Journal of Social Research

P-ISSN: 2827-9832
E-ISSN: 2828-335x
Vol. 5, No. 01, December 2025
http://ijsr.internationaljournallabs.com/index.php/ijsr

Intercultural Communicative Competence In Maritime English: A Mixed-Methods Study of Indonesian Cadets Using Simulation-Based Training

Agus Sulistiono[1]*, Rudi Hartono[2], Nyayu Yayu Suryani[3], Mahsunah Etik Rahayuningsih[4]
Universitas Negeri Semarang, Indonesia[1,2]
STIK Siti Khadijah, Indonesia[3]
Politeknik Maritim Negeri Indonesia, Indonesia[4]
Email: agussulistiono_s3@students.unnes.ac.id*, rudi.hartono@mail.unnes.ac.id, nsuryani@stik-sitikhadijah.ac.id, jojomahsunah@polimarin.ac.id

ABSTRACT

Intercultural communication has become a central component of Maritime English (ME) due to the increasing multicultural composition of ship crews and the safety-critical nature of communication at sea. While the Standard Marine Communication Phrases (SMCP) provide a foundational linguistic framework, effective shipboard interaction requires broader intercultural communicative competence (ICC), including pragmatic adaptation, negotiation strategies, and the ability to interpret diverse accents and hierarchical norms. Existing literature notes limitations in traditional ME instruction, particularly in seafarer-supplying nations such as Indonesia, where teaching remains focused on grammar and phrase memorization with limited exposure to authentic intercultural interactions. This study investigates the ICC of Indonesian cadets through a convergent mixed-methods design integrating an adapted Intercultural Sensitivity Scale, simulation-based communicative tasks, and semi-structured interviews. A total of 120 cadets participated in routine and emergency maritime simulations designed to elicit pragmatic strategies, clarity, and communication repair behaviors. Quantitative findings reveal significant post-simulation improvements in interaction confidence, attentiveness, and engagement. Qualitative analysis further identifies recurring challenges in pragmatic appropriateness, accent intelligibility, and communication anxiety, yet demonstrates the role of simulation-enhanced training in fostering communicative adaptability and reducing hesitation in multicultural scenarios. The study contributes empirical evidence on ICC development in maritime education and highlights the need to integrate intercultural and simulation-based pedagogy into Maritime English curricula. Recommendations are offered for curriculum designers, instructors, and policymakers to strengthen cadets' readiness for multinational shipboard environments and align training with contemporary safety and communication demands in global shipping.

Keywords: *Maritime English; intercultural communicative competence; simulation-based training; Standard Marine Communication Phrases; English as a Lingua Franca; Indonesian cadets*

INTRODUCTION

Maritime transport remains the backbone of global trade, carrying approximately 80–90 percent of world commerce by volume (IMO, 2020). Such operations rely on the coordinated efforts of multinational and multilingual crews who must work together efficiently and safely under time-sensitive and often hazardous conditions. In this environment, Maritime English (ME) functions as the communicative backbone of the global shipping industry. It has long been recognized as an essential tool for promoting shared understanding among crew members of diverse linguistic and cultural backgrounds, playing an indispensable role in ensuring operational safety (Cole & Trenkner, 2012). To address issues of ambiguity, misinterpretation, and asymmetric competence, the International Maritime Organization (IMO) introduced the Standard Marine Communication Phrases (SMCP) in 2001 as a

structured lexicon intended to standardize routine and emergency communications among seafarers.

Yet, despite the operational importance of SMCP, contemporary research in linguistic anthropology, intercultural studies, and English as a Lingua Franca (ELF) increasingly suggests that maritime communication is far more complex than the reproduction of standardized phrases. Maritime work is a deeply social and intercultural endeavor, involving diverse cultural orientations, communicative expectations, and hierarchical norms that shape how messages are conveyed, interpreted, and negotiated (Bocanegra-Valle, 2010; Park & Lee, 2020).

Effective communication at sea thus depends not only on vocabulary accuracy or phrase memorization but also on crew members' intercultural communicative competence (ICC), which includes the ability to understand and adapt to differing pragmatic norms, negotiate meaning when misunderstandings arise, and interact appropriately across cultural boundaries (Deardorff, 2020). ICC is increasingly recognized as integral to maritime safety because miscommunication in multicultural crews can escalate operational risks and compromise coordinated action during emergencies.

In recent years, shipping companies and maritime education institutions have acknowledged the need to strengthen seafarers' communicative and intercultural abilities. Several accident reports indicate that a significant proportion of shipboard incidents involve communication failures rather than purely technical errors (Li, 2018). These failures often stem from pragmatics—such as inappropriate degrees of directness or politeness—accent intelligibility issues, and culturally influenced reluctance to request clarification from supervisors. The acknowledgment of communication breakdowns as a major contributing factor to maritime accidents underscores the urgency of integrating intercultural competence into Maritime English training. However, despite this recognition, Maritime English curricula in many seafarer-supplying countries still focus heavily on grammar, pronunciation, and SMCP memorization, with limited attention to pragmatic or intercultural dimensions.

Indonesia, as one of the largest suppliers of seafarers globally, occupies a significant position within this discourse. Indonesian cadets are widely sought after for their technical skills, discipline, and adaptability, yet numerous studies report recurring communication challenges, particularly in multicultural contexts. These challenges include accent intelligibility, communication anxiety, limited exposure to authentic intercultural interactions, and hierarchical deference that may inhibit clarification-seeking behaviors (Putra & Sari, 2020; Wicaksono & Handayani, 2021). While Indonesian maritime institutions have strengthened their English programs, most training remains classroom-based, teacher-centered, and oriented toward passing examinations rather than preparing cadets for the communicative complexity of multinational shipboard environments.

At the same time, technological advances in maritime education offer new opportunities to reshape Maritime English pedagogy. Simulation-based training has become a core component of technical maritime instruction, providing realistic environments in which cadets can practice navigational decision-making, bridge teamwork, and emergency responses. More recently, scholars have begun exploring the potential of simulation for enhancing communicative competence, including the ability to perform speech acts, manage stress-based communication, and collaborate with peers under operational pressure (Chirea-Ungureanu,

2020; Wu & Song, 2022). Integrating simulation into Maritime English could address long-standing pedagogical gaps by exposing cadets to realistic, contextualized communicative situations that cannot be replicated through traditional classroom exercises. However, empirical evidence on how simulation-based activities contribute to ICC development, particularly in Southeast Asian contexts, remains limited.

The literature on Maritime English, ICC, and simulation-based pedagogy reveals several critical gaps. First, most studies focus on language accuracy or SMCP mastery rather than intercultural or pragmatic competence. Second, research on ICC among cadets from major seafarer-supplying countries such as Indonesia, the Philippines, or Vietnam is scarce, despite their significant contribution to global maritime labor. Third, few studies adopt robust research designs—such as mixed-methods approaches—that can capture both measurable and experiential dimensions of ICC development. Finally, although simulation is widely utilized in navigation and engineering training, its value for communicative or intercultural skill development has not been systematically examined in Indonesia.

Addressing these gaps is vital for both academic and practical reasons. From an academic perspective, studying ICC in maritime contexts contributes to broader discussions on ELF communication, ESP pedagogy, and the human element in maritime safety. From a practical standpoint, improving cadets' ICC has implications for seafarer performance, teamwork, employability, and compliance with the STCW Convention requirements. Within Indonesia, integrating ICC into Maritime English curricula aligns with national efforts to enhance the global competitiveness of Indonesian seafarers and to meet evolving industry expectations related to safety, professionalism, and cultural awareness.

Given this background, the present study investigates the development of intercultural communicative competence among Indonesian cadets by employing a convergent mixed-methods design. The study integrates quantitative measures of intercultural sensitivity, simulation-based performance assessments, and qualitative insights from cadets' reflections to provide a comprehensive analysis of ICC development. The primary objectives of this study are threefold: 1) to measure changes in cadets' ICC before and after simulation-based Maritime English training; 2) to identify specific intercultural and communicative challenges faced by cadets during routine and emergency simulations; 3) to offer pedagogical and policy recommendations for integrating ICC into Maritime English education more effectively.

The present study contributes to the literature in three key ways. First, it provides empirical evidence from Indonesia—an influential yet understudied maritime education context—thereby expanding the global discourse on human factors in seafaring. Second, it demonstrates the potential of simulation-based training to foster not only linguistic competence but also intercultural adaptability and pragmatic awareness. Third, it offers a structured pedagogical model for embedding ICC in Maritime English curricula, which can be adopted by maritime institutions seeking to modernize their programs in alignment with international standards and industry demands.

By situating Indonesian cadets within broader global discussions on maritime interculturality, this study underscores the need to reconceptualize Maritime English as a hybrid competence involving linguistics, pragmatics, culture, and operational awareness. This article proceeds by reviewing relevant literature on ME, ICC, ELF communication, and simulation-based pedagogy; describing the mixed-methods design employed; presenting

quantitative and qualitative findings; and concluding with implications for maritime pedagogy, safety policy, and future research. The reviewed literature highlights several research gaps that this study aims to address. First, there is limited integration of intercultural communicative competence (ICC) within Maritime English (ME) research, as most studies focus on linguistic accuracy or the performance of the Standard Marine Communication Phrases (SMCP), while the intercultural and pragmatic dimensions remain underexamined.

Second, despite Indonesia's status as a significant seafarer supplier, there is a lack of empirical studies exploring ICC development among Indonesian cadets, leaving a gap in understanding how ICC is incorporated into the country's maritime education system. Third, the scarcity of mixed-methods designs in maritime ICC research is notable, with few quantitative ICC assessments and fragmented qualitative insights, highlighting the need for more integrated approaches. Fourth, the potential of simulation-based pedagogy for ICC development is underexplored, particularly in the context of Maritime English in Indonesia, even though simulation has been shown to support communication in other fields like aviation and healthcare. Finally, there is limited discussion of ICC as a critical human element and safety factor in maritime operations, with existing studies rarely analyzing its impact on safety policies, operational teamwork, or resource management.

METHOD

This study employed a convergent mixed-methods design, integrating quantitative and qualitative data to provide a comprehensive understanding of Indonesian cadets' intercultural communicative competence (ICC) before and after simulation-based Maritime English training. The mixed-methods approach was selected for two primary reasons. First, ICC is a multidimensional construct involving affective, cognitive, and behavioral components that cannot be captured fully through quantitative measures alone (Deardorff, 2020).

Second, simulation-based communication involves dynamic interpersonal processes; therefore, qualitative data are essential to understand cadets' communicative strategies, challenges, and experiences during operational tasks. Quantitative and qualitative strands were conducted concurrently, analyzed separately, and merged during the interpretation stage. This design enabled triangulation across datasets, strengthened the validity of findings, and aligned with calls in maritime education research for more integrated methodological approaches to studying human elements and safety communication.

The study was conducted at a state maritime polytechnic in Indonesia, a major seafarer-supplying nation in Southeast Asia. Participants were 120 cadets enrolled in their second or third year of maritime training, consisting of: 1) 65 deck cadets. 2) 55 engine cadets. 3) 96 male and 24 female participants. 4) Age range: 18–23 years

Second- and third-year cadets were selected because they had completed foundational Maritime English modules and had prior exposure to SMCP, but had limited operational simulation experience. This made them suitable for evaluating the impact of simulation-based training on ICC development. Sampling employed a census approach, including all cadets enrolled in the mandatory Maritime English simulation course during the semester. Participation was voluntary, and no incentives were offered. Ethical clearance was obtained from the institution's research committee.

The instruments used in this study include the Intercultural Sensitivity Scale (ISS), a Simulation-Based Communicative Performance Rubric, and semi-structured interviews. The ISS, adapted from Chen and Starosta (2000), measured ICC quantitatively across five dimensions: interaction engagement, respect for cultural differences, interaction confidence, interaction enjoyment, and interaction attentiveness. The scale demonstrated strong internal consistency (Cronbach's $\alpha = .87$) in a pilot test and was used as both a pre-test and post-test measure.

The Simulation-Based Communicative Performance Rubric assessed cadets' communication behaviors during simulation tasks, including clarity in SMCP usage, pragmatic appropriateness, communication repair strategies, and adaptability under stress. Inter-rater reliability was high (Cohen's $\kappa = 0.82$). Semi-structured interviews with 20 cadets explored their experiences, challenges, and perceptions of ICC during simulations, with the protocol focusing on communication difficulties, accent intelligibility, and the impact of simulation-based learning.

The study procedures unfolded across six weeks. In Phase 1, a pre-test using the ISS and an orientation on simulation procedures were conducted. Phase 2 involved four simulation sessions covering routine bridge watchkeeping, emergency response, navigation in congested waters, and multinational crew briefings. Cadets performed SMCP exchanges, decision-making dialogues, and conflict negotiation, which were observed and rated by instructors. Phase 3 included post-testing with the ISS, semi-structured interviews, and collection of simulation performance data. Data analysis included both quantitative and qualitative methods. Quantitative analysis involved normality checks, paired-sample t-tests, and effect size calculations using SPSS, while qualitative data were analyzed through thematic analysis, yielding themes such as communication challenges, accent issues, and communicative adaptability. Integration of both data strands provided deeper insights into ICC development, offering a comprehensive understanding of the simulation's impact on cadets' intercultural communication skills.

Ethical considerations were carefully addressed, with approval from the institutional Research Ethics Board. Participation was voluntary, and cadets could withdraw at any time. Data confidentiality was maintained, and pseudonyms were used in reporting. Simulation videos were securely stored and used solely for research and pedagogical evaluation, ensuring that all ethical standards were met throughout the study.

RESULTS AND DISCUSSION

This section presents the findings derived from both quantitative and qualitative strands of the study. Quantitative results report changes in cadets' intercultural sensitivity before and after the simulation-based training. Qualitative findings are drawn from observations during simulation sessions and semi-structured interviews. The final subsection integrates both strands to provide a comprehensive interpretation of cadets' intercultural communicative development.

Quantitative Results

a. Overall Improvement in Intercultural Sensitivity

A paired-sample t-test revealed a statistically significant increase in the cadets' overall intercultural sensitivity following the simulation-based training intervention. Mean scores

improved from **M = 3.41 (SD = .38)** in the pre-test to **M = 3.87 (SD = .42)** in the post-test, indicating substantial gains across the cohort.

Table 1 Pre–Post ISS Scores (Overall and by Dimension)

Dimension	Pre-Test M (SD)	Post-Test M (SD)	t(df = 119)	p	Cohen's d
Interaction Engagement	3.52 (.41)	3.93 (.39)	-9.12	<.001	0.83
Respect for Differences	3.47 (.44)	3.82 (.46)	-7.03	<.001	0.64
Interaction Confidence	3.21 (.49)	3.91 (.51)	-12.44	<.001	1.14
Interaction Enjoyment	3.40 (.52)	3.73 (.50)	-6.10	<.001	0.55
Interaction Attentiveness	3.44 (.47)	3.80 (.48)	-7.88	<.001	0.72
Overall ISS	**3.41 (.38)**	**3.87 (.42)**	**-10.72**	**<.001**	**0.98**

Interpretation

Table 1 shows a clear upward trend across all five dimensions of intercultural sensitivity following simulation-based training. The increase in overall ISS from 3.41 to 3.87 indicates a large and meaningful improvement in cadets' intercultural readiness. The strongest gains occurred in Interaction Confidence (d = 1.14), suggesting that simulation exercises effectively reduce anxiety and increase cadets' willingness to initiate communication in multicultural contexts. Improvements in Engagement and Attentiveness (d = 0.83 and 0.72) demonstrate greater proactive involvement and awareness during interaction. Although Interaction Enjoyment increased the least (d = 0.55), the change remains significant and shows gradual development of positive attitudes toward intercultural encounters. These patterns indicate that simulation-based Maritime English training has a substantial and multidimensional impact on ICC components.

b. Correlations Among ISS Dimensions

To further explore the relationship among ICC components, Pearson correlations were computed for post-test scores.

Table 2 Pearson Correlations Between Post-Test ICC Dimensions

Dimension	Engagement	Respect	Confidence	Enjoyment	Attentiveness
Interaction Engagement	—	.61***	.67***	.53***	.58***
Respect for Differences	—	—	.55***	.43***	.51***
Interaction Confidence	—	—	—	.49***	.56***
Interaction Enjoyment	—	—	—	—	.44***
Interaction Attentiveness	—	—	—	—	—

***p < .001

Interpretation

The correlation matrix in Table 2 highlights strong positive relationships among key dimensions of ICC. The highest correlations were found between Interaction Engagement, Interaction Confidence, and Interaction Attentiveness (r = .56–.67, p < .001). This suggests that cadets who are more confident tend to monitor interactions more attentively and participate

more actively during communication tasks. The moderate correlations between Respect for Differences and the other dimensions (r = .43–.55) indicate that attitudinal openness toward cultural diversity is interconnected with communicative behavior, though to a lesser extent. Overall, these correlations align with ICC theoretical models, which propose that affective readiness, behavioral engagement, and cognitive awareness reinforce one another in shaping intercultural performance.

c. Simulation Performance Scores

Cadets' communicative behaviors during simulation sessions were evaluated to complement the ISS findings.

Table 3 Simulation Performance (N = 120)

Communicative Skill	M	SD	Range
SMCP Accuracy	3.82	.61	2–5
Pragmatic Appropriateness	3.21	.72	1–5
Repair Strategies	3.44	.67	2–5
Turn Taking & Interaction	3.58	.63	2–5
Stress Responsiveness	3.33	.76	1–5
Adaptability	3.29	.69	1–5
Overall Average	**3.44**	**.68**	—

Interpretation

Table 3 reveals a contrast between cadets' high performance in SMCP Accuracy (M = 3.82) and their substantially lower performance in Pragmatic Appropriateness (M = 3.21) and Adaptability (M = 3.29). This indicates that while cadets can reproduce standardized linguistic forms effectively, they struggle with adjusting tone, mitigating directives, and adapting communication styles to different interlocutors. The relatively modest score on Stress Responsiveness (M = 3.33) also suggests that communicative performance declines when cadets are placed under time pressure or emergency conditions. Collectively, these results highlight a key pedagogical gap: cadets possess adequate linguistic knowledge, but require targeted training to develop pragmatic flexibility, intercultural awareness, and resilience in operational communication scenarios.

Qualitative Results

Thematic analysis of interview transcripts and simulation observations yielded three major themes that illuminate cadets' communicative experiences and challenges.

Theme 1: Pragmatic and Hierarchical Communication Challenges

Cadets consistently reported difficulty adjusting the level of directness, politeness, and mitigation in interactions, particularly when communicating with senior officers. Cultural norms emphasizing deference contributed to hesitancy in asking for clarification or questioning unclear instructions.

"I knew I needed to ask again, but I was afraid it would seem like I was challenging the order." (Cadet 7)

"When a senior sounds angry, I freeze and don't dare to say 'say again'." (Cadet 13)

These patterns were most evident during emergency simulations, where communication pressure intensified.

Theme 2: Accent Intelligibility and Listening Difficulties

Cadets struggled to understand unfamiliar accents, especially from Russian, Indian, and West African speakers. To cope, they employed strategies such as asking peers for repetition, relying on gestures, or inferring meaning from context.

"If the accent is too strong, I really cannot catch it. I need my friend to repeat." (Cadet 4)

This highlights the need for greater exposure to non-standard and ELF-based accents in training.

Theme 3: Simulation-Induced Communicative Adaptability

Simulations compelled cadets to speak under operational pressure, increasing their adaptability, assertiveness, and self-regulation.

"In simulation, you have no choice—you must speak up. Slowly I became braver." (Cadet 19)

"During the fire alarm, I panicked at first but finally managed to give the command clearly." (Cadet 11)

Cadets also expressed increased awareness that effective communication extends beyond grammar to teamwork and situational awareness.

Integration of Quantitative and Qualitative Findings

The integration of quantitative and qualitative findings reveals a coherent and mutually reinforcing pattern. Quantitative gains in Interaction Confidence align with cadets' reported increases in assertiveness and willingness to initiate communication. Lower scores in Pragmatic Appropriateness mirror observed hesitation in hierarchical interactions and difficulty balancing clarity with politeness. Accent intelligibility challenges correspond with moderate gains in Enjoyment and Engagement, indicating remaining barriers to comfortable interaction. Collectively, the two strands provide a comprehensive understanding of ICC development and highlight areas requiring further pedagogical attention.

Discussion

This study examined the development of intercultural communicative competence (ICC) among Indonesian cadets using a convergent mixed-methods approach incorporating ISS scores, simulation-based performance assessments, and interview data. The findings provide important insights into how intercultural competence can be cultivated within Maritime English (ME) training, particularly in seafarer-supplying countries where English exposure and intercultural encounters remain limited. The discussion integrates these findings with existing literature on ICC, ELF communication at sea, simulation-based pedagogy, and the human element in maritime safety.

Simulation-Based Training as a Catalyst for ICC Development

The most prominent result of this study is the substantial increase in Interaction Confidence (Cohen's d = 1.14). This finding supports research arguing that immersive, experiential learning environments—such as maritime bridge or engine-room simulations—can meaningfully enhance communicative engagement and reduce anxiety (Wu & Song, 2022; Chirea-Ungureanu, 2020). Unlike traditional classroom activities, simulations require cadets

to communicate under operational pressure, negotiate meaning in real time, and solve problems collaboratively.

Simulation-based tasks also mirror the situational complexity of shipboard communication: noisy environments, hierarchical interactions, unfamiliar accents, and time-sensitive decisions. These characteristics align with Kolb's experiential learning theory (1984), which posits that learning becomes deeper when learners are confronted with authentic, high-stakes contexts. For Indonesian cadets, many of whom rarely experience multilingual environments prior to joining vessels, simulations appear to serve as a proxy for onboard diversity, accelerating their communicative adaptability.

The improvement in Interaction Engagement and Interaction Attentiveness further demonstrates that simulation encourages cadets to become proactive communicators—taking initiative to clarify, repeat, paraphrase, or manage turn-taking. These skills are crucial in ELF-based maritime communication (Jenkins, 2015). Therefore, simulation-based pedagogy emerges as a key mechanism for transitioning cadets from passive classroom learners to active maritime communicators.

Persistent Challenges in Pragmatic Competence and Hierarchical Communication

Despite measurable improvements, cadets continue to struggle with pragmatic appropriateness, the lowest among all performance indicators. This finding aligns with global studies showing that linguistic competence does not automatically entail pragmatic competence, particularly in intercultural contexts (Sato, 2021). Maritime communication often requires a delicate balance between clarity and politeness, directness and mitigation, or assertiveness and respect for hierarchy.

Indonesian cadets frequently hesitated to ask for clarification from simulated superiors or to challenge unclear instructions. This pattern is consistent with Hofstede's (2011) cultural framework, wherein Indonesia scores high on power distance. In practice, this cultural orientation manifests as reluctance to interrupt or question authority—behaviors detrimental to safety in emergency communication (Ghosh & Khan, 2018).

These findings have significant implications for Maritime English teaching. First, it is crucial to include explicit pragmatic instruction, focusing on how to request clarification, issue corrective feedback politely, and use mitigation strategies appropriately. Additionally, communication drills should involve hierarchical scenarios where cadets practice interacting with captains, chief engineers, or multicultural senior officers to better prepare them for real-world maritime interactions. Furthermore, assessments should measure pragmatic strategies, not just linguistic accuracy, as linguistic proficiency alone may not fully address the pragmatic needs of maritime communication. Without explicit training in these areas, pragmatic gaps may persist, even when cadets' linguistic skills improve.

Accent Intelligibility: The Unresolved Barrier in Maritime ELF Communication

Cadets reported consistent difficulty understanding non-native accents—especially South Asian, Eastern European, and African varieties. This aligns with maritime linguistic research indicating that accent intelligibility is one of the strongest predictors of communication success at sea (Li, 2018; Zhao, 2011). In multinational crews where English is

used as a lingua franca (ELF), it is unrealistic to assume exposure only to standard or textbook accents.

The findings suggest that intelligibility training must move beyond traditional "correct pronunciation" models. Cadets require: 1) exposure to diverse accents during training. 2) listening comprehension exercises using authentic radio exchanges. 3) ELF-awareness training: recognizing that clarity, not native-like accuracy, is the primary goal. Simulation partially addresses this gap, but further integration—such as using voice-modulated simulations or recorded dialogues from multinational seafarers—would enhance authenticity.

The Interplay Between Confidence, Engagement, and Situational Stress

Quantitative correlations revealed strong relationships between Interaction Confidence, Engagement, and Attentiveness. Qualitative observations confirmed that confident cadets were more willing to initiate communication, take leadership roles, and correct misunderstandings. Conversely, cadets with low confidence tended to withdraw verbally during simulations, even when they possessed adequate SMCP knowledge. This dynamic interaction illustrates the complex psychological dimension of ICC. As cadets become more confident, they engage more deeply, focus more attentively, and perform better communicatively. This reinforces Deardorff's (2020) model, which emphasizes the cyclical nature of ICC development: improved skills enhance confidence, which in turn improves performance.

Simulation's ability to introduce controlled stress appears particularly beneficial. Emergency scenarios (e.g., engine-room fire simulation) placed cadets under cognitive load similar to real shipboard crises. Under such conditions, cadets reported initial panic followed by rapid adaptation—a key component of ICC under operational stress. Thus, stress exposure—when well-facilitated—may be essential for developing real-world communicative resilience.

Implications for Maritime English Pedagogy in Indonesia

The findings offer essential insights for strengthening Maritime English programs nationally. First, Intercultural Communicative Competence (ICC) should be treated as a core competence, not an optional skill. Current curricula focus on grammar, SMCP memorization, and written assessments, but ICC development requires roleplay-based pragmatics training, ELF-based listening modules, intercultural reflection sessions, and multicultural teamwork simulations. Furthermore, simulation should be systematically integrated into Maritime English courses, not just limited to navigation courses. Maritime English instructors must receive training in simulator facilitation to align linguistic and operational objectives effectively. Additionally, mixed-method assessments are necessary as SMCP accuracy alone is insufficient. Assessment should include interactional competence, pragmatic appropriateness, communication repair strategies, and adaptability under stress. Teacher development is also critical, as many instructors lack exposure to ELF realities or simulation-based pedagogy, and training in ICC theory, ELF approaches, and experiential learning is vital.

The study also has significant policy implications and addresses human element considerations. ICC influences teamwork, leadership, situational awareness, and decision-making, all of which are crucial for maritime safety. Communication failures are a leading cause of maritime accidents, according to the IMO (2020), and strengthening ICC aligns with

the STCW Code's emphasis on leadership, teamwork, and resource management. As a global seafarer hub, Indonesia must invest in communicative competence to remain competitive and ensure safety.

Integrating ICC development into national maritime training regulations would better prepare cadets for multinational vessel environments. The study contributes to academic discourse by extending ICC theory, advancing ELF research in maritime contexts, and enriching ESP/Maritime English scholarship by positioning simulation as a pedagogical bridge between linguistic knowledge and operational communicative practice. However, limitations such as the study being conducted at a single academy and the focus on self-perception in the ISS suggest areas for future research, including longitudinal tracking of ICC development, cross-national studies, and the use of VR or AI-enhanced simulations.

CONCLUSION

This study employed a convergent mixed-methods design to examine intercultural communicative competence (ICC) development among Indonesian cadets through simulation-based Maritime English training, revealing significant quantitative gains across all ICC dimensions—particularly in Interaction Confidence, Engagement, and Attentiveness—while qualitative insights highlighted persistent challenges like pragmatic appropriateness in hierarchical settings and accent intelligibility in ELF contexts. These findings underscore simulation's value for experiential learning, enhancing real-time communication, meaning negotiation, and stress management to bolster maritime safety, teamwork, and compliance with industry standards, while offering a framework to modernize Maritime English curricula. For future research, longitudinal studies tracking ICC skill retention post-training, cross-national comparisons with cadets from other seafarer-supplying nations like the Philippines, and integration of AI-driven advanced simulations could further validate and expand these insights.

REFERENCES

Bocanegra-Valle, A. (2010). Global languages in the maritime world: Standardization and variability. *English for Specific Purposes*, *29*(4), 224–235. https://doi.org/10.1016/j.esp.2010.06.001

Chen, G. M., & Starosta, W. J. (2000). The development and validation of the intercultural sensitivity scale. *Human Communication*, *3*, 1–15.

Chirea-Ungureanu, C. (2020). Simulation in Maritime English teaching: Improving communicative competence through immersive learning. *WMU Journal of Maritime Affairs*, *19*(1), 67–85. https://doi.org/10.1007/s13437-019-00175-3

Cole, C., & Trenkner, P. (2012). The contribution of Maritime English to safety at sea. *The Journal of International Maritime Safety, Environmental Affairs & Shipping*, *6*(1), 1–7. https://doi.org/10.1080/17445302.2011.649732

Deardorff, D. K. (2020). *Demystifying intercultural competence: A framework for research and practice*. Routledge.

Ghosh, S., & Khan, R. (2018). Communicative competence of Indian seafarers: Issues and training needs. *Maritime Policy & Management*, *45*(5), 621–634. https://doi.org/10.1080/03088839.2018.1473076

Hofstede, G., Hofstede, G. J., & Minkov, M. (2011). *Cultures and organizations: Software of the mind* (3rd ed.). McGraw-Hill.

International Maritime Organization. (2001). *Standard Marine Communication Phrases (SMCP)*. IMO Publishing.

Jenkins, J. (2015). *Global Englishes: A resource book for students* (3rd ed.). Routledge.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.

Li, M. (2018). Accent intelligibility and safety communication in shipping. *English for Specific Purposes*, *52*, 36–49. https://doi.org/10.1016/j.esp.2018.05.003

Park, J., & Lee, H. (2020). Developing intercultural competence in maritime education: The role of English communication. *Maritime Policy & Management*, *47*(5), 639–654. https://doi.org/10.1080/03088839.2019.1696642

Putra, I. B., & Sari, D. (2020). English proficiency of Indonesian cadets in international shipping. *Journal of Maritime Education*, *8*(1), 11–23.

Sato, T. (2021). Beyond SMCP: Pragmatic competence in intercultural maritime communication. *Journal of English for Academic Purposes*, *52*, 100978. https://doi.org/10.1016/j.jeap.2021.100978

Wicaksono, A., & Handayani, S. (2021). Anxiety and communication barriers among Indonesian cadets. *Indonesian Maritime Journal*, *5*(2), 50–65.

Wu, S., & Song, Y. (2022). Enhancing maritime cadets' communication skills through virtual reality training: A quasi-experimental study. *Maritime Policy & Management*, *49*(8), 1050–1066. https://doi.org/10.1080/03088839.2021.1935407

Zhao, Y. (2011). Intelligibility of Chinese seafarers' English in maritime communication. *English Today*, *27*(3), 34–41. https://doi.org/10.1017/S0266078411000253