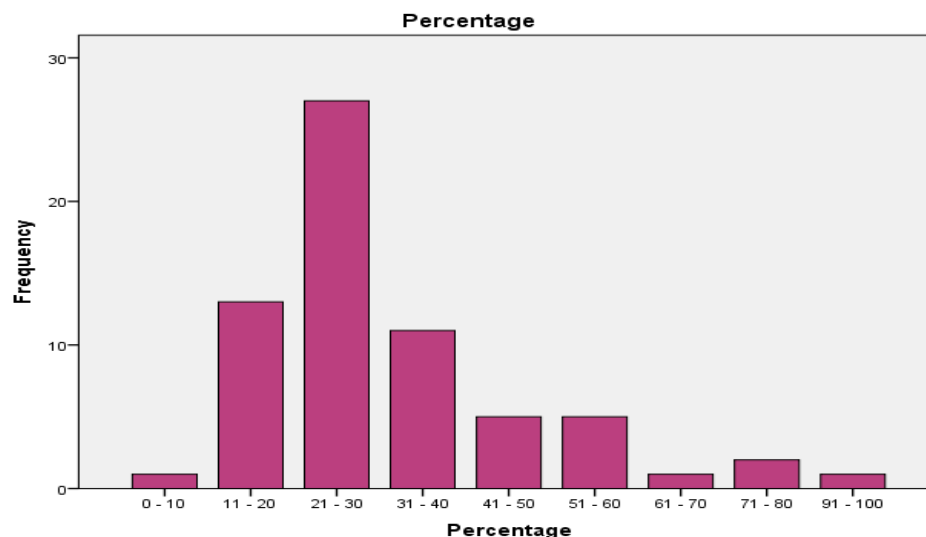
Figure1 Frequency of Academic Vocabulary Knowledge Score by Respondents

Research Question 2: Is there any difference between the level of academic vocabulary knowledge and English language proficiency?

Table 3

Descriptive Statistics between Different Language Proficiency and Academic Vocabulary Knowledge Score

Group Statistics					
	Band	N	Mean	Std. Deviation	Std. Error Mean
PERCENTAGE_ SCORE	3	40	26.8393	11.13272	1.76024
	4	26	38.3242	20.29672	3.98051

Table 4

Independent T-Test between Different Language Proficiency and Academic Vocabulary Knowledge Score

		Levene's Test for Equality of Variances		t-test for Equality of means		
		F	Sig.	T	df	Sig. (2-tailed)
PERCENTAGE_SCORE	Equal variances assumed	12.586	.001	-2.965	64	.004
	Equal variances not assumed			-2.639	34.879	.012

The tables show different means between different language proficiency. The purpose of this research question is to find out whether different language proficiency influences the academic vocabulary knowledge score. The null hypothesis (H_o) for Levene test is the variances in academic vocabulary knowledge scores are equal across different language proficiency levels. Meanwhile, the alternative hypothesis for Levene test is the variances in academic vocabulary knowledge scores are not equal across different language proficiency levels. Since the significance value (Sig.) is .001, which is less than .05, the null hypothesis of equal variances is rejected. This indicates that there is a significant difference in the variances of academic vocabulary knowledge scores between the different language proficiency groups. The same goes for t-test. Since the p-value is less than .05, the null hypothesis of no significant difference between the two variables is rejected, concluding that there is a significant difference in academic vocabulary knowledge scores between different language proficiency levels.

Discussions

There are two conclusions could be deduced from research question number. Firstly, it has proven the inadequacy of the students in recognizing the academic vocabulary words and the limited size of their academic vocabulary knowledge. The highest percentage score of academic vocabulary knowledge by most respondents was between 21% to 30% out of total score of 100%. This low percentage confirmed the findings from previous scholars such as from (Harji et al., 2015). They identified the vocabulary level and size of Malaysian undergraduates were only at 2000-word level using Nation and Laufer (1999), instrument Productive Vocabulary Level Test. And in that study as well, almost all of the students fell in lower band score of 50 or lesser points in University Word Level (UWL) indicating that their vocabulary knowledge is inadequate to manage the reading academic demands at the university level. Sulaiman et al (2018), also resonates the same finding which tertiary students showed a higher percentage of unknown words for low frequency and low utility academic words from Coxhead's (2000), AWL in comparison with high frequency academic word. This is considered a concerning issue because mastering vocabulary at the 3000 level, 5000 level, and academic level is essential for students to understand reading texts and effectively complete exercises, tests, and exams in the target language. These numbers of 3000 and 5000 levels also being emphasized by Nation and Warring (1997), to help for fundamental comprehension in English as a second language. Nation (2006), also stated that for L2 reading, the knowledge of around 8,000 - 9,000 of the most frequent word families could help reading comprehension.

The second conclusion could be inferred is that vocabulary knowledge is an incremental process that needs multiple, extensive and explicit exposure of academic vocabulary learning and teaching instruction. The intricate natures of vocabulary knowledge need learners to not only know the word's meaning but also to give attention to contexts in which the words are used, its associations with other words, and its syntactic behaviour in sentences (McKeown, 2019). Briefly, words are polysemous which their meanings are dynamic and could shift according to context. The same goes for academic vocabulary knowledge which scholars as cited in Warnby (2023), (e.g., Lim Falk & Holmberg, 2016; Nagy & Townsend, 2012; Schmitt, 2008) agreed it requires explicit instruction and intentional learning as incidental acquisition of these academic vocabulary through everyday encounters—such as reading novels, newspapers, listening to podcasts, or watching movies—is unlikely. Yet, it is reported by

Kamariah et al (2016), there was a lack of explicit academic vocabulary guidance and instruction for teaching the words during the early stages of tertiary education which could hinder L2 learner's vocabulary growth. Amerrudin et al (2013), also shared the same concern which he stated there was minimal focus on fostering academic vocabulary during secondary education. Thus, this explained why the size of academic vocabulary knowledge among tertiary students especially first year undergraduates are insignificant.

On the other hand, for research question number two, it is evident that there is a significant difference between language proficiency and the level of academic vocabulary knowledge achievement among the respondents. In this study, the high proficiency in English language is those who scored Band 4 and above meanwhile medium to low proficiency in English language is for those who scored Band 3 and below. For Malaysian pre-university students, Malaysian University English Test (MUET) is a compulsory English test before entering their tertiary education. It aims to quantify pre-university students' proficiency level in the English language and has been acknowledged as a standardised proficiency test similar to IELTS and TOEFL (Rethinasamy & Chuah, 2011). Othman and Nordin (2013), reckoned MUET as a proficiency test that has the ability to segregate and identify the good and low proficiency students in preparing them to operate and understand English in college or university campuses. MUET has four papers that tested on four different skills namely listening, reading, writing and speaking. Candidates are placed on a band of 1 to 6 based on the aggregated band score of the four language components. A study from Musa et al (2021), shared that the student database shows majority of the students entered the university with MUET Bands 3 to 5. And there is a small number of students in the range of Bands 5 and 6. This finding reveals that most proficiency students could at least score better level of academic vocabulary knowledge compared to the least proficiency students. It resonates the hypothesis of most previous studies which states that vocabulary size influences academic achievement of an individual. The correlations between academic vocabulary knowledge and academic achievement could be found in Masrai and Milton (2017, 2018) study. Based on the study, it was found that the grades achieved in English course exams by the participants were impacted by their academic and general vocabulary knowledge, among other factors. Their findings revealed a strong correlation between academic vocabulary knowledge and academic performance, suggesting that familiarity with academic words contributes uniquely, albeit marginally, to academic success beyond general vocabulary proficiency. Similarly, a recent study by Masrai and Milton (2021) on 61 Saudi EFL university students in an English language program demonstrated that general vocabulary size, assessed through a yes/no test, explained 47% of the GPA variance, while knowledge of the AWL accounted for an additional 11.5%. In a previous study, Loewen and Ellis (2004) observed that vocabulary size, particularly the UWL level test, had a significant impact on GPA variance among English for academic purposes students, further emphasizing the crucial role of L2 academic vocabulary knowledge in predicting academic success at the university level.

Conclusion
The findings of this study revealed that the level of academic vocabulary knowledge of Malaysian ESL undergraduates generally is still inadequate based on the percentages that the respondents mostly scored. The highest percentages that the respondents managed to get all the questions right is 21% to 30% from 140 academic vocabulary questions tested. It also

showed there is a difference between the students' English language proficiency and the level of academic vocabulary knowledge that the respondents' scored.

In tertiary education level, English language is mostly the medium of delivery in teaching and learning. It requires students to comprehend the lectures, academic reading materials such as academic article and academic texts in English. Thus, it is an advantage for the students to have prior knowledge of the general academic vocabulary knowledge to achieve greater academic success as have proven by the past researches. This study would help students and academic instructors to focus more in improving the acquisition of the academic vocabulary knowledge for their own academic development.

The limitation of this study is however it only focuses on the level of academic vocabulary knowledge of Malaysian ESL undergraduates and influence of English language proficiency towards their academic vocabulary knowledge. Moreover, this study also tested the knowledge depth of academic vocabulary item in isolation and without context thus it is recommended for future research to consider other developmental and component approaches in accessing the level of academic vocabulary knowledge.

Acknowledgment

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