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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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| *Keywords : Maritime education, Language instruction, Professionalism, International standards, Cadet readiness* |

1. **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. 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 [4]. 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.

Against this backdrop, 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. 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 [5], [6]. 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 [7]. 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 synthesizing theoretical frameworks from literacy studies, language acquisition theories, and maritime education paradigms, the research endeavors to inform pedagogical practices and policy frameworks conducive to fostering linguistic proficiency among maritime cadets. 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 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. 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.

1. **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 [8], [9]. 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 [10], [11]. 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 [12]. 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.

1. **RESULT AND DISCUSSION**

**3.1. Result**

**3.1.1. Insights into the effectiveness of language instruction strategies**

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.

**Language Proficiency Levels:**

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

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| --- | --- |
| **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.

**Instructional Methodologies:**

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

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| **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.

**Challenges:**

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

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| **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.

**Best Practices:**

In identifying best practices for language instruction, cadets emphasized the importance of interactive and contextualized learning experiences. Table 4 highlights cadets' recommendations for effective language instruction:

Table 4: Recommendations for Effective Language Instruction

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| **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.

**3.1.2. Analysis of Language Instruction Needs and Professionalism in Maritime Education**

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.

**Language Instruction Needs:**

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 1: Language Instruction Needs in Maritime Education

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| **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.

**Professionalism in Maritime Education:**

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 2: Perceptions of Professionalism in Maritime Education

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| **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.

**Alignment with International Standards:**

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 3: Alignment between Language Instruction Practices and IMO-STCW Standards

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| --- | --- |
| **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.

**Analysis and Implications:**

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.

**3.2. Discussion**

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.

**Alignment with International Standards:** 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. 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 [13], [14]. 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. 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.

**Language Instruction Needs:** 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. 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 [15]. 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.

**Implications for Professionalism in Maritime Education:** 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.

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. 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.

1. **CONCLUSION**

This research has provided valuable insights into the complexities and challenges inherent in empowering literacy and professionalism within maritime education. Through a qualitative examination of language instruction strategies, professionalism requirements, and their alignment with international standards, key findings have emerged regarding language proficiency levels, instructional methodologies, professionalism attributes, and the implications for maritime education. The research findings highlight the significance of language proficiency enhancement in preparing maritime cadets for the demands of the industry. It is evident that maritime education institutions play a pivotal role in equipping cadets with the linguistic competencies necessary for effective communication, safety compliance, and regulatory adherence onboard vessels. By prioritizing targeted interventions aimed at addressing language instruction needs, such as technical terminology proficiency, communicative competence, and maritime documentation skills, institutions can enhance the readiness and professionalism of cadets for successful careers in the maritime industry.

Moreover, the alignment between language instruction practices and international standards, notably the International Maritime Organization's (IMO) Standards of Training, Certification, and Watchkeeping (STCW) convention, underscores the importance of adhering to globally recognized benchmarks in maritime education. By ensuring comprehensive compliance with IMO-STCW guidelines, maritime education institutions can enhance the relevance, effectiveness, and portability of cadets' skills and certifications across different maritime jurisdictions, thereby facilitating global mobility and career advancement opportunities within the industry. Furthermore, the emphasis on professionalism attributes, including safety awareness and compliance, ethical conduct and integrity, and leadership and teamwork skills, reflects the broader objectives of IMO-STCW guidelines in promoting safe, secure, and environmentally sustainable maritime operations. By cultivating professionalism among cadets, maritime education institutions can foster a culture of responsibility, accountability, and excellence within the maritime industry, thereby contributing to the safety, efficiency, and sustainability of maritime operations on a global scale.

In light of the research findings, it is imperative for maritime education institutions to prioritize continuous evaluation and improvement of language instruction practices, professionalism development initiatives, and curriculum content to ensure the readiness and competitiveness of cadets in the evolving maritime landscape. By embracing evidence-based approaches, leveraging feedback from stakeholders, and remaining adaptive to industry trends and regulatory changes, maritime education institutions can fulfill their mandate of preparing cadets for successful and impactful careers in the maritime industry. Ultimately, the collective efforts of maritime education stakeholders, including educators, administrators, industry partners, and regulatory bodies, are essential in shaping the future of maritime education and ensuring the continued excellence and professionalism of maritime professionals worldwide.

**REFERENCES**

[1] S. Saray, T. Satır, and N. Dogan-Saglamtimur, “Proficiency of Maritime English course: An investigation in Istanbul, Turkey,” *Herit. Sustain. Dev.*, vol. 3, no. 1, pp. 6–15, 2021.

[2] D. Wu, “Exploring digital literacy in the era of digital civilization: A framework for college students in China,” *Information Services &amp; Use*. IOS Press, pp. 1–23, 2023. doi: 10.3233/isu-230199.

[3] G. Vivanet, “The Routledge Handbook of Corpus Linguistics,” *Consult. Ed.*, p. 183.

[4] B. Norton, “Language, identity, and the ownership of English,” *TESOL Q.*, vol. 31, no. 3, pp. 409–429, 1997.

[5] S. C. E. IMO, “IMO.” London, 2018.

[6] D. House and F. Saeed, *The seamanship examiner: for STCW certification examinations*. Taylor & Francis, 2016.

[7] S. S. Abila, “The occupational socialisation of merchant marine cadets in the Philippines.” Cardiff University, 2016.

[8] D. K. Padgett, *Qualitative methods in social work research*, vol. 36. Sage publications, 2016.

[9] J. W. Creswell and V. L. P. Clark, “Choosing a mixed methods design,” in *Designing and Conducting Mixed Methods Research*, California: Sage Publications, Inc., 2011, pp. 53–106.

[10] S. Sarosa, *Analisis Data Penelitian Kualitatif*. Pt Kanisius, 2021.

[11] Y. Wang, L. Kung, and T. A. Byrd, “Big data analytics: Understanding its capabilities and potential benefits for healthcare organizations,” *Technol. Forecast. Soc. Change*, vol. 126, pp. 3–13, 2018.

[12] J. Katz, “A theory of qualitative methodology: The social system of analytic fieldwork,” *Méthod s African Rev. Soc. Sci. Methodol.*, vol. 1, no. 1–2, pp. 131–146, 2015.

[13] D. Gavalas, T. Syriopoulos, and E. Roumpis, “Digital adoption and efficiency in the maritime industry,” *J. Shipp. Trade*, vol. 7, no. 1, p. 11, 2022.

[14] M. Plaza-Hernández, A. B. Gil-González, S. Rodríguez-González, J. Prieto-Tejedor, and J. M. Corchado-Rodríguez, “Integration of IoT technologies in the maritime industry,” in *Distributed Computing and Artificial Intelligence, Special Sessions, 17th International Conference*, 2021, pp. 107–115.

[15] T. A. Thiel, “Maritime English for Communication and Cooperation.,” 1996.