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INVESTIGATING THE CADETS' VOCABULARY LEARNING STRATEGIES AND THEIR MARITIME VOCABULARY MASTERY IN DIFFERENT ACADEMIC MAJORS

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ABSTRACT
Vocabulary acquisition is crucial for language learners, impacting their overall linguistic proficiency and communication abilities. This research investigated the influence of vocabulary learning strategies and study programs on maritime cadets' vocabulary test results at Sorong Merchant Polytechnic. This study employed a quantitative methodology and an ex-post facto design. The sample consisted of 91 third-semester cadets from Sorong Merchant Marine Polytechnic, representing three study programs: Port and Shipping Management, Ship Engineering, and Nautical Studies. Data were collected through a questionnaire to assess vocabulary learning strategies and a vocabulary examination based on maritime-related queries. Statistical analyses revealed no significant differences in vocabulary test scores across academic programs and learning strategies, despite the popularity of the determination strategy. However, a two-way ANOVA indicated a significant interaction effect between vocabulary learning strategies and study programs ($F(7, 77) = 2.477$, $p = .024$). This suggests that specific combinations of learning strategies and study programs may enhance vocabulary test results more effectively than individual variables alone. Therefore, developing tailored teaching methods is crucial to improve learning outcomes. Further research should explore additional factors such as motivation, prior language proficiency, and learning environment support to optimize language learning outcomes.
Keywords: *Maritime Vocabulary, VLS, Cadet, Sorong*

INTRODUCTION

Vocabulary acquisition is a fundamental component in language learning, as it underpins key skills such as reading, writing, speaking, and listening (Imaniah & Jaya, 2022). Effective vocabulary use enables students to convey their thoughts precisely, thus improving their overall communication skills (Ramadhania & Yamin, 2022). However, research has consistently highlighted challenges in students' mastery of English vocabulary, indicating a critical gap in educational outcomes (Amalia, 2018; Rikmasari & Budianti, 2019). This gap underscores the need for innovative instructional strategies to enhance students' vocabulary acquisition.

Vocabulary Learning Strategies (VLS) have been recognized as an essential tool for improving vocabulary mastery. VLS enables learners to acquire, retain, and expand their vocabulary autonomously, fostering self-directed learning and greater

linguistic proficiency (Nation, 2001; Schmitt, 1997). Various strategies, such as discovery and consolidation techniques, employ cognitive and metacognitive approaches to facilitate vocabulary retention (Nation, 2013). Prior studies have demonstrated that targeted use of these strategies significantly enhances vocabulary acquisition, empowering learners to engage with new words beyond the classroom context (Kojic-Sabo & Lightbown, 1999).

Research across regions, including Asia, Europe, Africa, and America, has revealed variations in VLS application based on factors such as proficiency, gender, and cultural context (Memiş, 2018; Mudzielwana, 2016). These findings suggest that VLS effectiveness is context-dependent, requiring tailored approaches that consider individual learner characteristics. For instance, gender differences and language proficiency levels have been found to influence the strategies students employ for vocabulary learning (Okyar, 2021).

Despite extensive studies on VLS within English as a Foreign Language (EFL) context, limited research exists on how academic programs, particularly in maritime education, impact cadets' vocabulary mastery. Given the distinct language needs of cadets in maritime-related fields, it is crucial to understand how different academic majors shape their use of VLS and influence their vocabulary acquisition processes.

This study aims to investigate the differences in maritime vocabulary mastery among cadets from diverse academic programs, focusing on the application of VLS. By bridging this research gap, the findings can inform curriculum developers and educators, facilitating more effective vocabulary instruction tailored to the unique needs of cadets in maritime education.

METHOD

This study employs a quantitative methodology and an ex-post facto design, in which experimental manipulation of the sample is avoided and only one group is examined. Cadets from the Sorong Merchant Marine Polytechnic comprise the population; 91 third-semester cadets from the fifth cohort comprise the sample. The methods of data collection consist of a questionnaire and a vocabulary examination. The survey gauges the preferences of students regarding vocabulary learning strategies in the following five categories: social strategies, memory strategies, cognitive strategies, and metacognitive strategies. Participants provide their responses on a five-point Likert scale ranging from one (indicating never use the strategy) to five (indicating always use it). 120 minutes are required to complete. The vocabulary

examination gauges the mastery of maritime English by cadets via maritime-related queries, allotted a time limit of 90 minutes. In accordance with IMO Resolution A.918(22), instruments were created in accordance with Schmitt's L2 vocabulary acquisition taxonomy (Schmitt, 1997), the IMO Model Course 3.17, Maritime English, and the IMO Standard Marine Communication Phrases (SMCP). The data were analyzed utilizing SPSS 22.0 software and two-way ANOVA. During this process, the reliability and validity of the learning strategies and vocabulary tests were assessed, along with the discriminatory power and level of difficulty of the vocabulary test. Additionally, significant variations in the cadets' vocabulary mastery with respect to the implementation of vocabulary learning strategies across different study programs were identified. Conclusions are derived from the outcomes of this analysis.

FINDING AND DISCUSSION

A two-way anova using SPSS version 22 was used to analyze the differences in cadets' maritime vocabulary mastery concerning the application of vocabulary learning strategies across different study programs. The participant distribution according to vocabulary learning strategies and study programs is presented in Table 1. The information presented in this dataset offers valuable insights into the vocabulary learning strategies preferred by participants enrolled in different academic programs. This facilitates subsequent analysis concerning the correlation between the learning methods employed and the academic programs pursued.

Tabel 1. Distribution of Participants Based on Vocabulary Learning Strategies and Study Programs

		Value Label	**N**
Vocabulary Learning Strategy	1	Cognitive	7
	2	Determination	28
	3	Memory	13
	4	Metacognitive	24
	5	Social	19
Study Program	1	Port and Shipping Management	27
	2	Ship Engineering	37
	3	Nautical Studies	27

Cognitive (7 participants), determination (28 participants), memory (13 participants), metacognitive (24 participants), and social (19 participants) are the vocabulary learning strategies identified by the results. The participant pool consists of individuals who are affiliated with three distinct academic disciplines: Port and Shipping Management (n=27), Ship Engineering (n=37), and Nautical Studies (n=27). The determination strategy is the most frequently implemented, whereas the largest

number of participants is in ship engineering. The relationship between vocabulary learning strategies and study programs, as well as the effect of the two on learning outcomes, can be analyzed using this information.

The determination strategy is a solitary approach employed to ascertain the definitions of unfamiliar terms, devoid of assistance from peers or instructors. The process entails the examination of a language's structural information, including word components, affixes, and roots (Huong, 2018; Schmitt & Schmitt, 2020). Furthermore, the determination strategy incorporates the utilization of bilingual or monolingual dictionaries and contextual guesswork to ascertain the meanings of unfamiliar words. Students are able to autonomously ascertain the definitions of words using this method (Baskin et al., 2017).

According to a study conducted by Utomo et al. in 2022 involving Indonesian students, the determination strategy was identified as the most commonly employed approach (Utomo et al., 2022). The determination strategy is the most preferred, according to a number of studies (Baskin et al., 2017; Huong, 2018; Listyani & Pradina, 2021; Nirattisai & Chiramanee, 2014).

A prevalent approach emphasized in numerous scholarly investigations is the implementation of determination strategies (Baharudin & Ismail, 2014, 2015; Kırmızı, 2014; Nirattisai & Chiramanee, 2014; Noprianto & Purnawarman, 2019; Tanyer & Ozturk, 2014; Thiendathong & Sukying, 2021). Activities such as making educated guesses based on linguistic cues and prior knowledge assist students in deciphering unfamiliar words and increasing their lexicon (Nayan & N Krishnasamy, 2019).

Although determination strategies are commonly employed by learners to enhance their vocabulary, certain research studies have suggested that their influence on the overall size of the vocabulary may not be substantial (Kırmızı, 2014; Tanyer & Ozturk, 2014). Nevertheless, this method continues to be preferred by pupils, which demonstrates its efficacy in facilitating the acquisition of vocabulary (Asyiah, 2017).

In contrast, among the three academic programs that were enrolled in by the participants, the Ship Engineering program attracted the largest cohort of 37 individuals. This finding indicates that the Ship Engineering program has garnered more attention or is perceived as more desirable in comparison to the Port and Shipping Management and Nautical Studies programs, both of which attracted 27 students each. This is due to the Ministry of Transportation's implementation of a new

recruit admittance quota system, which allots additional slots to the Ship Engineering program. Sorong Merchant Marine Polytechnic received a recruitment quota of 24 cadets for the Associate Degree in Ship Engineering Study Program from the Ministry of Transportation, as well as a special recruitment quota of 18 cadets from Papua (Elly, 2023; Savitri, 2023). This allocation emphasizes the program's allure and importance to prospective pupils.

To further understand the impact of vocabulary learning strategies across these academic programs, Table 2 presents descriptive statistics for the vocabulary test results based on vocabulary learning strategies and study programs.

Table 2. Descriptive Statistics for Vocabulary Test Based on Vocabulary Learning Strategies and Study Programs

Vocabulary Learning Strategy	Study Program	Mean	Std. Deviation	N
Cognitive	Port and Shipping Management	70.6680	9.83294	5
	Nautical Studies	88.3300	7.07107	2
	Total	75.7143	12.12700	7
Determination	Port and Shipping Management	86.3320	10.70924	10
	Ship Engineering	74.3585	11.33637	13
	Nautical Studies	78.6680	11.20362	5
	Total	79.4043	12.00318	28
Memory	Port and Shipping Management	96.6700	.	1
	Ship Engineering	87.2233	13.89170	6
	Nautical Studies	75.0000	13.94402	6
	Total	82.3085	14.74434	13
Metacognitive	Port and Shipping Management	75.7143	8.96832	7
	Ship Engineering	74.6660	7.40450	10
	Nautical Studies	80.4757	14.83835	7
	Total	76.6662	10.31045	24
Social	Port and Shipping Management	75.8325	11.98046	4
	Ship Engineering	86.2513	13.14436	8
	Nautical Studies	80.9529	12.86929	7
	Total	82.1058	12.77568	19
Total	Port and Shipping Management	79.5059	11.82863	27
	Ship Engineering	79.0992	12.36465	37
	Nautical Studies	79.6296	12.62007	27
	Total	79.3773	12.15073	91

Descriptive statistical analysis indicates that the distinctions between study programs and learning strategies are not particularly substantial, despite the existence of variation in vocabulary test results. The average vocabulary test scores across all study programs are comparatively balanced, with an overall mean of 79.38 and a standard deviation of 12.15. This suggests that, in general, no singular study program or learning strategy is substantially more effective than the others in influencing the results of vocabulary tests. For example, the Nautical Studies program's cognitive strategies have the highest average score (88.33), but this does not indicate a

predominant trend across all categories. In the same vein, the memory strategy in Port and Shipping Management was employed by a single participant, who achieved an exceptionally high score of 96.67. However, this is insufficiently representative to support a more comprehensive analysis.

It is essential to take into account the numerous factors that can influence the efficacy of learning approaches when developing educational strategies and programs to enhance vocabulary test results. Literature suggests that no single program or strategy substantially outperforms the others in influencing vocabulary test results, despite the prevalence of a variety of methodologies, including traditional teaching methods and more innovative technological interventions (Riese et al., 2020). The complexity of language acquisition and the necessity of a nuanced comprehension of the process by which students acquire and retain vocabulary are underscored by the absence of a distinct advantage among various approaches.

The significance of taking into account the context and specific requirements of learners when developing language learning programs is one of the most significant findings of this investigation. The scarcity of resources and expertise presents a challenge to the development of effective second language teaching methods for communities that are engaged in language revitalization initiatives (Hinton, 2011). This emphasizes the importance of customizing educational strategies to meet the distinctive requirements of a variety of learner populations, while also considering cultural, linguistic, and pedagogical factors in order to enhance the quality of learning.

To further explore these findings, the results of a two-way analysis of variance (ANOVA) are presented in Table 3. This ANOVA examined the impact of vocabulary learning strategies (VLS) and study programs (PRODI), in addition to their interaction, on the scores obtained from the vocabulary test.

Table 3. Two-Way ANOVA for Vocabulary Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2906.554[a]	13	223.581	1.658	.088
Intercept	383538.110	1	383538.110	26	.00
VLS	499.746	4	124.936	.927	.453
PRODI	5.624	2	2.812	.021	.979
VLS * PRODI	2337.172	7	333.882	2.477	.024

Error	10381.067	77	134.819		
Total	586655.712	91			
Corrected Total	13287.621	90			

a. R Squared = .219 (Adjusted R Squared = .087)

These findings are corroborated by the results of a two-way ANOVA, which suggests that the individual effects of vocabulary learning strategies (F(4, 77) =.927, p =.453) and study programs (F(2, 77) =.021, p =.979) on vocabulary test results are not statistically significant. This is consistent with research that has not identified a significant correlation between vocabulary mastery and vocabulary learning strategies (Nurhayati & Lolong, 2024). Furthermore, other investigations have demonstrated that there is no statistically significant distinction between the utilization of vocabulary acquisition strategies by MA and PhD students (Ghalebi et al., 2020). Another study found that science students have a minor advantage in vocabulary size compared to arts students; however, this advantage is not statistically significant (t=-.74, p = .46) (Gu, 2002). This implies that when learning strategies and study programs are assessed separately, neither exhibits a consistent or substantial influence on learning outcomes.

Nevertheless, this investigation also determined that the interaction between vocabulary learning strategies and study programs has a substantial impact (F(7, 77) = 2.477, p =.024). This suggests that the results of vocabulary tests can be more substantially influenced by specific combinations of learning strategies and study programs than by the individual effects of each single variable. Consequently, it is crucial to evaluate the extent to which particular learning strategies can be more effective in the context of particular study programs. This information can be used to develop more effective and suitable teaching methods that will enhance the learning outcomes of students.

CONCLUSION

The determination strategy, which entails the independent discovery of the meanings of new words by individuals, was the most frequently employed by participants in this study, which assessed the influence of vocabulary learning strategies and academic programs on vocabulary test results. Statistical analysis revealed no substantial differences in vocabulary test results between the academic programs and learning strategies employed, despite the popularity and preference of

the determination strategy. The results of a two-way ANOVA demonstrated that the interaction between academic programs and vocabulary learning strategies has a substantial impact. This implies that specific combinations may be more effective in enhancing vocabulary test results than the individual effects of each variable by themselves. Consequently, it is crucial to determine the extent to which specific learning strategies can be more effective within the context of specific academic programs in order to develop more effective and appropriate teaching methods. It is advisable to conduct further research to investigate the factors that influence the efficacy of vocabulary learning strategies in a variety of academic program contexts. The generalizability of the findings could be improved by extending the sample of participants to include individuals from a variety of educational backgrounds and institutions. Furthermore, the utilization of combined research methods that integrate quantitative and qualitative methodologies could offer a more comprehensive understanding of the influences on vocabulary test results and students' perceptions of learning strategies. Lastly, it is crucial to assess the impact of other variables, including motivation, prior language proficiency, and the support provided by the learning environment, on the acquisition of vocabulary.

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