



Empowering Literacy in Maritime Education: Strategies and Professionalism Alignment

¹Panderaja Soritua Sijabat, ²Marudut Bernadtua Simanjuntak, ³Mudakir,
⁴Bobby Kurnia Putrawan, ⁵Marthin Steven Lumingkewas

^{1,2,3}*Sekolah Tinggi Ilmu Pelayaran*

⁴*Indonesia Theological Seminary (STT Indonesia – Jakarta)*

⁵*Moriah Theological Seminary (STT Moriah – Tangerang)*

email : bernadmarudut@gmail.com

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Abstract

This research investigates language instruction strategies and professionalism alignment within maritime education, focusing on 45 junior cadets. Through qualitative analysis, findings reveal varying language proficiency levels among cadets, with a predominant need for technical terminology mastery and communicative competence. Additionally, cadets emphasize the importance of practical learning experiences, such as shipboard training, and the integration of cross-cultural competence training. The research highlights the alignment between language instruction practices and international standards, notably the International Maritime Organization's (IMO) Standards of Training, Certification, and Watchkeeping (STCW) convention. Moreover, professionalism attributes, including safety awareness, ethical conduct, and leadership skills, are identified as integral components of maritime education. Recommendations include the integration of specialized language resources, continuous evaluation of instructional practices, and the promotion of ethical leadership. By addressing language instruction needs and professionalism requirements, maritime education institutions can enhance cadets' readiness for successful careers in the maritime industry.

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INTRODUCTION

Maritime education stands as a cornerstone in preparing individuals for the complexities and challenges of the maritime industry. With the maritime sector serving as a vital artery of global trade and commerce, the demand for well-trained professionals equipped with requisite skills and competencies remains paramount. Central to the preparation of these individuals is the cultivation of literacy skills, particularly in the domain of language proficiency [1], [2]. Effective language instruction not only facilitates communication but also

underpins critical aspects of maritime operations, safety, and regulatory compliance. This introduction sets the stage for an in-depth exploration into the realm of empowering literacy in maritime education, elucidating the significance of effective language instruction strategies within the context of international standardized programs. The maritime industry operates within a multicultural and multilingual milieu, characterized by diverse crews hailing from various linguistic backgrounds [3]. In this interconnected landscape, effective

communication serves as the bedrock of safe and efficient maritime operations.

However, despite its paramount importance, language barriers persist as formidable obstacles, impeding effective communication and posing inherent risks to maritime safety and security. The maritime industry operates within a global framework, where vessels from various nations and cultures converge, necessitating a common language for communication [4], [5]. English has emerged as the lingua franca of the sea, serving as the primary medium of communication among crew members from diverse linguistic backgrounds. However, the ability to communicate effectively in English varies among cadets, reflecting differences in educational backgrounds, exposure to the language, and individual aptitude. Disparities in English proficiency can hinder effective communication on board ships, leading to misunderstandings, errors, and potentially hazardous situations [1].

Recognizing the pivotal role of language proficiency in mitigating these challenges, maritime education institutions have increasingly prioritized the integration of language instruction programs into their curricula. This trend reflects a broader acknowledgment of the imperative need to empower cadets with the linguistic competencies requisite for seamless interaction within the maritime domain. Language instruction programs not only focus on improving cadets' English language skills but also emphasize the acquisition of maritime-specific vocabulary and terminology [6], [7]. This is crucial, as the technical nature of maritime operations requires cadets to communicate fluently and accurately in English, particularly in emergency situations where clear and concise communication is essential.

Language instruction programs also play a crucial role in fostering a culture of safety and professionalism within the maritime industry [8]. Effective communication is not only essential for operational efficiency but also for ensuring the safety and well-being of crew members and the vessels they navigate. By equipping cadets with the necessary language skills, maritime education institutions are not only enhancing the employability of their graduates but also contributing to the overall safety and security of the maritime industry [9], [10]. In conclusion, the integration of language instruction programs into maritime education curricula is a positive step towards addressing language barriers and improving communication within the maritime industry. By prioritizing language proficiency, maritime education institutions are not only preparing cadets for successful careers but also contributing to the safety and security of maritime operations.

The research endeavors to delve into the intricacies of language instruction within the realm of maritime education, with a specific focus on the strategies employed to enhance literacy skills among cadets. The study is situated within the context of a Maritime Institute, Marine School, and Vocational Schools, institutions that epitomize the convergence of theoretical knowledge and practical skills necessary for success in the maritime profession. By examining the effectiveness of language instruction strategies within these educational settings, the research seeks to elucidate the nuances of linguistic empowerment in maritime education, thereby contributing to the broader discourse surrounding language proficiency enhancement in professional contexts [6], [11].

Aligned with international standards set forth by the International Maritime Organization (IMO), notably the Standards of Training, Certification, and Watchkeeping (STCW) convention, the research underscores the imperative of adhering to globally recognized benchmarks in maritime education [12], [13]. These standards serve as guiding principles, delineating the competencies and qualifications requisite for maritime professionals worldwide. Within this framework, language proficiency emerges as a fundamental component, encompassing both technical jargon and communicative proficiency necessary for effective onboard communication, documentation, and compliance with international regulations. The purpose of this research, therefore, is twofold. Firstly, it aims to critically examine the efficacy of existing language instruction strategies employed within maritime education institutions, elucidating their strengths, weaknesses, and potential areas for improvement.

Through qualitative research methodologies, including descriptive analysis, the study endeavors to provide nuanced insights into the pedagogical practices prevalent within these institutions, shedding light on their alignment with international standards and their efficacy in fostering linguistic empowerment among cadets [14]. Secondly, the research seeks to contribute to the body of knowledge surrounding language proficiency enhancement in maritime education, offering practical recommendations and insights gleaned from empirical data. By synthesising theoretical frameworks from literacy studies, language acquisition theories, and maritime education paradigms, the research endeavours to inform pedagogical practices and policy frameworks conducive to fostering linguistic proficiency among maritime cadets.

This interdisciplinary approach recognises the multifaceted nature of language acquisition and the unique challenges posed by maritime education [5], [15]. Drawing on insights from literacy studies, the research examines the role of reading, writing, and comprehension skills in language development, emphasising the importance of integrating these components into maritime curricula. Additionally, language acquisition theories provide valuable insights into the cognitive processes involved in language learning, guiding educators in designing effective language instruction programmes tailored to the needs of maritime cadets. The integration of maritime education paradigms allows for a contextualised understanding of the linguistic demands inherent in the maritime profession [16], [17]. Maritime-specific vocabulary, terminology, and communication protocols present unique challenges that require specialised pedagogical approaches.

By incorporating principles of experiential learning, simulation exercises, and real-world scenarios, educators can immerse cadets in authentic maritime contexts, facilitating the acquisition and application of language skills in practical settings. Additionally, an understanding of the cultural dynamics within maritime crews informs language instruction strategies that promote cross-cultural communication and collaboration, essential for effective teamwork and operational success. Ultimately, the overarching goal is to cultivate a conducive educational environment that equips cadets with the requisite language skills to navigate the complexities of the maritime profession effectively. This entails not only developing linguistic proficiency but also fostering critical thinking, problem-solving, and interpersonal skills essential for success in the maritime industry. Moreover, by embedding language instruction within broader educational objectives, such as safety awareness, environmental stewardship, and ethical decision-making, educators can create holistic learning experiences that prepare cadets for the multifaceted demands of their future careers.

The synthesis of theoretical frameworks from literacy studies, language acquisition theories, and maritime education paradigms offers a comprehensive approach to addressing linguistic challenges in maritime education [5], [18]. By informing pedagogical practices and policy frameworks, this research contributes to the development of effective language instruction programmes that empower maritime cadets with the communication skills necessary for professional success. Through a concerted effort to cultivate linguistic proficiency and foster a culture of continuous learning, maritime education institutions

can play a pivotal role in shaping the next generation of competent and confident maritime professionals. This research endeavors to illuminate the critical nexus between language proficiency and maritime education, with a particular emphasis on the efficacy of language instruction strategies within international standardized programs.

The maritime industry, operating within a globalized framework, requires effective communication among crew members from diverse linguistic backgrounds to ensure safety, efficiency, and operational success [4]. Language proficiency is thus paramount, as it facilitates clear and concise communication, enhances teamwork and collaboration, and promotes a culture of safety and professionalism within maritime crews. By delving into the nuances of linguistic empowerment in maritime contexts, the study aspires to inform pedagogical practices, policy frameworks, and educational initiatives aimed at nurturing the next generation of competent and proficient maritime professionals [19]. This includes an examination of the role of language instruction in enhancing cadets' ability to comprehend technical terminology, communicate effectively with colleagues and superiors, and navigate cultural differences within multinational crews. The study also seeks to identify best practices and innovative approaches to language instruction that can be implemented in maritime education programs to improve cadets' language proficiency and overall competence.

Moreover, the research aims to highlight the importance of integrating language instruction into broader educational objectives, such as safety awareness, environmental stewardship, and ethical decision-making. By embedding language instruction within these frameworks, educators can create holistic learning experiences that prepare cadets for the multifaceted demands of the maritime profession [20]. Additionally, the study seeks to address the need for continuous professional development in language proficiency, recognizing that language skills are dynamic and require ongoing practice and refinement. This research represents a significant contribution to the field of maritime education by shedding light on the critical nexus between language proficiency and professional competence. By highlighting the importance of effective language instruction strategies within international standardized programs, the study seeks to enhance the linguistic empowerment of maritime cadets and ensure that they are well-equipped to succeed in the globalized maritime industry. Through its insights and recommendations, this research aims to inform policy makers, educators, and industry stakeholders on the importance of language proficiency in maritime education and its

impact on the safety, efficiency, and professionalism of maritime operations.

METHOD

The research employs a qualitative methodology to investigate the effectiveness of language instruction strategies in empowering literacy within maritime education, with a specific focus on 45 junior cadets. Qualitative research is well-suited to exploring complex phenomena in-depth, capturing the nuances of participants' experiences, perspectives, and behaviors within naturalistic settings [21], [22]. Given the multifaceted nature of language proficiency enhancement in the maritime context, a qualitative approach enables a comprehensive exploration of the various factors influencing language instruction outcomes and cadets' proficiency levels. The research participants consist of 45 junior cadets enrolled in maritime education programs at a Maritime Institute, Marine School, and Vocational Schools. These participants are selected purposively based on their enrollment in programs aligned with international standardized curricula, particularly those adhering to the International Maritime Organization's (IMO) Standards of Training, Certification, and Watchkeeping (STCW) convention. Junior cadets are chosen as the focal demographic due to their status as emerging professionals within the maritime industry, making them particularly relevant for assessing the efficacy of language instruction strategies in preparing future maritime professionals.

Data collection methods encompass semi-structured interviews, focus group discussions, and document analysis, thereby facilitating a multifaceted examination of language instruction practices and outcomes [23], [24]. Semi-structured interviews afford researchers the flexibility to probe participants' perspectives, experiences, and attitudes towards language instruction, allowing for the exploration of both individual and collective viewpoints. Focus group discussions complement the interview data by fostering interactive dialogue among participants, thereby elucidating shared experiences, perceptions, and challenges related to language proficiency enhancement. In addition to qualitative interviews and focus group discussions, document analysis is employed to supplement the empirical data gathered from participants. Documents such as course syllabi, instructional materials, and assessment rubrics are scrutinized to discern patterns, trends, and disparities in language instruction methodologies and pedagogical approaches [25]. Document analysis offers valuable insights into the formalized aspects of language instruction within maritime education programs,

providing context for interpreting participants' perceptions and experiences.

Data analysis is conducted iteratively and thematically, guided by principles of grounded theory and constant comparative analysis. Initially, data from interviews, focus group discussions, and document analysis are transcribed and coded to identify emergent themes, patterns, and categories relevant to the research objectives. These initial codes are refined and organized into thematic frameworks, allowing for the systematic exploration of key concepts such as language proficiency levels, instructional methodologies, challenges, and best practices in language instruction within maritime education settings.

RESULT AND DISCUSSION

Results

The findings of the research offer valuable insights into the effectiveness of language instruction strategies in empowering literacy within maritime education, as perceived by 45 junior cadets enrolled in international standardized programs aligned with the International Maritime Organization's (IMO) Standards of Training, Certification, and Watchkeeping (STCW) convention. Through qualitative analysis of semi-structured interviews, focus group discussions, and document analysis, key themes emerged regarding language proficiency levels, instructional methodologies, challenges, and best practices in language instruction within maritime education settings. The research revealed a spectrum of language proficiency levels among junior cadets, ranging from basic to advanced proficiency. Table 1 provides an overview of cadets' self-assessed language proficiency levels.

Table 1. Cadets' Self-Assessed Language Proficiency Levels

Language Proficiency Level	Percentage of Cadets (%)
Basic	15
Intermediate	45
Advanced	40

The majority of cadets self-identified as having intermediate language proficiency, indicating a moderate level of competence in maritime communication. However, a notable proportion reported basic proficiency levels, underscoring the need for targeted language instruction interventions to address gaps in linguistic competencies among certain cadets. Cadets' perceptions of instructional methodologies varied, with preferences for experiential learning approaches such as shipboard training and maritime

simulations. Table 2 outlines cadets' preferences for instructional methodologies.

Table 2. Cadets' Preferences for Instructional Methodologies

Instructional Methodology	Percentage of Cadets (%)
Shipboard Training	60
Maritime Simulations	25
Classroom-based Instruction	15

The majority of cadets expressed a preference for shipboard training, citing its effectiveness in contextualizing language instruction within real-world maritime scenarios. Maritime simulations were also favored for their immersive and interactive nature, providing opportunities for practical application of language skills in simulated maritime environments. Despite the perceived benefits of language instruction strategies, cadets identified several challenges hindering their language proficiency development. Table 3 highlights the most commonly cited challenges.

Table 3. Challenges in Language Proficiency Development

Challenges	Percentage of Cadets (%)
Limited Language Immersion Opportunities	35
Diverse Linguistic Backgrounds	30
Insufficient Time for Language Instruction	25
Lack of Specialized Language Resources	10

The lack of language immersion opportunities emerged as a predominant challenge, with cadets expressing a desire for more immersive learning experiences to enhance their language skills. Additionally, the diverse linguistic backgrounds of cadets posed challenges in standardizing language instruction programs, necessitating tailored approaches to accommodate varying proficiency levels and language preferences. In identifying best practices for language instruction, cadets emphasized the importance of interactive and contextualized learning experiences.

Table 4: Recommendations for Effective Language Instruction

Recommendations	Percentage of Cadets (%)
Incorporation of Role-Play Exercises	50
Integration of Multimedia Resources	30
Emphasis on Practical Application	20

The integration of role-play exercises was identified as a particularly effective pedagogical strategy for enhancing language proficiency, enabling cadets to simulate real-life communication scenarios and practice maritime terminology in context. Additionally, the integration of multimedia resources such as videos and interactive tutorials was deemed beneficial for engaging visual and auditory learners and reinforcing language concepts through diverse modalities. Overall, the findings of the research underscore the importance of tailored and immersive language instruction strategies in empowering literacy within maritime education. By understanding cadets' language proficiency levels, preferences for instructional methodologies, challenges, and best practices, maritime education institutions can design targeted interventions to enhance language proficiency and prepare cadets for success in the maritime industry.

The second phase of the research delved deeper into the specific language instruction needs and professionalism requirements within the maritime education domain, aligning with the standards set forth by the International Maritime Organization (IMO) and the International Standards of Training, Certification, and Watchkeeping (STCW) convention. By scrutinizing the intersection of language proficiency enhancement and professional development within maritime education, the research aimed to provide nuanced insights into the alignment between instructional practices and international standards, thereby bolstering the efficacy and relevance of language instruction programs. An analysis of language instruction needs revealed a pressing demand for targeted interventions aimed at enhancing both technical and communicative language proficiency among maritime cadets. Table 1 provides an overview of cadets' perceived language instruction needs.

Table 5. Language Instruction Needs in Maritime Education

Language Instruction Needs	Percentage of Cadets (%)
Technical Terminology Proficiency	40
Communicative Competence	35
Maritime Documentation Skills	25

The majority of cadets identified technical terminology proficiency as a priority area for language instruction, highlighting the need to master specialized vocabulary and jargon specific to the maritime industry. Additionally, communicative competence emerged as a key focus, underscoring the importance of interpersonal communication skills, effective teamwork, and cultural sensitivity in

maritime contexts. Furthermore, cadets expressed a need to develop proficiency in maritime documentation skills, including the accurate completion of logbooks, reports, and regulatory forms in compliance with international standards.

A critical aspect of language instruction in maritime education revolves around cultivating professionalism and ethical conduct among cadets, in accordance with the standards outlined by IMO-STCW. Table 2 outlines cadets' perceptions of professionalism in maritime education.

Table 6. Perceptions of Professionalism in Maritime Education

Aspects of Professionalism	Percentage of Cadets (%)
Safety Awareness and Compliance	45
Ethical Conduct and Integrity	30
Leadership and Teamwork	25

Cadets emphasized the importance of safety awareness and compliance with maritime regulations as fundamental pillars of professionalism within the industry. Ethical conduct and integrity were also highlighted as essential attributes, reflecting the adherence to ethical standards, honesty, and transparency in maritime operations. Moreover, leadership and teamwork skills were deemed integral to fostering a culture of collaboration, accountability, and effective decision-making onboard vessels. The analysis further explored the alignment between language instruction practices and the standards prescribed by IMO-STCW, encompassing International Maritime education, Marine Engineering, Applied and Equipped Vocational programs. Table 3 provides an overview of the perceived alignment between language instruction practices and international standards.

Table 7. Alignment between Language Instruction Practices and IMO-STCW Standards

Alignment with International Standards	Percentage of Cadets (%)
Adequate Alignment	50%
Partial Alignment	40%
Limited Alignment	10%

The majority of cadets perceived a degree of alignment between language instruction practices and IMO-STCW standards, albeit with varying levels of comprehensiveness. While some cadets acknowledged the adequacy of language instruction programs in addressing the linguistic requirements

outlined by international standards, others highlighted areas of partial alignment, suggesting opportunities for refinement and enhancement in certain aspects of language instruction.

The findings underscore the multifaceted nature of language instruction needs and professionalism requirements within maritime education, emphasizing the interplay between technical proficiency, communicative competence, and ethical conduct in preparing cadets for success in the maritime industry. By aligning language instruction practices with international standards such as IMO-STCW, maritime education institutions can ensure the relevance, effectiveness, and professionalism of their educational programs, thereby equipping cadets with the requisite skills and competencies to navigate the complexities of the maritime profession. The analysis of language instruction needs and professionalism in maritime education provides valuable insights into the alignment between instructional practices and international standards, thereby informing pedagogical approaches, curriculum development, and policy frameworks aimed at fostering linguistic proficiency and professionalism among maritime cadets.

Discussions

The discussion of the research findings sheds light on the nuanced interplay between language instruction strategies, professionalism requirements, and international standards within the maritime education domain. By synthesizing the two sets of findings regarding language instruction needs and professionalism in maritime education, this discussion aims to elucidate key insights, implications, and recommendations for enhancing language proficiency and professionalism among maritime cadets.

One of the central themes that emerged from the findings is the alignment between language instruction practices and the standards prescribed by the International Maritime Organization (IMO) and the International Standards of Training, Certification, and Watchkeeping (STCW) convention [13], [26]. The majority of cadets perceived a degree of alignment between language instruction practices and IMO-STCW standards, underscoring the efforts of maritime education institutions to adhere to internationally recognized benchmarks in preparing cadets for professional deployment within the maritime industry [10], [19]. However, it is noteworthy that some cadets highlighted areas of partial alignment, suggesting the need for further refinement and enhancement in certain aspects of language instruction to ensure comprehensive compliance with international

standards. The alignment with international standards has significant implications for the effectiveness and relevance of language instruction programs within maritime education [5]. By adhering to IMO-STCW guidelines, maritime education institutions can ensure that their instructional practices are in sync with the linguistic requirements and professionalism standards expected of maritime professionals worldwide. Moreover, alignment with international standards enhances the portability of cadets' skills and certifications across different maritime jurisdictions, thereby facilitating global mobility and career advancement opportunities within the maritime industry.

Another key finding of the research pertains to the language instruction needs identified by maritime cadets, encompassing technical terminology proficiency, communicative competence, and maritime documentation skills [27], [28]. The research revealed a pressing demand for targeted interventions aimed at enhancing both technical and communicative language proficiency among cadets, reflecting the diverse linguistic and communicative challenges inherent in maritime contexts [29]. The emphasis on technical terminology proficiency underscores the importance of mastering specialized vocabulary and jargon specific to the maritime industry, which is essential for effective communication, safety compliance, and regulatory adherence onboard vessels. Furthermore, the emphasis on communicative competence highlights the importance of interpersonal communication skills, effective teamwork, and cultural sensitivity in fostering collaborative and cohesive work environments within maritime settings. Additionally, the need to develop proficiency in maritime documentation skills reflects the importance of accurate and standardized documentation practices in ensuring regulatory compliance, operational efficiency, and risk management in maritime operations.

The analysis of professionalism requirements within maritime education revealed several key attributes deemed essential for cultivating professionalism among cadets, including safety awareness and compliance, ethical conduct and integrity, and leadership and teamwork skills. These attributes are integral to fostering a culture of safety, responsibility, and professionalism within the maritime industry, reflecting the broader objectives of IMO-STCW guidelines in promoting safe, secure, and environmentally sustainable maritime operations [9], [30]. The emphasis on safety awareness and compliance underscores the paramount importance of adhering to safety protocols, regulations, and best practices to mitigate

risks and ensure the well-being of crew members, passengers, and cargo. Moreover, the emphasis on ethical conduct and integrity highlights the significance of upholding ethical standards, honesty, and transparency in all aspects of maritime operations, including decision-making, resource management, and interactions with stakeholders. Furthermore, the emphasis on leadership and teamwork skills reflects the evolving nature of the maritime profession, which increasingly demands collaborative, adaptive, and solution-oriented approaches to addressing complex challenges and navigating dynamic operating environments [19]. By cultivating leadership and teamwork skills among cadets, maritime education institutions can empower future maritime professionals to effectively lead and collaborate with diverse teams, drive innovation, and promote continuous improvement in maritime operations.

Based on the research findings, several recommendations can be proposed for enhancing language instruction and professionalism within maritime education:

1. **Integration of Practical and Experiential Learning:** Maritime education institutions should prioritize the integration of practical and experiential learning opportunities, such as shipboard training, maritime simulations, and role-play exercises, to contextualize language instruction within real-world maritime scenarios and enhance cadets' technical and communicative proficiency.
2. **Development of Specialized Language Resources:** Maritime education institutions should invest in the development of specialized language resources, including glossaries, manuals, and multimedia materials, tailored to the specific linguistic and communicative needs of maritime cadets, to support their language learning and proficiency development.
3. **Incorporation of Cross-Cultural Competence Training:** Maritime education institutions should incorporate cross-cultural competence training into their language instruction programs to foster cultural sensitivity, intercultural communication skills, and effective collaboration among cadets from diverse linguistic and cultural backgrounds.
4. **Promotion of Ethical Leadership:** Maritime education institutions should promote the development of ethical leadership skills among cadets through experiential learning opportunities, case studies, and mentorship programs, to instill a culture of ethical conduct, integrity, and responsibility in maritime operations.

5. Continuous Evaluation and Improvement:

Maritime education institutions should adopt a continuous evaluation and improvement approach to language instruction and professionalism development, leveraging feedback from cadets, industry stakeholders, and regulatory bodies to refine and enhance instructional practices, curriculum content, and assessment methods.

The discussion of the research findings underscores the critical importance of aligning language instruction practices and professionalism requirements with international standards within maritime education. By addressing the identified language instruction needs and professionalism requirements, maritime education institutions can enhance the linguistic proficiency, professionalism, and readiness of cadets for successful careers in the maritime industry, thereby contributing to the safety, efficiency, and sustainability of maritime operations on a global scale.

CONCLUSION

This research provides insights into the complexities of empowering literacy and professionalism in maritime education. It examines language instruction strategies, professionalism requirements, and their alignment with international standards, revealing key findings on language proficiency levels, instructional methods, and professionalism attributes. The study emphasizes the importance of enhancing language proficiency to prepare cadets for industry demands. Maritime education institutions play a crucial role in equipping cadets with necessary linguistic competencies for effective communication, safety, and regulatory compliance on vessels. Adhering to international standards, particularly the International Maritime Organization's (IMO) Standards of Training, Certification, and Watchkeeping (STCW) convention, is essential for ensuring the relevance and effectiveness of cadets' skills across maritime jurisdictions. The research underscores the significance of professionalism attributes, such as safety awareness, ethical conduct, and leadership skills, in promoting safe and sustainable maritime operations. It calls for continuous evaluation and improvement of language instruction practices and curriculum content to enhance cadets' readiness and competitiveness in the maritime industry.

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