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Research Paper

How Does Vocabulary Size Affect Maritime English Achievement?
A Correlational Study of Cadets in Sorong Merchant Marine Polytechnic

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Abstract

English, particularly in the context of maritime communication, has significantly contributed to the education field. Conversely, the efficacy of its educational instruction in Indonesia has been lacking. Several variables influence students' proficiency in acquiring foreign languages; one such factor is their vocabulary size. This research aimed to investigate the relationship between the vocabulary size of cadets and their achievement in maritime English. The research design employed in this study is ex post facto. The researcher employed a vocabulary test and assessed maritime English achievement as the primary instrument in their study. In this instance, the researcher administered a written examination to assess the cadets' vocabulary size. Subsequently, the researcher analyzed the data obtained from the assessment to determine the cadets' performance in maritime English. The findings indicated a statistically significant correlation between the two variables. Hence, the size of one's vocabulary indicates the achievement cadets can attain in their proficiency in maritime English.

Keywords *Vocabulary Size, Maritime English, Cadet, Sorong*

INTRODUCTION

English is a global language, so academic and professional success requires language proficiency. One in four people speak English functionally: 1.75 billion. We expect two billion people to use or learn it by 2020. The economically active thought leaders, business decision-makers, young, present, and future movers and shakers learn and speak English. As more people communicate, English is the global discourse's 'operating system' (Howson, 2013). Most global sources of information in various fields use English, so mastery is essential (Durand, 2006). All education, economics, technology, politics, and business information is in English (Nugraha et al., 2020). Because businesspeople and employees come from many countries, English is widely used in business, especially in the marine sector. The maritime industry uses English because it is the common language (Moore, 2020; Saunders, 2020; Menon, 2021). Business, administration, and management benefit from maritime English. It can communicate with other ships and foreign ports. Maritime English benefits administrators, attorneys, seafarers, and ship owners (Moore, 2020). The maritime industry uses "Maritime English."

ESP includes Maritime English. ESP teaches English in a specific field or career (Ballan, 2023). Maritime English ensures daily tasks and emergency responses with standardized structures and vocabulary. They are often used for ship-to-ship, ship-to-shore, and on-board communication. Since English is the common language at sea, maritime English adds unique phrases and terms to avoid ambiguity (Menon, 2021). It helps maritime and other professionals communicate (Moore, 2020). Maritime English reduces misunderstandings, preventing accidents and ensuring safety. Seafarers, student officers, and cadets need maritime English to communicate at sea.

On the other hand, maritime English is required for maritime jobs, but applicants often lack

it (Saunders, 2020). In addition, the Maritime Education and Training (MET) Polytechnic Adiguna Medan graduates and students lack English proficiency. They do not meet the STCW 2010 curriculum-amended English standard (Dirgayasa, 2022). Besides, students and instructors reported that student officers had trouble understanding written instructions for routine shipboard activities (Erawati, 2014). Observations from multiple meetings and a study pre-test of Maritime English learning revealed many obstacles, including a lack of ship electrical terminology vocabulary (Sukomardojo & Ratnaningsih, 2020). Some studies have found that seafarers need to improve their maritime English, but they should also be assessed for general English proficiency.

However, General English underpins all ESP subfields and is essential for fluency in a special language. Students should learn General English (GE) in addition to Maritime English to improve cross-cultural communication. Body language and other non-verbal communication become more familiar to English learners as they learn the language and culture. Because English is culturally diverse, it helps seafarers from different countries communicate, which increases safety and reduces risk. It improves safety and reduces risk by helping international seafarers communicate. Communication between international seafarers improves safety and reduces risk (Tenieshvili, 2013). For better performance, seafarers must speak maritime English. First, they must master general English. The language and vocabulary must be mastered.

Furthermore, student English proficiency requires vocabulary because they cannot communicate effectively or express their own views without it. Some researchers believe language proficiency requires vocabulary (Wan & Tan, 2018; Wero et al., 2021; Alsahafi, 2023). This is in line with the statement that adequate vocabulary and expressions make it possible to communicate without a solid grasp of language structure, demonstrating the significance of vocabulary for students, particularly in English (Sumarta et al., 2019; Sumarta et al., 2022). Therefore, the amount of a learner's vocabulary is one of the criteria that helps to define how successful they are in using English.

In addition, vocabulary size is also the number of words one knows. Cadets' vocabulary size must be tested. Knowing cadets' vocabulary size helps them improve and helps lecturers and instructors motivate and instruct them to increase their vocabulary. The vocabulary size test estimates second and foreign language learners' general or academic English vocabularies. The 2000 most common English words also comprise 80% of academic texts, newspapers, and conversation, and 90% of novels. (Nation, 2001). For productive speaking and writing, 2,000–3,000 words are enough (Nation and Waring, 1997). Thus, a learner who masters 2000 words will know 80% of the text

A study found that students with large vocabulary perform better academically (Syaifudin et al., 2020). Furthermore, students with a better vocabulary can express themselves and perform better in English classes (Bacus, 2018). More than half of the study participants had vocabulary issues that would hinder their academic development (Srimongkontip & Wiriyakarun, 2014). A study revealed, however, that there was no significant correlation between academic achievement (GPA) and receptive vocabulary size (ÿzönder, 2016).

Since previous studies are still debatable, this issue should be considered based on them. Previous research had conflicting results, so the current researcher investigated whether students' vocabulary size and maritime English achievement are positively or negatively correlated.

LITERATURE REVIEW
Maritime English

Maritime English (ME) is a globally accepted maritime language. Maritime English also includes the English spoken by seafarers, shipbuilders, and shipping and shipyard workers (Bocanegra-Valle, 2012). The existence of maritime existence facilitates effective communication

between ship and shore, crew members, and crew-passenger interactions. ME has five subtypes for maritime purposes. English for navigation and maritime communications, maritime commerce, maritime law, marine engineering, and shipbuilding are sub-varieties (Bocanegra-Valle, 2012). ME prevents communication failures from causing property damage, environmental damage, and death. The IMO, ILO, IALA, and ITU have implemented regulations to promote Maritime English. The Standard Marine Communication Phrases (SMCP) adoption was facilitated by IMO Resolution A.918 (22), which recognized English as the primary maritime language. The SMCP recognized the need for standardized language and terminology to improve global ship navigation and operations (International Maritime Organization, 2002). An instructor can assess cadets' maritime English proficiency in listening, speaking, reading, and writing.

Vocabulary Size

The relationship between vocabulary and second-language proficiency is well-known. Widely recognized is that vocabulary size specifically affects L2 learners' English communicative competence. The number of words a person knows affects language skills (Nation and Anthony, 2016). According to the statement, statistical methods can quantify language learners' vocabulary.

Token, type, lemma, and word family quantification methods exist. A "token" is any word in a written or spoken text. The concept of "type" treats repeated tokens as one word. "Lemma" includes headwords and their inflected or reduced forms. However, a "word family" includes a headword, inflected forms, and closely related derived forms (Bauer & Nation, 1993). In foreign language acquisition, textbook word counts can be used to assess vocabulary (Nation, 2001). High-frequency, academic, and low-frequency words exist (Nation, 2001). According to several studies, high-frequency words cover 76.1% to 82.5% of text. Academic Word Lists, which contain 570 word families, make up 8.5% to 10% of academic text tokens. In textbooks, low-frequency words are rare and underrepresented. A 2,000-word learner knows 80% of a text's words (Nation and Waring, 1997).

Moreover, it is important to note that vocabulary assessments can be breadth or depth. Breadth of knowledge refers to a learner's vocabulary or number of words. However, depth of knowledge assesses a learner's vocabulary, focusing on word familiarity and comprehension (Anderson & Freebody, 1981). Vocabulary tests usually test as many words as possible in the allotted time and require only one response per word (Read, 1993).

RESEARCH METHOD

The study involved 131 Batch XV second-semester cadets at Sorong Merchant Marine Polytechnic from June to September 2022. The author used a vocabulary size test and maritime English GPA. The Word Definition Matching Format (WDMF) (Sutarsyah, 2006) measured vocabulary size, while the Maritime English grade point average measured achievement. This study uses quantitative methods. The study used an ex post facto design involving a single group and no sample manipulation.

The author used these methods to conduct research:

a. The Grade Point Average of Maritime English

The study program unit determines maritime English GPA. These findings are the cadets' final English language acquisition results from one semester.

b. The Vocabulary Size Test

The author assessed the cadets' vocabulary with a vocabulary size test. When answering questions, the cadets had to indicate the numerical value of the word next to the definition. Cadets had 90 minutes to complete this exam.

The vocabulary size assessment measures cadets' vocabularies. A correct response scores 1,

while an incorrect response scores 0. The cadet's vocabulary size is calculated by dividing the correct responses by the total number of items (or samples) in each vocabulary level assessment. Next, the percentage of correct responses was calculated. The authors estimated the cadet vocabulary by multiplying the population by 1,000 words per level. For instance, the WDMF test has 40 items per level. The vocabulary size test scores students by having them complete the following tasks:

a. Scoring the vocabulary test
b. Calculating the outcome of the vocabulary test

$$SS = \frac{\sum S}{SMPL} \times 1000 \text{ (level 1 dan level 2)}$$

Where,

SMPL : Size of a Subject's Vocabulary at a Given Level

SS : The Subject's Level Test Score

S : Total Score for Students' Vocabulary

Additionally, the maritime English grade point average assesses cadets' English language proficiency after one semester. Admission (10%), independent assignment (20%), midterm (30%), and final semester exam (40%) determine the grade.

FINDINGS AND DISCUSSION
Maritime English Achievement

The author presents data on cadets' maritime English grade point averages across various study programs within this sub-chapter.

Table 1. Maritime English Achievement of Each Study Program

Maritime English Achievement	N	Minimum	Maximum	Mean	Std. Deviation
Nautical Studies	44	3.40	3.80	3.5136	.15187
Ship Engineering	44	3.00	3.80	3.3409	.19086
Maritime Logistics and Port Management	43	3.00	3.80	3.4884	.21068
Valid N (listwise)	43				

According to the table, ship engineering, maritime logistics, and port management cadets had a minimum grade point average of 3.00, while nautical studies cadets had 3.40. Additionally, cadets in the three study programs had a maximum maritime English GPA of 3.80. The mean maritime English GPA for Nautical Studies cadets was 3.5136. The GPA for Ship Engineering cadets was 3.3409. Cadets in the Maritime Logistics and Port Management program have a 3.4884 GPA. The cadets' mean scores indicate they have mastered maritime English, surpassing the minimum requirement.

Cadets who want to be transportation officers must speak English. At the 2021 Indonesian Transportation English Olympics (ITEO), the Minister of Transportation stressed the importance of English as a global language in acquiring experience, knowledge, values, beliefs, and skills needed to contribute to a multicultural society in diverse economic and social contexts (Biro Komunikasi dan Informasi Publik, 2021). The English language is a globally recognized means of communication within the transportation sector, particularly in international industries such as aviation, shipping, and railways.

Furthermore, English is the main language used in international transportation regulations. English proficiency can help transportation officers communicate with foreign ship crews or authorities in emergencies. However, since English relies on foreign investors, it is important to recognize its role in improving the transportation economy (Abimanto, 2022). Hence, a high level of English language proficiency is imperative for individuals employed in the transportation sector, as it plays a crucial role in facilitating effective communication and ensuring transportation operations' overall safety and security.

Cadets' Vocabulary Size

Within this subsection, the author presents empirical data in the form of test results measuring the vocabulary size of cadets across various study programs.

Table 2. Cadets' Vocabulary Size of Each Study Program

Vocabulary Size	N	Minimum	Maximum	Mean	Std. Deviation
Nautical Studies	44	150.00	1950.00	1468.18	438.72714
Ship Engineering	44	475.00	1950.00	1411.93	467.56695
Maritime Logistics and Port Management	43	500.00	1950.00	1419.19	453.61764
Valid N (listwise)	43				

The table above shows that Maritime Logistics and Port Management cadets scored 150, Ship Engineering 475, and Nautical Studies 150. The maximum vocabulary size test score for Nautical Studies, Ship Engineering, and Maritime Logistics and Port Management cadets was 1950. Nautical Studies cadets averaged 1468.19, Maritime Logistics and Port Management 1419.19, and Ship Engineering 1411.93 on the vocabulary size test. The mean score of cadets suggests they have a large vocabulary, with a maximum score of 2000 if all questions are answered correctly.

To conclude, Sorong Merchant Marine Polytechnic cadets understand 80% of the text's vocabulary. A learner knows 80% of a text's words with a 2,000-word vocabulary (Nation & Waring, 1997). For productive speaking and writing, 2,000–3,000 words are enough (Nation & Waring, 1997). Knowing cadets' lexical breadth helps them grow personally and helps educators and trainers motivate and improve their vocabulary.

The Impact of Cadet Vocabulary Size on the Achievement of Maritime English

This study is quantitative. The study had one group without experimental manipulation, so the author used ex post facto. The researcher used SPSS to run the Simple Linear Regression Test to see how cadets' vocabulary size affected maritime English performance. The following are the statistical analysis results.

Table 3. The Result of Simple Linear Regression Test

		Coefficients[a]				
		Unstandardized Coefficients		Standardized Coefficients		
	Model	B	Std. Error	Beta	t	Sig.
1	(Constant)	3.233	.055		58.595	.000
	Level of Risk Taking	.000	.000	.337	4.066	.000

a. Dependent Variable: Grade Point Average

Based on the aforementioned results, it is evident that the significance value (Sig.) of 0.00 is below the predetermined probability threshold of 0.05 (p<0.05). A statistically significant relationship exists between cadets' vocabulary size and maritime English proficiency. Research shows a positive correlation between students' vocabulary sizes and academic performance (Syaifudin et al., 2020). Lexical proficiency also helps students express themselves and perform better in English classes (Bacus, 2018). Furthermore, the importance of acquiring receptive vocabulary for English as a Foreign Language (EFL) students (Chiang, 2018). Furthermore, Most study participants had trouble learning vocabulary, which could hinder their academic progress (Srimongkontip & Wiriyakarun, 2014). However, a study indicated no correlation between academic achievement (GPA) and receptive vocabulary size (ÿzönder, 2016).

Vocabulary is crucial to English proficiency because it affects students' ability to communicate and express themselves. Several studies show that language proficiency depends on vocabulary (Wan & Tan, 2018; Wero et al., 2021; Alsahafi, 2023). A sufficient vocabulary and expressions support the assertion that effective communication can be achieved without a complete understanding of language structure. Student vocabulary acquisition is crucial, especially in English language learning (Sumarta et al., 2019; Sumarta et al., 2022). Hence, the extent of a learner's lexicon determines their proficiency in English, especially maritime English.

CONCLUSIONS

English is widely used in textbooks and literature across disciplines, focusing on maritime English. However, foreign language education in Indonesia, particularly English instruction, has not been successful. Cadets' vocabulary size also affects second-language learning. A statistically significant correlation was found between cadet vocabulary size and maritime English achievement. The extent of a cadet's vocabulary indicates the likelihood of maritime English proficiency. In addition to vocabulary size, many other factors affect an individual's ability to learn a non-native language, especially maritime English. Future researchers should investigate these issues.

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