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Profiling Engineering Students' Receptive Vocabulary in Malaysian Polytechnics

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ABSTRACT
Receptive vocabulary knowledge plays an important role in providing a broader ability for language learners to comprehend reading texts and contributes to the comprehension of utterances. Knowledge of the learners' vocabulary level is essential, not only as an indicator of the learners' linguistic ability but also for planning and setting goals in language learning. This study aims to investigate the English language receptive vocabulary knowledge of POLIMAS engineering students in terms of word levels. The Vocabulary Levels Test (VLT) was administered to 111 engineering students to measure their receptive vocabulary knowledge at five different word levels in VLT. The results reveal that more than half of the students possess a low level of receptive vocabulary as they failed to receive a minimum score of 26 for all word levels in the test. The findings highlight the need to raise instructors' awareness of learners' vocabulary and suggestions for effective guidance in enhancing students' vocabulary knowledge.

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Keywords: Vocabulary knowledge, receptive vocabulary, Malaysian Polytechnics

INTRODUCTION

Vocabulary is a crucial component of language proficiency and plays a critical role in shaping a language learner's communication ability. A rich vocabulary is necessary for expressing ideas and understanding the language being used by others (Coxhead, 2021). This is particularly true in academic settings, where students are expected to have a good command of the language in order to comprehend course materials, participate in class discussions, present ideas, and demonstrate their understanding through writing assignments (Karakoça & Gül DurmuÇoğlu, 2017). As such, language learners need to develop a solid vocabulary knowledge foundation to succeed in their language learning endeavour. Research has shown that vocabulary size is directly related to overall language proficiency and that learners with larger vocabulary sizes tend to perform better in various language tasks (Firda et al., 2021). Thus, it is important to give adequate attention and resources to vocabulary development in language learning.

LITERATURE REVIEW

Vocabulary Knowledge

Many studies have emphasized the importance of developing both receptive (passive) and productive (active) vocabulary knowledge for effective language proficiency (Abmanan et al., 2017; Daskalovska, 2020; Kiliç, 2019). Passive vocabulary knowledge refers to the ability to recognize words and word meanings in reading and listening (Wero et al., 2021), while active vocabulary knowledge involves the ability to use words productively in speaking and writing (Zhong, 2018). Some studies have shown that students' active vocabulary knowledge is often limited compared to their passive vocabulary knowledge (Alqallaf & Ahmed, 2021; Nontasee & Sukying, 2021), which can result in difficulty with speaking and writing tasks. Other studies have investigated the relationship between vocabulary size and language proficiency and have found a positive correlation between vocabulary size and language proficiency, particularly in reading comprehension and written expression (Aizawa & Rose, 2020; Miralpeix & Muñoz, 2018).

Measuring Vocabulary Knowledge

Breadth and depth are two major dimensions of interest in assessing learners' vocabulary knowledge (Dabbagh & Janebi Enayat, 2019; Levitzky-Aviad & Laufer, 2013). The first one is assessing the vocabulary size of learners, which is referred to as measuring the breadth of knowledge. It deals with the number of words a learner knows, or at least some superficial knowledge. The second is assessing the quality of vocabulary knowledge, which measures the depth of knowledge (Alqallaf & Ahmed, 2021) by focusing on learners' knowledge of the word or how well they know it. However, this study focuses on the breadth of knowledge dimension commonly used to assess the receptive knowledge of second language learners. Receptive vocabulary knowledge assesses the number of words learners know (Failasofah, 2018). Receptive vocabulary size tests usually measure words at different frequency levels such as 2000, 3000, 5000, and 10,000-word family levels (Miralpeix & Muñoz, 2018). Measuring students' vocabulary knowledge in terms of the size or the total number of words that they know at a particular frequency

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level is beneficial as it is one of the best ways of estimating the extent of progress in related language skills (Elgort, 2018). A vocabulary test can also be an effective diagnostic tool, particularly when assessing learners who struggle with reading (Kyle et al., 2021; Stoeckel et al., 2021). Thus, studies that look at students' vocabulary levels can assist language instructors in developing students' vocabulary knowledge (Mohd Nasir et al., 2017) and preparing them for academic tasks (Aziz et al., 2021).

Receptive Vocabulary Test

Many receptive vocabulary tests were developed to test second language learners' breadth of vocabulary knowledge. The two most common tests are Vocabulary Level Test (VLT) and Vocabulary Size Test (VST) developed by Nation (1983), Nation and Beglar (2007) and Nation (2011), respectively. The VLT comprises simple tasks to assess learners' receptive vocabulary knowledge by measuring their performance in word-definition matching tasks. Additionally, it determines whether learners have mastery of certain word bands (Stoeckel et al., 2021). In comparison, the VST was developed to estimate overall receptive vocabulary size (Nation & Beglar, 2007). The vocabulary size and second language proficiency in receptive and productive skills have been widely studied using the VLT, as reported by Alqallaf and Ahmed (2021), Firda et al. (2021), Kiliç (2019), and Janebi Enayat and Derakhshan (2021).

Vocabulary Threshold for Tertiary Level Students

Reaching the recommended vocabulary threshold for receptive knowledge is very important for pre-university students to be ready to pursue tertiary-level education. Laufer and Ravenhorst-Kalovski (2010) have proposed the lexical threshold of 5000 words as an adequate level for reading comprehension and as an optimal threshold that requires 8000 to 9000 word knowledge. Accordingly, Douglas (2020) describes the vocabulary threshold into three levels which are described in Table 1.

Table 1
Vocabulary Thresholds for Reading Comprehension

Levels	Categories	Vocabulary Threshold	Description
Level 1	Struggling Level	Below 3000 words	86% of written text comprehension where learners would encounter one unfamiliar word (unknown word) in every seven words in the text
Level 2	Instructional Level	Below 5000 words	able to read 95% of the text where learners would encounter one unfamiliar word in every 20 words in the text
Level 3	Independent Level	9000 words	98% coverage where the learners encounter one unknown word in every 50 words in the text and their vocabulary knowledge is 9000 words

Nevertheless, this observation relates to the studies conducted by previous research on vocabulary threshold, which suggest 9000-word level is an appropriate cutting point for the English language

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learner to read and write effectively in the academic context (Adolphs & Schmitt, 2003; Laufer & Nation, 1995; 1999; Laufer & Ravenhorst-Kalovski, 2010; Schmitt et al., 2011; 2015; Schmitt & Schmitt, 2012). Furthermore, Benedict and Shabdin (2021) in their study on vocabulary coverage of Malaysian University English Test (MUET) reading texts for three sessions between 2015 to 2016, discovered that mastery of a minimum 8000-word level is needed for the students to understand 98% of the MUET reading texts. The general conclusion from these studies is that the minimum mastery of 9000-word level is needed to prepare students for academic tasks.

Vocabulary Level of Malaysian University Students

A few studies of undergraduate students from public and private Malaysian universities revealed that Malaysian undergraduates have poor passive vocabulary knowledge (Lateh et al., 2018; Mokhtar et al., 2010; 2016; Shamsudin et al., 2016; Wong & Lee, 2020). Most of these studies probed into students' receptive knowledge using VLT. A study conducted by Mokhtar et al. (2010) revealed that 90% of the students who took the VLT failed to master the 2000-word level; however, recent studies showed that the percentage of failure to master 2000 words has reduced to the range of 45% to 70% (Lateh et al., 2018; Wong & Lee, 2020). Empirical evidence also indicates that Malaysian undergraduates are still unprepared linguistically to endure academic settings due to their lack of mastery of mid-frequency vocabulary knowledge (3000 words - 5000 words). Lateh et al. (2019) reported a failure rate for VLT, indicating vocabulary knowledge between 3000- and 5000-word levels. Furthermore, studies also indicate the influence of vocabulary knowledge on writing quality. Aziz et al. (2021) suggest that students possess limited vocabulary knowledge for academic reading and writing due to the lack of Academic Wordlist (AWL) level vocabulary and tend to depend on high-frequency words. While there is an increased interest in measuring university undergraduates' vocabulary knowledge, research on the receptive vocabulary level of Polytechnic students is still scarce, where very little information regarding polytechnic students' vocabulary profile is available in the literature. Therefore, this study was conducted to determine the level of receptive vocabulary.

METHODOLOGY

Instrument

This study utilized the Vocabulary Level Test (VLT) Version 2 to evaluate the participants' receptive vocabulary knowledge. The test measures vocabulary proficiency at different levels, including 2000, 3000, 5000, 10,000, and academic English word levels. The test format involves matching vocabulary words to their definitions, with a total of 60 lexical items and 30 definitions at each level. The test-takers are given 60 minutes to complete the test and are scored based on their ability to match the correct vocabulary with its definition. A score of 26 or higher out of 30, or 87% accuracy, indicates mastery of a specific vocabulary level. During the study, the participants were given the test at all five levels, starting with the 2000-word level and progressing to the academic English word level. An example of a test item from the VLT is presented in Table 2 below.

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Table 2
Sample of VLT items

Words		Meaning
1.	ancient	( ) not easy
2.	curious	( ) very old
3.	difficult	( ) related to god
4.	entire	
5.	holy	
6.	social	

Participants

Politeknik Malaysia (POLIMAS) is one of the polytechnics in Malaysia which uses English as a medium of instruction. All courses except Islamic Studies must be conducted in English. Since the students who enrol in numerous diploma programmes in POLIMAS possess varying levels of English language proficiency, it is challenging to design an English course that effectively prepares students to use English in academic and workplace settings. Presently, all diploma students in Polytechnics are expected to complete three Communicative English courses, regardless of their level of proficiency: Communicative English 1, Communicative English 2, and Communicative English 3 during their first, third, and fourth semester respectively.

The participants of the study were undergraduate students enrolled in the Communicative English 1 course during session 2 of the 2021/2022 academic year. The sample consisted of students from eight classes, all of whom were pursuing a diploma in Engineering from the Politeknik Malaysia (POLIMAS). Before enrolling in the POLIMAS diploma programme, they had all had eleven years of official English language learning in schools. The age range of the participants was between 18 and 21 years old, and they had previously completed the Sijil Pelajaran Malaysia (SPM) English examination with varying proficiency levels. The participants represented three departments within the engineering field, including Civil Engineering, Electrical Engineering, and Mechanical Engineering.

RESULTS

Tables 3 and 4 illustrate the demographic profile of the students participating in this study. 64% of the students are male while other 36% are female. These students belong to three main departments in POLIMAS. 42% or 47 students were from the Civil Engineering Department while 50 students or 45% of the students were from Electrical Engineering Department. Mechanical Engineering students contributed 13% or 14 students to the total number of students who participated in this study.

Table 3
Students' Demographics - Gender

Gender	*n*	*Percentage*
Male	71	64%
Female	40	36%

https://10.24191/cplt.v11i3.25108

Table 4
Students' Demographics- Department

Department	*n*	*Percentage*
Civil Engineering	47	42%
Electrical Engineering	50	45%
Mechanical Engineering	14	13%

Based on the data presented in Table 5, the number of students who have successfully achieved the threshold of 87% for receptively known words differs based on the word level they were tested on. For the 2000-word level, 72 students, or 65% of the total number of students, passed the test while 39 students, or 35% of the total, failed. Moving up to the 3000-word level, the number of students who passed the test decreased to 46, or 41% of the total, while the number of students who failed increased to 65, or 59% of the total. The trend continued for the 5000-word level where 33 students, or 30% of the total, passed while 78 students, or 70% of the total, failed. The results were even more striking at the 10,000-word level, where only 21 students, or 19% of the total, passed, while 90 students, or 81% of the total, failed. Finally, for the academic word level, the results showed that 30 students, or 27% of the total, passed, while 81 students, or 73% of the total, failed.

Table 5
Receptive Vocabulary Level Test Result

Word levels	*Pass (87% or more)*	*Fail (less than 87%)*
2000-word	72 (65%)	39 (35%)
3000-word	46 (41%)	65(59%)
5000-word	33 (30%)	78 (70%)
10000-word	21 (19%)	90 (81%)
Academic Wordlist (AWL)	30 (27%)	81 (73%)

DISCUSSION

This study has provided an overview of POLIMAS students' vocabulary profiles. Based on the results of the study, it can be concluded that the majority of the participants have the average receptive vocabulary knowledge of 2000-word families. In reference to Table 3, only 65% of the students mastered the 2000-word level. This indicates a significant gap in the participants' vocabulary knowledge and the need to improve their vocabulary to meet the academic requirements. Douglas (2020) believed that students with 2000-word level will have difficulties understanding texts in English and faces challenges in academic writing. This level is referred to as the struggling level (Douglas, 2020) as the students battle to comprehend academic texts containing words from the midfrequency levels (Schmitt & Schmitt, 2012). Likewise, more than 50% of the participants failed to achieve the 3000- and 5000-word levels, and only a quarter of them managed to achieve the academic word level, which is considered the basic requirement for tertiary-level studies, as proposed by Laufer and Ravenhorst-Kalovski (2010). This study provides

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evidence that Polytechnic students also face similar challenges as university students in Malaysia, where a lack of vocabulary limit their ability to perform academic tasks (Lateh et al., 2018; Shamsudin et al., 2016; Wong & Lee, 2020). In addition, the result also implies that the students would face difficulties comprehending reading texts in the MUET reading test (a requirement for university students in Malaysia) as the texts require a minimum of 6000-word level knowledge (Benedict & Shabdin, 2021).

The results at the 10,000-word level revealed that only 21 students, accounting for 19% of the total, had mastered this level, while 90 students, equaling 81% of the total, failed. These findings provide further evidence that the students in Polytechnics need more exposure to low-frequency words to ensure that they could achieve an independent level of vocabulary threshold. This is consistent with the findings of Abmanan et al. (2017) and Lateh et al. (2018), which highlight the lack of vocabulary knowledge at 10000-word level among Malaysian higher education students which indicates that they are not prepared for the rigours of a university learning environment. Therefore, without vocabulary intervention, they may struggle to meet the demands of their coursework.

Finally, for the academic-word level, the findings indicate that out of the 111 students, only 30, or 27% succeeded in the academic-word level, while the remaining 81, or 73% were unsuccessful. The result suggests the students are unprepared to meet the demand of academic tasks due to their limited knowledge of academic vocabulary words. These findings also support the study by Aziz et al. (2021), who revealed that the students only used 5% of academic words in their writing, mainly dominated by those in the range of 1000 and 2000 words. Therefore, this study's results demonstrate a significant need for improving students' vocabulary knowledge before entering tertiary education. Additionally, secondary school students have been found to generally have low level of vocabulary knowledge in Malaysia (Abdul Manan Amerrudin et al., 2013), which can hinder their ability to comprehend academic reading materials and meet the demands of university-level studies (Mayadi & Yamat, 2021). Hence, it highlights the importance of giving equal priority to vocabulary development alongside other language skills in schools. Therefore, there is a need to reconsider and revise the approach to vocabulary teaching and learning to ensure that students are adequately prepared for the academic challenges they will face in higher education.

CONCLUSION AND FUTURE DIRECTION

This study aimed to measure the vocabulary knowledge of engineering students at the polytechnic level and to increase awareness of the importance of improving vocabulary proficiency in a second language, specifically English. The study's findings may have significant pedagogical implications, as they can be used to inform the development of vocabulary enrichment programs for students at the Polytechnics. By providing students with opportunities to expand their vocabulary knowledge, they will be better equipped to meet the challenges of academic study and succeed in their field. Additionally, this study may also raise awareness among English language teachers in schools about the importance of focusing on vocabulary instruction for their students. By doing so, students will be more likely to develop a strong vocabulary foundation that will benefit them in the long run.

https://10.24191/cplt.v11i3.25108

Furthermore, the findings also highlight future studies to focus and provide intentional effort on the part of educators to provide students with the necessary tools to build their vocabulary and achieve success in their academic pursuits. Moreover, there is a need for more effective methods of teaching vocabulary. One possible solution to this issue is integrating technology into the classroom, focusing on developing vocabulary knowledge (Mokhtar et al., 2010). Furthermore, technology has been proven useful in promoting language learning, particularly vocabulary acquisition (Alfadil, 2020; Govindasamy et al., 2019; Tseng et al., 2020). For example, digital flashcards and interactive quizzes can provide students with immediate feedback and allow them to track their progress. Additionally, students can use digital resources such as vocabulary lists and interactive games to reinforce their learning and practice the words they have learned fun and engagingly (Krishnan & Md Yunus, 2019). Additionally, students can access language learning apps and websites designed specifically for vocabulary acquisition, providing them with a personalized and engaging experience (Myagmarkhorloo & Ulziinaran, 2018). The results of this study highlight the need for a focused, intentional approach to vocabulary instruction and development, which has the potential to significantly enhance Polytechnic students' language proficiency and academic success.

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Paper Contribution to Related Field of Study

Our study contributes to the research of vocabulary knowledge in Malaysian Polytechnics specifically and to the field of vocabulary teaching and learning.

REFERENCES

Abdul Manan Amerrudin, Ali Nor Liza, & Shamsudin Sarimah. (2013). Does the Malaysian English language syllabus cater to the academic vocabulary needs of secondary school students entering universities? *Jurnal Teknologi*, *65*(2), 7–14.

Abmanan, N. A., Azizan, N., Fatima, N., & Mohd, W. (2017). Receptive and Productive Vocabulary Level of Diploma Students from a Public University in Malaysia. *Journal of Applied Environmental and Biological Sciences*, *7*(1S), 53–59.

Adolphs, S., & Schmitt, N. (2003). Vocabulary coverage according to spoken discourse context. In P. Bogaards & B. Laufer (Eds.), *Vocabulary in Second Language* (pp. 1–10). John Benjamin Press.

Aizawa, I., & Rose, H. (2020). High school to university transitional challenges in English medium instruction in Japan. *System*, *95*. https://doi.org/10.1016/j.system.2020.102390

Alfadil, M. (2020). Effectiveness of virtual reality game in foreign language vocabulary acquisition. *Computers and Education*, *153*. https://doi.org/10.1016/j.compedu.2020.103893

https://10.24191/cplt.v11i3.25108

Alqallaf, A. W., & Ahmed, M. O. (2021). Vocabulary size and depth of knowledge: A study of Bahraini EFL learners. *International Journal of English Linguistics*, *12*(1), 58.

Aziz, R. A., Supian, S. H., Abdul Sukor, S. F., & Nikman, K. (2021). Measuring lexical richness in the writings of ESL learners at a tertiary institution in Malaysia. *Gading Journal for Social Sciences*, *24*(4), 101–108. https://ir.uitm.edu.my/id/eprint/56890

Benedict, M. C., & Shabdin, A. A. (2021). Word frequency level and lexical coverage in the reading comprehension texts of the Malaysian University English Test. *PASAA*, *61*, 33–60.

Coxhead, A. (2021). Vocabulary in English in Tertiary Contexts: Connecting Research and Learning. *LEARN Journal: Language Education and Acquisition Research Network, 14*(1), 1-14.

Dabbagh, A., & Janebi Enayat, M. (2019). The role of vocabulary breadth and depth in predicting second language descriptive writing performance. *Language Learning Journal*, *47*(5), 575–590.

Daskalovska, N. (2020). Vocabulary size at four stages of language development. *European Journal of English Language Teaching*, *6*(2), 1–11. http://dx.doi.org/10.46827/ejel.v6i2.3392

Douglas, S. R. (2020). *Vocabulary Thresholds for Reading and Writing: Targets for English Language Learners* [PowerPoint slides]. https://measureup.tesl.ca/images/Publications/Share/TESLNB-Vocabulary_Webinar-Jan21_2020.pdf

Elgort, I. (2018). Technology-mediated second language vocabulary development: A review of trends in research methodology. *CALICO Journal*, *35*(1), 1–29. https://www.jstor.org/stable/90016519

Failasofah, F. (2018). Measuring Indonesian students' lexical diversity and lexical sophistication. *Indonesian Research Journal in Education*, *2*(2), 97–107. https://doi.org/10.22437/irje.v2i2.6098

Firda, I. N., Azkiyah, I., & Albiansyah. (2021). Testing breadth and depth of vocabulary knowledge and their relationship with vocabulary size of EFL students. *Journal of English Teaching*, *7*(1), 89–100. https://doi.org/10.33541/jet.v7i1.2434

Govindasamy, P., Yunus, M. M., & Hashim, H. (2019). Mobile assisted vocabulary learning: Examining the effects on students' vocabulary enhancement. *Universal Journal of Educational Research*, *7*(12 A), 85–92. https://www.hrpub.org/journals/article_info.php?aid=8569

Janebi Enayat, M., & Derakhshan, A. (2021). Vocabulary size and depth as predictors of second language speaking ability. *System*, 99. https://doi.org/10.1016/j.system.2021.102521

Karakoça, D., & Gül DurmuÇoğlu, K. (2017). The impact of vocabulary knowledge on reading, writing and proficiency scores of EFL learners. *Dil ve Dilbilimi Çalışmaları Dergisi*, *13*(1), 352–378.

Kiliç, M. (2019). Vocabulary knowledge as a predictor of performance in writing and speaking: A case of Turkish EFL learners. *PASAA*, *57*, 133–164. https://files.eric.ed.gov/fulltext/EJ1224421.pdf

Krishnan, P. D., & Md Yunus, M. (2019). Blended CEFR in enhancing vocabulary among low proficiency students. *Arab World English Journal*, *5*, 141–153.

Kyle, K., Crossley, S. A., & Jarvis, S. (2021). Assessing the validity of lexical diversity indices using direct judgements. *Language Assessment Quarterly*, *18*(2), 154–170.

Lateh, N. H. M., Shamsudin, S., & Abdul Raof, A. H. (2018). Receptive vocabulary levels of Malaysian university students. *LSP International Journal*, *5*(1).

Laufer, B., & Nation, P. (1995). Vocabulary size and use: Lexical richness in L2 written production. *Applied Linguistics*, *16*(3), 307–322. https://doi.org/10.1093/applin/16.3.307

Laufer, B., & Nation, P. (1999). A vocabulary-size test of controlled productive ability. *Language Testing*, *16*(1), 36–55. https://doi.org/10.1177/026553229901600103

Laufer, B., & Ravenhorst-Kalovski, G. C. (2010). Lexical threshold revisited: Lexical text coverage, learners' vocabulary size and reading comprehension. *Reading in a Foreign Language*, *22*(1), 15–30. http://hdl.handle.net/10125/66648

Levitzky-Aviad, T., & Laufer, B. (2013). Lexical properties in the writing of foreign language learners over eight years of study: Single words and collocations. In C. Bardel, C. Lindqvist, & B. Laufer (Eds.), *L2 Vocabulary Acquisition, Knowledge and Use: New Perspectives on Assessment and Corpus Analysis*. 127-148.

Mayadi, N. S. N., & Yamat, H. (2021). An investigation of the English vocabulary knowledge of lower

https://10.24191/cplt.v11i3.25108

secondary students: A case study of a Malaysian school. *International Journal of English Language Studies, 3*(2), 131–138. https://doi.org/10.32996/ijels.2021.3.2.14

Miralpeix, I., & Muñoz, C. (2018). Receptive vocabulary size and its relationship to EFL language skills. *International Review of Applied Linguistics in Language Teaching, 56*(1), 1–24.

Mohd Nasir, M. F., Ab Manan, N. A., & Azizan, N. (2017). Examining the relationship between vocabulary knowledge and general English language proficiency. *ESTEEM Journal of Social Sciences and Humanities, 1*, 15–22. https://ir.uitm.edu.my/id/eprint/29794/

Mokhtar, A. A., Mohd Rawian, R., & Singh, P. K. (2016). English lexical acquisition of adult learners in instructional settings: Issue on lexical input. *ASIAN TEFL: Journal of Language Teaching and Applied Linguistics, 1*(2), 381–390. http://doi.org/10.21070/picecrs.v1i1.506

Mokhtar, A. A., Rawian, R. M., Yahaya, M. F., Abdullah, A., Mansor, M., Osman, M. I., Zakaria, Z. A., Murat, A., Nayan, S., & Mohamed, A. R. (2010). Vocabulary knowledge of adult ESL learners. *English Language Teaching, 3*, 71–80. https://eric.ed.gov/?id=EJ1081453

Myagmarkhorloo, C., & Ulziinaran, A. (2018, October 13-14). *Using technology in an English speaking and listening class of Mongolian learners* [Conference session]. The 26th Korea TESOL International Conference, Sookmyung Women's University, Seoul, Korea.

Nation, I. S. P. (1983). Testing and teaching vocabulary. *Guidelines*, 5, 12–25.

Nation, I. S. P. (2011). Research into practice: Vocabulary. *Language Teaching, 44*(4), 529–539.

Nation, P., & Beglar, D. (2007). A vocabulary size test. *The Language Teacher, 31*, 9–13.

Nontasee, W., & Sukying, A. (2021). The learnability of word knowledge aspects in Thai EFL high school learners. *Journal of Language and Linguistic Studies, 17*(1), 34–55.

Schmitt, N., Cobb, T., Horst, M., & Schmitt, D. (2015). How much vocabulary is needed to use English? *Language Teaching: Surveys and Studies*. Cambridge University Press.

Schmitt, N., Jiang, X., & Grabe, W. (2011). The percentage of words known in a text and reading comprehension. *Modern Language Journal*, *95*(1), 26–43. https://doi.org/10.1111/j.1540-4781.2011.01146.x

Schmitt, N., & Schmitt, D. (2012). A reassessment of frequency and vocabulary size in L2 vocabulary teaching. *Language Teaching, 47*(4), 484-503. https://doi.org/10.1017/S0261444812000018

Shamsudin, S., Lateh, N. H. M., Raof, A. H. A., & Attan, A. (2016). *Relationship between vocabulary size and MUET score of Malaysian undergraduates* [Conference session]. 4th International Conference on Liberal Arts and Social Sciences 2016, Universiti Sains Malaysia, Penang.

Stoeckel, T., McLean, S., & Nation, P. (2021). Limitations of size and levels tests of written receptive vocabulary knowledge. *Studies in Second Language Acquisition, 43*(1), 181–203.

Tseng, W. T., Liou, H. J., & Chu, H. C. (2020). Vocabulary learning in virtual environments: Learner autonomy and collaboration. *System, 88*. https://doi.org/10.1016/j.system.2019.102190

Wero, Y. T., Machmud, K., & Husain, N. (2021). The study on students' vocabulary size. *Jambura Journal of English Teaching and Literature, 2*(1). https://doi.org/10.37905/jetl.v2i1.10279

Wong, A. S. C., & Lee, J. Y. V. (2020). Investigating the predictive role of vocabulary in written performance. *Borneo Akademika, 4*, 70-83. https://ir.uitm.edu.my/id/eprint/80759/

Zhong, H. F. (2018). The relationship between receptive and productive vocabulary knowledge: A perspective from vocabulary use in sentence writing. *Language Learning Journal, 46*(4), 357–370.

https://10.24191/cplt.v11i3.25108