



Preferences of Student Officers in Choosing a Seafaring Education and Training Institution

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ABSTRACT

Understanding the preferences of student officers (cadets) in selecting maritime education and training institutions is crucial for institutional sustainability and revenue generation. This quantitative study employs conjoint analysis to examine the factors influencing institutional choice among 284 student officers from various maritime education institutions under Indonesia's Ministry of Transportation. The research identifies thirteen key attributes that significantly influence selection decisions. Results indicate that the most influential factors, in descending order of importance, are: (1) Teaching Personnel (11.43%), (2) Campus Location (9.283%), (3) Education Costs (9.277%), (4) Certificate Issuance Duration (9.086%), (5) Learning Methods (9.066%), (6) Physical Campus Condition (9.045%), (7) Campus Accreditation (8.507%), (8) Staff Friendliness (7.822%), (9) Website Accessibility (6.176%), (10) Customer Complaint Responsiveness (6.116%), (11) Campus Reputation (4.996%), (12) Laboratory Facilities (4.881%), and (13) Alumni Networks (4.315%). The utility analysis reveals that all product-related attributes significantly influence student preferences, while only certificate issuance duration among service variables demonstrates significant impact on institutional choice.

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1. INTRODUCTION

Student officers' preferences in maritime education and training institutions represent a critical determinant of institutional competitiveness and sustainability in the global maritime industry. These preferences encompass multifaceted considerations that directly influence enrollment patterns and, consequently, institutional revenue streams (Lu et al., 2017; Jin et al., 2019). The maritime education sector faces increasing competition as institutions strive to attract qualified student officers

who will become the next generation of maritime professionals.

Contemporary research emphasizes the complexity of factors influencing student choice in maritime education. Educational quality, institutional reputation, international accreditation, and specialized program availability in maritime technology and environmental sustainability constitute primary considerations (Chen et al., 2018; Wang et al., 2021). Additionally, financial accessibility, physical infrastructure, and faculty qualifications significantly impact decision-making processes (Zhou et al., 2020).

The Indonesian maritime education landscape presents unique challenges and opportunities. Public Service Agencies (Badan Layanan Umum - BLU) under the Ministry of Transportation play strategic roles in delivering customer-oriented services while contributing to state revenue generation. Universities and maritime education institutions compete intensively to attract student officers, necessitating comprehensive understanding of preference patterns to optimize institutional positioning and service delivery.

Previous research has identified various factors influencing higher education institutional choice. Lusianti and Santoso (2023) demonstrated that financial support, physical conditions, reputation, and reference groups serve as significant predictors of private university selection. Nurwahdania et al. (2022) established campus accreditation as the most critical variable, complemented by facilities, tuition fees, promotional activities, and location. However, limited research specifically addresses maritime education contexts, particularly in developing countries like Indonesia.

This study addresses the identified research gap by examining student officer preferences in Indonesian maritime education institutions. The research employs conjoint analysis to determine attribute importance and utility values, providing actionable insights for institutional strategic planning and policy development.

2. LITERATURE REVIEW

2.1 Maritime Education and Training Preferences

Maritime education and training (MET) institutions face unique challenges in attracting and retaining quality students due to the specialized nature of maritime careers and evolving industry requirements (Pallis et al., 2016). Student preferences in this sector are influenced by factors distinct from traditional higher education, including industry connectivity, practical training opportunities, and career advancement prospects.

Lu et al. (2017) investigated factors influencing Chinese seafarers' selection of maritime education institutions, identifying curriculum quality, faculty expertise, and industry partnerships as primary determinants. Similarly, Jin et al. (2019) emphasized the importance of training quality and international recognition in institutional selection processes. These findings highlight the specialized nature of maritime education preferences compared to general higher education choices.

2.2 Institutional Choice Factors

Research on educational institutional choice reveals consistent patterns across different contexts. Zhou et al. (2020) demonstrated strong relationships between maritime education quality, professional commitment, and career success among Chinese seafarers, emphasizing the importance of educational quality in long-term career outcomes. Wang et al. (2021) further established that quality management systems significantly enhance institutional competitiveness in maritime education.

Physical infrastructure and technological capabilities represent crucial factors in maritime education. Pallis et al. (2016) and Liu et al. (2022) emphasized that adequate facilities and modern simulation technology not only enhance learning comfort but also provide essential practical experience. The integration of virtual simulation technology has become increasingly important in contemporary maritime education (Liu et al., 2022).

2.3 Economic and Accessibility Factors

Financial considerations significantly influence institutional choice in maritime education. Wu et al. (2018) demonstrated that tuition fees critically affect accessibility to maritime education, while location and learning methodologies impact program availability and flexibility (Zhang et al., 2023). These economic factors are particularly relevant in developing countries where financial constraints may limit educational access.

Faculty quality and alumni networks constitute additional crucial factors. Zhou et al. (2020) and Wang et al. (2021) established that teaching personnel qualifications and alumni professional networks are essential in providing quality education and extensive professional networking opportunities. These factors directly impact graduate employment prospects and career advancement potential.

2.4 Research Gap

The literature review reveals significant gaps in understanding student officer preferences in maritime education, particularly in Southeast Asian contexts. While existing research provides insights into general patterns, limited studies specifically address Indonesian maritime education institutions. Furthermore, previous research has not comprehensively examined the relative importance of product versus service attributes in institutional choice decisions. The research gap from this research with previous research can be seen from the following table.

Table 1. Research Gap

Attributes	Dina Lusianti dan Ignatius H.S (2023)	Nurwahdania, dkk (2022).	Chen et al., (2018) ; Wang et al., (2021)	Pallis et al., (2016); Liu et al., (2022)	Wu et al., (2018); Zhang et al., (2023)	Zhou et al., (2020); Wang et al., (2021)	Achmad Bashori, dkk
Financial Support	v						
Physical Condition	v			v			v
Reputation	v		v				v
Quality of Education			v				
Education Costs					v		
Reference	v						
Accreditation		v	v				v
Facilities		v		v			v
Education Costs		v					v
Promotion		v					
Location		v			v		v
Maritime Technology Special Program			v				
Environment			v				
Learning Methods					v		v
Teaching Personnel						v	v
Alumni						v	v
Certificate Issuance							v
Friendliness							v
Complaint Handling							v
Website Access							v

3. RESEARCH METHOD

This research is a quantitative study with data collection methods using questionnaires with the sample being student officers (pasis). The sampling technique was purposive random sampling with a total sample of 284 student officers from universities and shipping education and training institutions owned by

the Ministry of Transportation while the analysis technique used conjoint analysis.

The method of data collection is that each respondent is given 32 stimuli from a combination of attributes and then asked to rate from 1 to 10, where number 1 is the lowest value / disliked and number 10 is the highest value / most preferred. The concept of this research can be described as follows.

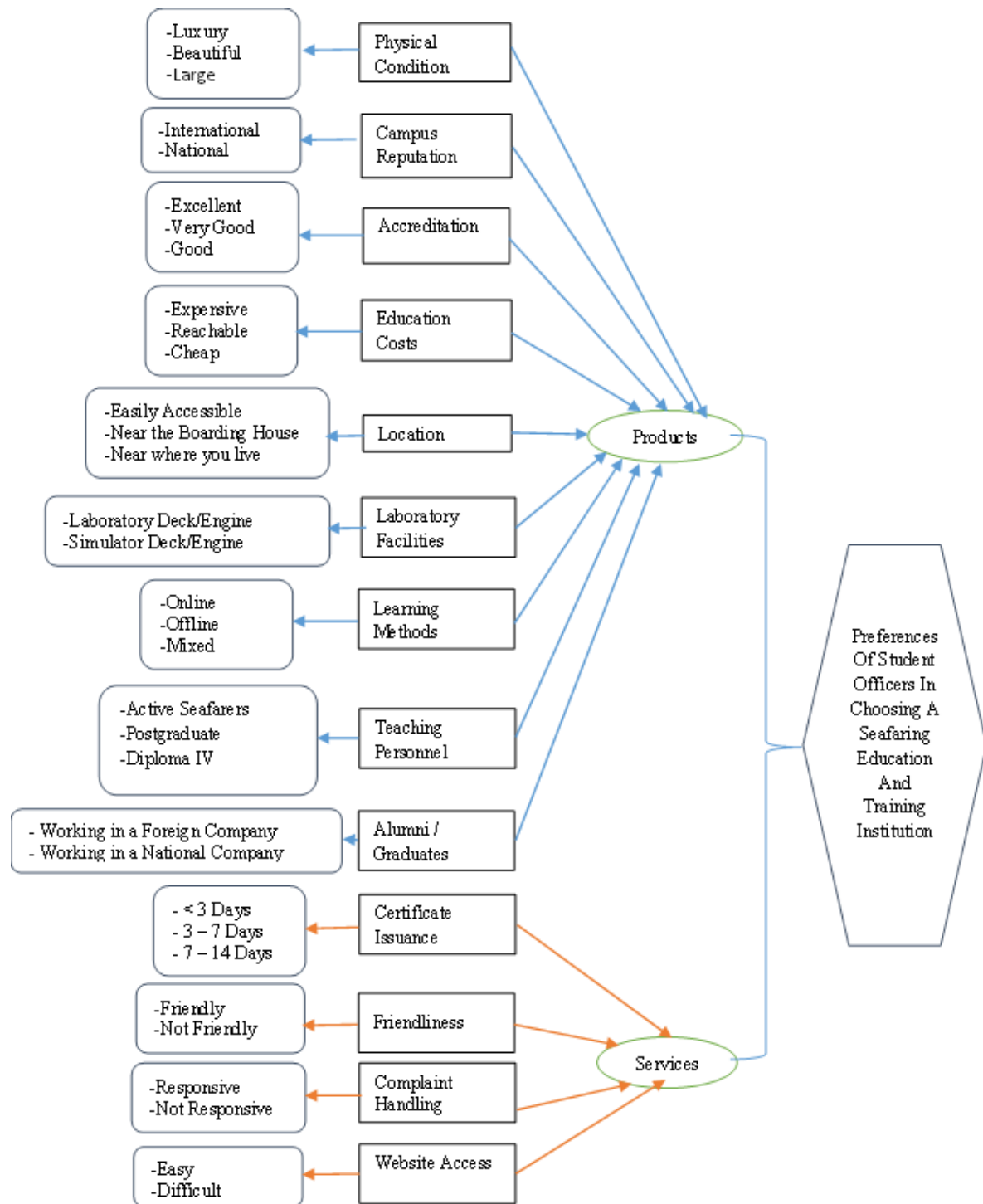


Figure 1: Conceptual model of students' preferences for choosing a university or vocational training institution based on product and service choices.

4. RESULTS ANALYSIS AND DISCUSSION

Based on the results of descriptive data processing, the following characteristics of respondents were obtained :

Table 2 Respondent Data Based on Place of Study / Training

Higher Education / Seafaring Education and Training Institution					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BP2TL	88	31.0	31.0	31.0
	BP3IP	5	1.8	1.8	32.7

Lainnya	18	6.3	6.3	39.1
Poltekpel Banten	113	39.8	39.8	78.9
STIP	60	21.1	21.1	100.0
Total	284	100.0	100.0	

Source: Data Processing Results

Based on table 4.1, it can be explained that 31% of respondents came from the Marine Transportation Education and Training Center (BP2TL), 1.8% came from the Center for Refresher Education and

Improvement of Shipping Science (BP3IP), 39.8% came from Banten Shipping Polytechnic, 21.1% of respondents came from the College of Shipping Science (STIP) and 6.3% came from other shipping schools.

Table 3. Respondent data based on seafarer competency level

Seafarer Skill Level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ANT/ATT I	75	26.4	26.4	26.4
	ANT/ATT II	16	5.6	5.6	32.0
	ANT/ATT III	35	12.3	12.3	44.4
	ANT/ATT IV	81	28.5	28.5	72.9
	ANT/ATT V	77	27.1	27.1	100.0
	Total	284	100.0	100.0	

Source: Data Processing Results

Based on table 4.2, it can be explained that 26.4% of respondents are ANT/ATT I student officers, 5.6% are ANT/ATT II student officers, 12.3% are ANT/ATT III student officers, 28.5% are ANT/ATT IV student officers and 27.1% are ANT/ATT V student officers.

The results of conjoin analysis of all respondents can be seen in table 4.3, namely the constant value of (2.063). At the Physical Campus attribute, student officers tend to place more importance on Physical Luxury with a utility value of (0.005) when compared to the other two attribute levels, namely Physical Beauty and Area. At the Campus Reputation attribute, the highest utility value at the National Reputation level is (0.004), when compared to the International

Reputation level. At the Campus Accreditation attribute, student officers are more concerned with Excellent Accreditation with a utility value of (0.003) when compared to the other two attribute levels, namely Superior and Good Accreditation. At the Tuition Fees attribute, student officers prefer Expensive Tuition Fees with a utility value of (0.05) when compared to the other two attribute levels, namely Cheap and Affordable Tuition Fees. At the Campus Location attribute, student officers prefer Campus Locations that are easily accessible with a utility value of (0.023) when compared to other attribute levels near residences and boarding houses.

Table 4 Utility Level Value of Each Attribute

Utilities		Utility Estimate	Std. Error
Physical	Luxury	.005	.017
	Beautiful	-.008	.020
	Large	.003	.020
Reputation	International	-.004	.013
	National	.004	.013
Accreditation	Superior	-.001	.017
	Excellent	.003	.020

	Good	-.001	.020
Costs	Expensive	.050	.017
	Reachable	-.031	.020
	Cheap	-.019	.020
Location	Easily to Accessible	.023	.017
	Near the Boarding House	-.042	.020
	Near where you live	.019	.020
Laboratory	Simulator Deck/Engine	-.001	.013
	Laboratory Deck/Engine	.001	.013
Learning	Online	-.020	.017
	Offline	.001	.020
	Mixed	.020	.020
Certificate	1-3 Days	-.018	.017
	4-7 Days	.023	.020
	7-14 Days	-.005	.020
Teaching Personnel	Active seafarers	-.017	.022
	Postgraduate	-.001	.022
	Diploma IV	.036	.022
Alumni	Working in a Foreign Company	-.019	.013
	Working in a National Company	.019	.013
Friendliness	Friendly	-.099	.013
	Not Friendly	.099	.013
Complaint Handling	Responsive	-.059	.013
	Not Responsive	.059	.013
Website access	Easy	-.074	.013
	Difficult	.074	.013
(Constant)		2.063	.016

Source: Data Processing Results

At the Laboratory Facilities attribute, the highest utility value is at the level of ownership of Deck and Engine Laboratory Facilities rather than ownership of Deck and Engine Simulator Laboratory Facilities, namely (0.001). At the Learning Methods on Campus attribute, the highest utility value is at the level of Mixed Offline and Online Learning, namely (0.02). At the Teaching Staff attribute, student officers prefer Diploma IV Graduate Teaching Staff with a utility value of (0.036) when compared to other attribute levels, namely Postgraduate Graduate Teaching Staff and Active Seafarers. At the Alumni attribute, student officers prefer Alumni who work in national companies compared to working in foreign companies with a utility value of (0.019). At the Certificate Issue Duration attribute, student officers prefer 4-7 days with a utility value of (0.023) when compared to other attribute levels, namely 1-3 days and 7-14 days. At the Officer Friendliness attribute, student officers prefer Unfriendly Officers compared to Friendly Officers with a utility value of (0.099). At the Complaint Handling attribute, student officers prefer Unresponsive Officers

compared to Responsive Officers with a utility value of (0.059). At the Access to Website attribute, student officers prefer Access to Website Difficult compared to Access to Website easy utility value of (0.074).

Based on the utility value above, all product variables attributes (Physical Campus, Campus Reputation, Campus Accreditation, Tuition Fees, Campus Location, Laboratory Facilities, Learning Methods, Teaching Staff, Alumni) affect the preferences of students in choosing a college / shipping education and training institution, While the service variable is only the duration of the issuance of certificates that affect the preferences of students in choosing a college / shipping education and training institution, while the attributes of Friendliness of Officers, Handling Complaints, Access to the Website respondents prefer the level of unfriendly, unresponsive, and difficult to access the website or in other words the utility of these attributes does not affect the preferences of choosing a college / shipping education and training institution.

Based on Table 4. 4 The order of importance of attributes that are the preferences of student officers (pasis) in choosing universities / shipping education and training institutions in Indonesia starting from the highest percentage to the lowest percentage, namely Teaching Staff (11.43%), Campus Location (9, 283%), Tuition Fees (9.277%), Duration of Certificate Issuance (9.086%), Learning Methods (9.066%), Physical Condition of Campus (9.045%), Campus Accreditation (8.507%), Friendliness of Officers (7.822%), Ease of Website Access (6.176%), Response to Customer Complaints (6.116%), Campus Reputation (4. 996%), Laboratory Facilities (4.881%), Alumni (4.315%).

The level of importance of the attributes of product variables that influence students' preferences in choosing universities / shipping education and training institutions in order from largest to smallest, namely (Teaching Staff, Campus Location, Tuition Fees, Learning Methods, Physical Campus, Campus Accreditation, Campus Reputation, Laboratory Facilities, Alumni), while the level of importance of service variable attributes in order is the duration of certificate issuance, friendliness of officers, easy website access, responsiveness to customer complaints.

Table 5 Attribute Importance Value

Importance Values	
Physical	9.045
Reputation	4.996
Accreditation	8.507
Costs	9.277
Location	9.283
Laboratory	4.881
Learning	9.066
Certificate	9.086
Teaching Personnel	11.430
Alumni	4.315
Friendliness	7.822
Complaint Handling	6.116
Website	6.176
Averaged Importance Score	

Source: Data Processing Results

Based on Table 4.5, it can be seen that the results of the correlation measurement show a high correlation rate, both pearson's R of (0.966) and kendall's tau of (0.818). therefore the research is considered valid and very strong because the correlation value is greater than

0.5 with a significant level smaller than the real level $\alpha = 0.05$, namely (0.000). thus the respondent's opinion has high accuracy and the significant test is known to be significant. So it can be concluded that there is a high accuracy test on the conjoin process.

Table 6 Correlation values

Correlations ^a		
	Value	Sig.
Pearson's R	.966	.000
Kendall's tau	.818	.000
a. Correlations between observed and estimated preferences		

Source: Data Processing Result

5. CONCLUSIONS

This comprehensive study provides valuable insights into the complex decision-making processes of student officers when selecting maritime education and training institutions in Indonesia. Through conjoint

analysis of responses from 284 student officers across various maritime institutions under the Ministry of Transportation, thirteen distinct attributes were identified as forming the foundation of respondents' institutional preferences. These attributes, derived from

a combination of product and service variables, demonstrate varying levels of importance in the decision-making process. The hierarchical ranking reveals Teaching Personnel as the most influential factor (11.43%), followed closely by Campus Location (9.283%) and Education Costs (9.277%). The subsequent factors include Duration of Certificate Issuance (9.086%), Learning Methods (9.066%), Physical Campus Condition (9.045%), Campus Accreditation (8.507%), Staff Friendliness (7.822%), Website Accessibility (6.176%), Customer Complaint Responsiveness (6.116%), Campus Reputation (4.996%), Laboratory Facilities (4.881%), and Alumni Networks (4.315%).

The utility analysis reveals specific preferences across all examined attributes, providing detailed insights into student officer priorities. Respondents demonstrate clear preferences for Diploma IV-qualified teaching personnel, easily accessible campus locations, and surprisingly, expensive tuition fees, suggesting an association between higher costs and perceived educational quality. Students prefer certificate issuance durations of 4-7 days, mixed online and offline learning methods, luxurious physical campus conditions, excellent campus accreditation, national campus reputation, deck and engine laboratory facilities, and alumni networks working in national companies. Interestingly, the study reveals counterintuitive preferences for seemingly negative service attributes, including unfriendly staff, difficult website access, and unresponsive customer complaint handling, which may indicate that these service aspects are not considered critical factors in the maritime education context or that students prioritize functional outcomes over service quality.

The comparative analysis between product and service variables reveals significant differences in their influence on student preferences. All product-related attributes, including Teaching Personnel, Campus Location, Education Costs, Learning Methods, Physical Campus conditions, Campus Accreditation, Campus Reputation, Laboratory Facilities, and Alumni Networks, demonstrate substantial impact on institutional choice decisions. In contrast, among service variables, only the Duration of Certificate Issuance significantly affects student preferences for maritime education institutions. The apparent disregard for traditional service quality attributes such as staff friendliness, complaint handling responsiveness, and website accessibility can be attributed to the unique characteristics of maritime education, where many student officers continue their education at the same institutions they previously attended at lower levels. This familiarity with existing services suggests that students already understand the service environment and prioritize functional outcomes over service quality.

The critical importance of certificate issuance duration reflects the practical reality of maritime careers, where timely certification directly impacts career advancement opportunities and shipboard position improvements, making this attribute essential for professional development in the maritime industry.

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