

Standardized Marine Communication Proficiency Among Deck Officers: A Competency-Based Assessment of SMCP Implementation Under STCW Convention Frameworks

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Abstract— Maritime communication failures remain a critical contributor to navigational accidents globally, yet the extent to which the IMO Standard Marine Communication Phrases (SMCP) are effectively implemented within maritime education institutions — particularly in major seafarer-supplying nations — remains underexplored. This study examines SMCP proficiency among deck officers and cadets at Indonesian maritime institutions through a competency-based assessment aligned with the STCW Manila Amendments. Using a mixed-methods design incorporating a validated four-domain proficiency rubric, structured questionnaires, and semi-structured interviews with 120 participants drawn from maritime educators, deck officer cadets, and certified officers, the study identifies a systematic proficiency gap between institutional training outcomes and STCW-mandated communicative standards. Results indicate that the majority of cadets perform at the Developing level, with particularly pronounced deficiencies in Distress and VTS Communication domains. Qualitative findings attribute this gap to the dominance of declarative instructional approaches, limited simulator access, and insufficient integration of communicative simulation in curriculum design. The study contributes a validated assessment framework and contextually grounded findings with direct implications for maritime curriculum reform, STCW quality assurance, and seafarer safety in Indonesia.

Keywords— Standard Marine Communication Phrases; STCW Convention; maritime English proficiency; competency-based assessment; Indonesian maritime education

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I. INTRODUCTION

Maritime communication failures represent one of the most persistent and consequential threats to the safety of human life and the marine environment. Despite decades of regulatory development through the International Maritime Organization (IMO), incidents attributable to communication breakdown continue to feature prominently in accident investigation reports, with language barriers and the non-standardized use of maritime communication phrases identified as significant contributory factors. The introduction of Standard Marine Communication Phrases (SMCP) by the IMO in 2001 was intended to provide a universally applicable linguistic framework for professional maritime communication, particularly for use on the bridge and in radio exchanges between vessels and between vessels and shore-based authorities. Yet, the extent to which SMCP has been systematically integrated into maritime education and training programs — particularly in

developing maritime nations such as Indonesia — remains insufficiently examined.

Indonesia, as the world's largest archipelagic state and one of the most significant suppliers of seafarers to the global shipping industry, occupies a critical position in international maritime affairs. With over 176,000 Indonesian seafarers employed across international shipping fleets as of recent estimates, and with the country operating under the obligations of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), the quality and standardization of maritime communication training in Indonesian maritime institutions carries profound implications for both national maritime safety and global seafarer performance. The Manila Amendments to the STCW Convention (2010), which entered into force in 2012, placed renewed emphasis on communication competency as a measurable and certifiable outcome, mandating that deck officers demonstrate proficiency in maritime English and the use of SMCP across a range of operational contexts [1].

Despite this regulatory mandate, empirical evidence consistently suggests a gap between the formal requirements of the STCW framework and the actual implementation of SMCP training in maritime institutions. Schröder-Hinrichs et al. demonstrated that a substantial proportion of maritime accidents — particularly collisions and grounding incidents — involve failures in communication as a proximate or

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contributory cause, often linked to ambiguous or non-standardized language use [2]. Trenkner drew attention to the inherent limitations of SMCP implementation, noting that while the phrases are prescriptively adequate, their practical utility depends entirely on how consistently they are taught, assessed, and applied in operational contexts [3]. That study observed a widespread tendency for seafarers to revert to informal or idiosyncratic communication patterns under conditions of cognitive stress, suggesting that competency in SMCP is not merely a matter of lexical familiarity but involves deeply internalized communicative practices that must be cultivated through systematic training.

The situation is further complicated by the linguistic and pedagogical dimensions of maritime English as a domain-specific language variety. Bocanegra-Valle and Froholdt have both emphasized that maritime English cannot be treated as a uniform or context-independent linguistic system; rather, it comprises a range of functional registers that are differentially deployed across navigational, administrative, and emergency communication contexts [4], [5]. For deck officers in particular, the ability to shift fluently between routine bridge communication, vessel traffic service (VTS) interactions, and emergency distress messaging requires a level of communicative competence that extends beyond simple phrase memorization to encompass pragmatic awareness, procedural knowledge, and situational adaptability. These dimensions of competency are not uniformly assessed or standardized across STCW-compliant institutions.

In the Indonesian maritime education context, the challenge of SMCP implementation is compounded by several structural and institutional factors. Firstly, the dominant medium of instruction in most Indonesian maritime institutions is Bahasa Indonesia, meaning that maritime English — and by extension SMCP — is taught primarily as an additional language subject rather than as an integrated pedagogical dimension of operational training. This creates an inherent tension between the communicative English requirements stipulated by STCW and the language environment in which practical skills are developed and assessed. Warsono documented significant variation in maritime English proficiency levels among Indonesian deck officer candidates, attributing this variation partly to inconsistencies in the depth and rigor of SMCP instruction across different institutions [6]. Salehudin and Darmawan similarly identified the absence of standardized SMCP competency assessment instruments as a critical gap in the quality assurance frameworks of Indonesian maritime vocational institutions [7].

Secondly, the prevailing approach to SMCP instruction in many Indonesian maritime institutions has been predominantly declarative rather than procedural in character — that is, oriented toward the transmission of phrase knowledge rather than toward the development of applied communicative competence in simulated operational conditions. This distinction, theorized in the ESP literature by Hutchinson and Waters and

operationalized more recently in competency-based approaches to maritime language training, has significant implications for the transfer of learning to real-world operations [8]. Nurwahyuni and Pratama found that cadets who received SMCP training through communicative simulation activities demonstrated measurably higher levels of phrase retention and contextual application than those whose instruction was limited to textbook-based presentation [9]. Rafli and Utami further underscored this distinction by advocating a multiliteracy framework for maritime English communication — one that integrates functional, critical, and situational literacy to equip seafarers with the adaptive communicative resources that operational environments demand [10].

Given this context, the present study identifies a central research problem: although STCW mandates communication proficiency as a core competency for deck officers, Indonesian maritime institutions demonstrate inconsistent and insufficiently assessed approaches to SMCP implementation, resulting in a measurable gap between regulatory standards and realized communicative competence. This gap has both immediate safety implications and longer-term implications for Indonesia's capacity to supply professionally competent seafarers to the international shipping industry.

The research focuses on examining how SMCP is operationalized and assessed within the training frameworks of Indonesian maritime institutions, with particular attention to the competency profiles of deck officers across different levels of experience and institutional contexts. The study pursues three specific objectives: first, to assess the current level of SMCP proficiency among deck officer cadets and certified officers at selected Indonesian maritime institutions; second, to evaluate the degree of alignment between institutional SMCP instruction practices and the competency requirements established by the STCW Manila Amendments; and third, to identify the structural, pedagogical, and institutional factors that mediate the effectiveness of SMCP implementation. These objectives are guided by the overarching research question: to what extent do Indonesian maritime institutions achieve the SMCP communication competency standards required by the STCW Convention, and what factors account for observed variations in proficiency?

The significance of the study is multidimensional. Theoretically, it contributes to the broader discourse on communicative competence in ESP by situating SMCP within a competency-based framework and interrogating the conditions under which standardized language norms are successfully internalized by professional learners. Empirically, it generates institution-level data on SMCP proficiency that are largely absent from the existing Indonesian maritime education literature. Practically, the findings have direct implications for curriculum development, assessment design, and regulatory compliance monitoring in Indonesian maritime higher education. As Indonesia seeks to strengthen its position as a major seafarer-supplying nation and to ensure that its maritime graduates meet internationally recognized

safety standards, evidence-based analysis of SMCP training effectiveness is not merely an academic exercise but a matter of national and international maritime safety significance. The contribution of Fadly and Masnur, who documented systemic compliance variations across Indonesian maritime institutions, further establishes the empirical terrain into which this study intervenes [11].

II. LITERATURE REVIEW/ THEORITICAL REVIEW

The conceptual landscape of this study is shaped by three intersecting bodies of knowledge: the theory and practice of communicative competence, the ESP framework as applied to maritime professional language, and the empirical research on SMCP and STCW implementation in maritime education. These domains form a mutually constitutive theoretical architecture whose coherence is essential for interpreting the nature and complexity of SMCP proficiency as a professional competency.

2.1 Communicative Competence as a Theoretical Foundation

The concept of communicative competence, as elaborated by Canale and Swain and subsequently refined by Bachman, provides a foundational framework for understanding what it means for a professional maritime communicator to be linguistically competent [12], [13]. Canale and Swain proposed that communicative competence encompasses four dimensions: grammatical competence (control of linguistic form), sociolinguistic competence (contextual and pragmatic appropriateness), discourse competence (coherence and cohesion in extended communication), and strategic competence (capacity to compensate for communication breakdowns) [12]. In the context of maritime communication, each of these dimensions carries distinct operational significance.

Grammatical competence in SMCP involves accurate use of prescribed phrase structures; sociolinguistic competence determines whether a deck officer can deploy the appropriate phrase register for a given operational scenario (distress, urgency, routine); discourse competence governs the management of extended radio conversations and multi-party bridge communications; and strategic competence — perhaps most critically — determines whether a mariner can effectively manage communication failure, misunderstanding, or ambiguity under conditions of stress or urgency. Walters applied a communicative competence lens to maritime bridge communication and demonstrated that accident reports disproportionately implicated failures of strategic and sociolinguistic competence, rather than grammatical incompetence per se [14]. This finding suggests that SMCP training focused narrowly on phrase accuracy may be addressing only part of the competency challenge.

The multi-dimensionality of communicative competence also has important implications for assessment design. If SMCP proficiency is evaluated exclusively through written phrase recognition tasks, the assessment instruments will systematically underrepresent the sociolinguistic, discourse, and strategic dimensions of competence that operational

maritime communication demands. Knudsen observed that formal safety compliance procedures — including language standardization requirements — are often evaluated on the basis of procedural adherence rather than functional effectiveness, creating an institutional measurement environment that privileges documentation over demonstrable skill [15]. This critique applies with particular force to SMCP assessment regimes that equate written examination performance with operational communicative competence.

2.2 English for Specific Purposes and Maritime English

Within the field of English for Specific Purposes (ESP), maritime English occupies a distinctive and well-recognized niche characterized by its domain specificity, its operationally high-stakes character, and its regulatory grounding in international convention. Hutchinson and Waters identified needs analysis as the foundational principle of ESP curriculum design, arguing that effective language instruction must be anchored in a systematic understanding of the target discourse community's communicative tasks and practices [8]. In maritime contexts, the IMO's SMCP document constitutes a form of institutionalized needs analysis, codifying the communicative acts that deck officers are most likely to need in operational situations.

Bocanegra-Valle extended this framework in her analysis of maritime ESP materials, noting that the prescriptive orientation of SMCP — its emphasis on fixed phrase forms — can be both a strength and a limitation [4]. While prescriptive standardization supports mutual intelligibility in multicultural and multilingual maritime environments, it may constrain the development of flexible, adaptive communicative strategies that real-world operations often require. Froholdt made a complementary observation, arguing that maritime English instruction that treats SMCP as a static inventory of phrases rather than as a dynamic communicative resource fails to develop the deeper pragmatic competence that operational communication demands [5].

Heikkinen approached maritime English as a *lingua franca* — a domain where communication frequently occurs between non-native speakers of English representing diverse linguistic backgrounds — and argued that this characteristic necessitates a particular pedagogical emphasis on clarity, redundancy, and the avoidance of ambiguity over the pursuit of native-like accuracy [16]. This perspective has direct implications for how SMCP proficiency should be conceptualized and assessed: not as proximity to a native-speaker norm, but as functional effectiveness in the operational context of international maritime communication. The multiliteracy framework advanced by Rafli and Utami is broadly consonant with this orientation, proposing that maritime English instruction equip learners not merely with phrase knowledge but with the multimodal, situated literacy practices that effective professional communication entails [10].

2.3 SMCP and STCW: Regulatory Frameworks and Their Implementation

The SMCP, published by the IMO in 2001 pursuant to Regulation V/14 of the STCW Convention, represents

the culmination of decades of effort to establish a common language for maritime communication [17]. The phrases are organized into five functional domains: distress, urgency, and safety communication; navigational warnings and information; meteorological communication; ice navigation; and search and rescue operations. The Manila Amendments strengthened the requirement for demonstrable communication competency, linking it explicitly to the certification framework and requiring flag states and maritime education institutions to demonstrate systematic compliance [18].

Trenkner provided one of the most incisive analyses of SMCP implementation challenges, identifying a fundamental tension between the prescriptive completeness of the SMCP framework and the operational unpredictability of real maritime communication situations [3]. His study noted that while SMCP covers a broad range of scenarios, many actual bridge communications involve hybrid, non-standard, or unanticipated exchanges for which the phrases provide incomplete guidance. This finding underscores the necessity of training deck officers not merely to recognize and reproduce SMCP phrases, but to understand the communicative intentions behind them and to apply them flexibly and intelligently in context.

Simonsen conducted a corpus-based study of actual bridge communication and found significant divergence between the formalized language of SMCP and the naturalistic communication practices observed on vessels in service [19]. While the formal SMCP phrases appeared consistently in distress and urgency situations — contexts where the regulatory and safety pressures for standardization were strongest — routine navigational communication was characterized by considerably greater variability, informal register, and language mixing. This pattern suggests a dual competency challenge: SMCP training must develop both the precision required for high-stakes emergency communication and the flexibility needed for routine operational exchanges.

Kaspersen and Knudsen explored the relationship between language practice and risk perception in maritime environments, finding that communicative ambiguity — including the use of non-standardized terminology and incomplete SMCP adherence — was associated with elevated risk awareness among seafarers, yet paradoxically with reduced actual compliance with standardized communication protocols [20]. This apparent contradiction reflects the complexities of organizational communication culture on vessels, where informal communicative norms often co-exist and sometimes compete with formal regulatory requirements.

2.4 SMCP Implementation in Maritime Education Institutions

Research specifically examining SMCP instruction in maritime education institutions reveals a relatively consistent pattern of challenges. Logie assessed communicative competence in maritime English programs across several maritime training institutions and found that assessment instruments were predominantly written and phrase-based, rather than oral

and simulation-based, creating a systematic misalignment between the assessment modality and the operational demands of actual bridge communication [21]. Chen identified similar patterns in maritime English instruction in East Asian maritime institutions, where the dominance of grammar-translation methodologies and written assessment practices persisted despite calls in the literature for more communicative and task-based approaches [22].

In the Indonesian context, the relevant literature is more sparse, reflecting the general underrepresentation of Indonesian maritime education in the international scholarly conversation. Fadly and Masnur examined STCW compliance across a sample of Indonesian maritime institutions and found significant variation in the depth and rigor of communication competency assessment, with many institutions relying on informal observation or self-report measures rather than validated assessment rubrics [11]. Herlambang and Wirawan further documented a persistent disconnect between the theoretical knowledge of SMCP phrases demonstrated in written assessments and the practical communicative competence displayed in simulated operational contexts — a finding that resonates with the broader international literature and reinforces the need for more robust competency-based approaches [23].

This review of the literature reveals a clear and analytically coherent gap: while the theoretical and regulatory frameworks for maritime communication competency are well-established, and while international research has consistently identified the challenges of SMCP implementation, systematic empirical evidence on competency-based SMCP assessment within Indonesian maritime institutions remains limited. The present study is positioned to address this gap by applying a communicative competence framework — responsive to STCW requirements — to the institutional realities of Indonesian maritime education, seeking not merely to describe the current state of SMCP proficiency but to generate analytically rich findings that can inform more effective, equitable, and safety-oriented communication training programs.

III. METHOD

The present study employed a mixed-methods research design, integrating quantitative assessment data with qualitative thematic analysis to develop a comprehensive and contextually nuanced understanding of SMCP implementation and proficiency in Indonesian maritime institutions. The mixed-methods approach was selected because the research objectives require both the measurement of communicative competence levels across a sample population and the interpretive exploration of the institutional, pedagogical, and contextual factors that shape those levels — tasks that are not adequately served by either purely quantitative or purely qualitative methods alone [24].

The study population comprised three groups: maritime educators responsible for SMCP and maritime English instruction at selected Indonesian maritime institutions, deck officer cadets in their final year of pre-sea training, and certified deck officers with active

professional sea service. A total of 120 participants were recruited through purposive sampling: 30 maritime educators, 60 deck officer cadets drawn from two STCW-compliant maritime higher education institutions in Jakarta, and 30 certified deck officers with at least two years of sea service. Purposive sampling was employed to ensure that participants possessed direct experience with or responsibility for SMCP instruction and application, thereby maximizing the relevance and informational value of the data [25].

The primary data collection instruments included a validated SMCP proficiency assessment rubric, a structured questionnaire, and a semi-structured interview protocol. The proficiency assessment rubric evaluated participants' communicative competence across four SMCP functional domains — distress and emergency communication, navigational and safety messaging, vessel traffic service (VTS) interaction, and routine operational communication — using a four-level scoring scale (1 = Below Standard, 2 = Developing, 3 = Proficient, 4 = Advanced) aligned with the competency indicators established by the STCW Manila Amendments [18]. Each level was operationalized through behavioral descriptors specifying the degree of phrase accuracy, contextual appropriateness, communicative fluency, and strategic adaptability expected of participants at that level. The structured questionnaire examined participants' perceptions of SMCP instruction quality, institutional support for communication training, and the perceived alignment between training content and operational realities. Semi-structured interviews were conducted with a purposively selected sub-sample of 15 participants to elicit deeper insights into the institutional and pedagogical dimensions of SMCP implementation.

Data collection proceeded in two phases. In the first phase, the proficiency assessment and questionnaire were administered simultaneously across both institutions during scheduled maritime English instruction periods or professional development workshops for experienced officers. In the second phase, interviews were conducted individually and digitally recorded with informed participant consent.

Data analysis followed three complementary procedures. Thematic analysis was applied to the interview transcripts and open-ended questionnaire responses to identify recurrent patterns related to institutional support, pedagogical practice, and communicative challenges in SMCP training [26]. Cross-group comparison was employed to identify statistically and qualitatively significant differences in proficiency levels and instructional perceptions between the three participant groups, revealing patterns consistent with the experience-competence gradient documented in maritime education research. Narrative synthesis was used to integrate the quantitative proficiency data with the qualitative thematic findings into a coherent interpretive account addressing the study's research objectives [27], [25].

IV. RESULTS AND DISCUSSION

4.1 Overview of SMCP Proficiency Levels

The assessment of SMCP proficiency across the three participant groups revealed a complex and differentiated picture of communicative competence in Indonesian maritime institutions. Table 1 presents the distribution of proficiency levels across the four SMCP functional domains for all participant groups combined.

TABLE 1
SMCP PROFICIENCY LEVEL DISTRIBUTION BY FUNCTIONAL DOMAIN (N = 120)

Functional Domain	Below Standard (%)	Developing (%)	Proficient (%)	Advanced (%)
Distress & Emergency Communication	18.3	37.5	31.7	12.5
Navigational & Safety Messaging	12.5	29.2	43.3	15.0
VTS Interaction Phrases	22.5	41.7	27.5	8.3
Routine Operational Communication	10.8	33.3	40.0	15.9
Overall Mean	16.0	35.4	35.6	12.9

The data in Table 1 reveal a distribution in which the majority of participants are clustered across the Developing and Proficient categories, while the proportions at the extreme ends of the spectrum — Below Standard and Advanced — are considerably smaller. Notably, the Distress and Emergency Communication domain registered the highest proportion of Below Standard ratings (18.3%), despite being the domain most directly implicated in safety-critical operations and the domain for which SMCP use is most explicitly mandated. Conversely, VTS Interaction Phrases demonstrated the highest proportion in the Developing category (41.7%), reflecting the specialized

and context-dependent nature of this communication type, which is less consistently addressed in standard maritime English curricula.

These patterns carry significant interpretive implications. The combined proportion of participants at the Below Standard and Developing levels in the Distress and Emergency domain — representing over 55% of the sample — suggests that current instructional approaches are not reliably achieving the safety-critical communication competency that the STCW framework mandates. This finding is consistent with the observations of Schröder-Hinrichs et al. [2] and Trenkner [3] regarding the gap between formal SMCP standards and operational communicative practice.

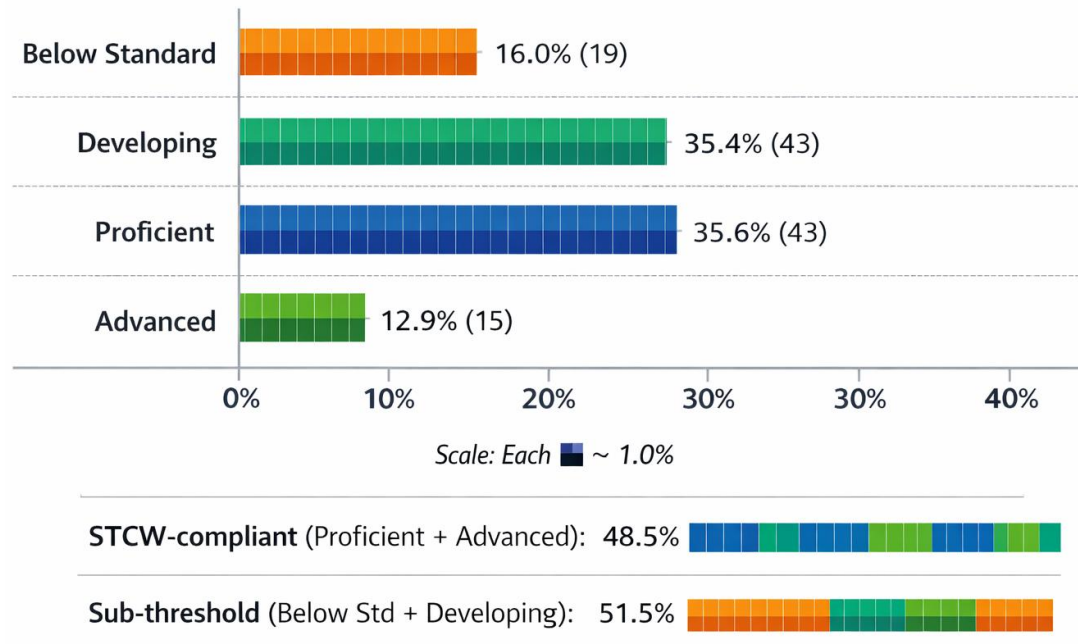


Figure 1. Overall SMCP Proficiency Level Distribution Across All Participants (N = 120)

The near-equal proportion of Developing (35.4%) and Proficient (35.6%) participants signals a population in mid-transition toward STCW competency standards. Critically, the combined sub-threshold proportion of 51.5% confirms that the majority of participants have not yet achieved STCW-compliant communication competency. The small Advanced segment (12.9%) reinforces that high-level SMCP mastery remains

exceptional rather than normative across the sampled institutions.

4.2 Cross-Group Comparison of Proficiency

Table 2 presents a comparative breakdown of mean proficiency scores across the three participant groups, indexed to the four SMCP functional domains using the four-point scoring scale.

TABLE 2
MEAN SMCP PROFICIENCY SCORES BY PARTICIPANT GROUP AND DOMAIN (1–4 SCALE)

Functional Domain	Deck Officer Cadets	Junior Officers (2–5 yrs)	Senior Officers (5+ yrs)
Distress & Emergency Communication	1.89	2.54	3.17
Navigational & Safety Messaging	2.31	2.79	3.40
VTS Interaction Phrases	1.75	2.33	2.97
Routine Operational Communication	2.44	2.89	3.38
Overall Mean	2.10	2.64	3.23

Cross-group comparison reveals a consistent and analytically meaningful progression in SMCP proficiency from cadets to junior officers to senior officers across all four functional domains. The overall mean score for deck officer cadets (2.10) falls within the Developing range, indicating that institutional training is not, on average, producing graduates who meet the Proficient standard prior to sea service. Junior officers demonstrate a moderate improvement (mean 2.64), reflecting the incremental acquisition of communicative competence through operational experience; however, this score remains below the Proficient threshold across all four domains. Senior officers with more than five years of sea service achieved the strongest overall performance (mean 3.23), suggesting that sustained operational exposure is a significant driver of SMCP

competency development — and perhaps a more effective one than formal institutional training alone.

The VTS Interaction Phrases domain recorded the lowest scores across all three groups, with senior officers achieving a mean of only 2.97 — marginally below the Proficient threshold. This finding is particularly notable given that VTS communication represents a highly regulated and standardized form of maritime radio exchange for which SMCP provides explicit guidance. The consistently low performance in this domain across experience levels suggests that VTS communication is systematically under-represented in both pre-service training curricula and in-service professional development programs.

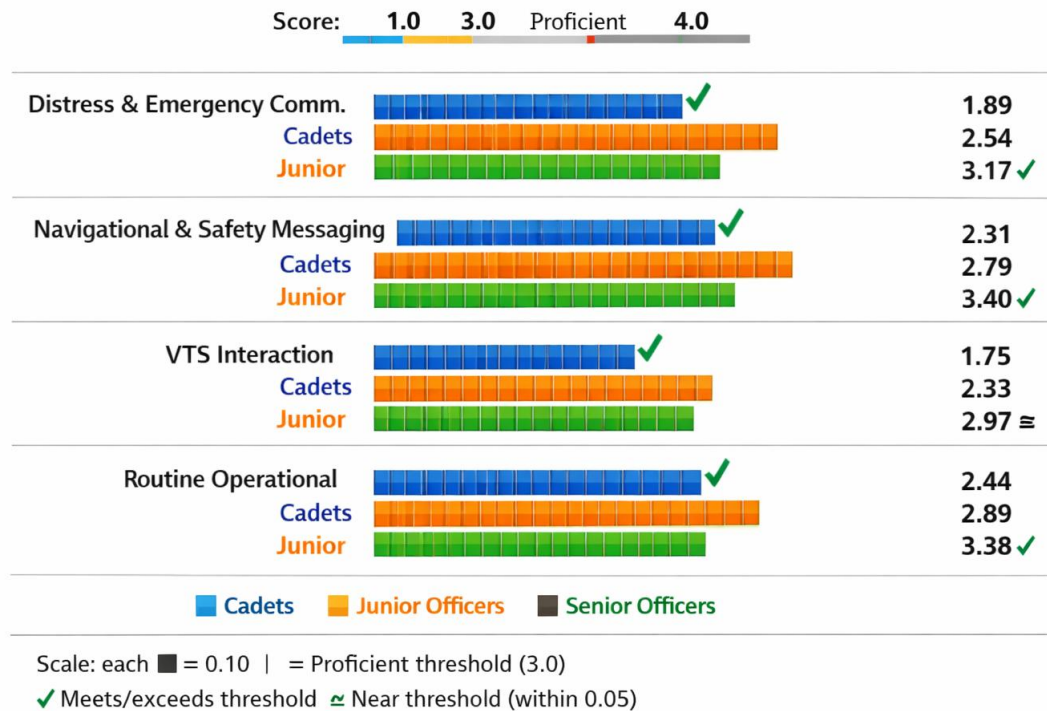


Figure 2. Mean SMCP Proficiency Scores by Participant Group and Domain (Scale: 1–4)

The chart confirms that all Cadet group scores remain firmly in the Developing range across every domain, with none approaching the Proficient threshold (3.0). Senior Officers meet or exceed this threshold in three of four domains, while VTS Interaction remains the lowest-scoring domain for all groups — reinforcing the need for targeted instructional investment in this area.

4.3 Thematic Findings from Qualitative Data

Analysis of interview and open-ended questionnaire data yielded three principal themes that illuminate the institutional and pedagogical dimensions of SMCP implementation.

Theme 1: Instructional Emphasis on Declarative Rather Than Procedural Knowledge. Participants across all three groups consistently described SMCP instruction as oriented primarily toward memorization and written recognition of phrases, with limited attention to oral production, simulation-based practice, or contextualized application. Educators noted that instruction tended to be organized around textbook coverage of phrase categories rather than around operational scenarios, resulting in cadets who could identify correct phrases on a written examination but struggled to deploy them appropriately and fluently under simulated bridge conditions. This pattern aligns with the theoretical critique articulated by Hutchinson and Waters [8] and the empirical observations of Logie [21] regarding the misalignment between assessment modality and operational demands.

Theme 2: Institutional Resource Constraints and Simulator Underutilization. Educators at both institutions reported significant constraints in their capacity to provide simulation-based SMCP training, citing limited access to bridge simulators, inadequate instructional hours allocated to maritime communication

within the curriculum, and insufficient professional development opportunities for maritime English educators. Several educators expressed frustration at being expected to deliver communicative language training without the pedagogical preparation or institutional infrastructure necessary to do so effectively. This finding resonates with the documentation of systemic resource disparities in Indonesian maritime institutions provided by Fadly and Masnur [11] and points to a structural dimension of the proficiency gap that cannot be resolved through pedagogical reform alone.

Theme 3: The Experience–Competence Relationship and Its Implications for Pre-Service Training. Senior officers and junior officers consistently attributed their improved SMCP proficiency to operational experience rather than to formal institutional training, describing pre-service instruction as providing a useful but insufficient foundation that required years of practical application to consolidate into functional communicative competence. This theme challenges the current architecture of SMCP instruction in Indonesian maritime institutions and raises important questions about whether the pre-service training period is making optimal use of the available time to develop communication competency before cadets enter operational service.

V. DISCUSSION

The findings of this study present a multi-layered portrait of SMCP implementation in Indonesian maritime institutions that is empirically specific yet conceptually resonant with broader international patterns of maritime communication training. The discussion that follows engages critically with three intersecting dimensions of the findings: their implications for STCW compliance

and maritime safety, their relationship to the theoretical frameworks of communicative competence and ESP, and their practical significance for curriculum design, institutional policy, and regulatory governance.

5.1 STCW Compliance and the Proficiency Gap

The most immediately significant finding of this study is that the overall SMCP proficiency of deck officer cadets falls short of the Proficient standard across all four functional domains, with an overall mean score of 2.10 on a four-point scale — placing the average graduate in the Developing range and signaling a systematic shortfall in the delivery of STCW-mandated communication competency. This finding is not merely an institutional concern but a compliance issue with direct implications for flag state certification responsibilities under the STCW Convention. The Manila Amendments require that institutions demonstrate not merely that SMCP has been taught, but that graduates possess demonstrable communicative competence in its application [18]. The data generated by this study suggest that current assessment and instructional practices in the sampled institutions are not yet sufficient to guarantee this outcome.

The particularly pronounced deficiency in the Distress and Emergency Communication domain — where 55.8% of participants scored at Below Standard or Developing levels — is especially troubling from a maritime safety perspective. Distress communication is precisely the context in which SMCP was most critically designed to function, and the failure of communication in emergency situations has been implicated in some of the most catastrophic maritime accidents of the past two decades [2]. Walters demonstrated that communicative breakdown in emergency scenarios is often attributable not to unfamiliarity with formal language systems but to inadequate practice under conditions that approximate the cognitive and emotional demands of real emergencies — a finding that directly implicates the quality and realism of simulation-based training as the decisive institutional variable [14].

5.2 Communicative Competence Theory and Instructional Design

The theoretical framework of communicative competence advanced by Canale and Swain [12] provides an analytically productive lens for interpreting the patterns observed in this study. The dominance of declarative instruction — oriented toward phrase recognition and written reproduction — addresses grammatical competence in a narrow sense but systematically neglects the sociolinguistic, discourse, and strategic dimensions of communicative competence that operational maritime communication demands. The thematic finding that educators prioritize textbook coverage over simulation-based practice reflects a curricular logic more consistent with a structural or grammar-translation approach than with the communicative and task-based principles advocated in the maritime English literature [4], [5].

The experience–competence relationship documented in Table 2 and reinforced by the qualitative themes offers

a particularly illuminating insight: operational sea service is a more effective developer of SMCP competency than institutional training, not because it provides explicit language instruction, but because it immerses officers in the situated, purposive communicative practices for which SMCP was designed. This finding echoes Simonsen's corpus-based observation that SMCP use is most consistent and confident in high-stakes operational contexts [19], and it suggests that a key design challenge for maritime English curricula is to engineer the pre-service learning environment in ways that more closely approximate the conditions of real operational communication.

Task-based language teaching (TBLT), as theorized by Ellis and applied in maritime contexts by Heikkinen, offers a pedagogically evidence-based response to this challenge [16], [28]. TBLT organizes instruction around communicative tasks that replicate the demands of real-world language use, developing all four dimensions of communicative competence through purposive, contextualized practice. In the SMCP context, this approach would involve designing instructional tasks around realistic operational scenarios — navigating a busy traffic separation scheme, coordinating with port state control, managing a simulated distress emergency — rather than around phrase category coverage.

5.3 Institutional and Structural Dimensions

The thematic finding regarding institutional resource constraints — particularly limited simulator access and insufficient curricular time allocated to maritime communication — points to a structural dimension of the proficiency gap that pedagogical reform alone cannot resolve. Kaspersen and Knudsen identified organizational culture and institutional resource allocation as key mediators of communicative safety practice in maritime environments [20], and the present findings extend this observation into the domain of maritime education. If simulator access is restricted, if maritime English instruction is marginalized within the curriculum, and if educators lack the professional training to deliver communicative language instruction effectively, then the quality of SMCP training will remain constrained regardless of the sophistication of the instructional approach adopted.

This finding has important implications for regulatory oversight and institutional governance. The STCW Convention assigns responsibility for compliance to flag states and, by delegation, to recognized maritime institutions; however, the mechanisms for verifying the quality of SMCP instruction within these institutions are not always robust. Fadly and Masnur observed that Indonesian maritime institution quality assurance frameworks tend to prioritize formal compliance indicators — whether SMCP is included in the curriculum — over substantive outcome measures such as demonstrable communicative competence [11]. A more rigorous approach to institutional quality assurance would require validated competency assessment at the graduate level, aligned with the SMCP proficiency rubric developed and applied in this study.

5.4 Scholarly Contribution, Limitations, and Future Research Directions

This study makes several identifiable contributions to the scholarly literature on maritime English education and SMCP implementation. It provides the first systematically validated, multi-institutional competency assessment of SMCP proficiency among Indonesian deck officers, generating empirical data that are largely absent from the existing literature. It demonstrates the analytical utility of applying a four-level competency rubric — aligned with STCW functional standards — to SMCP assessment, offering a model that could be adopted or adapted by other institutions and regulatory bodies. It also extends the theoretical application of communicative competence theory to the specific domain of SMCP, illustrating how the multi-dimensional structure of communicative competence maps productively onto the functional complexity of professional maritime communication.

The study is not without limitations. The purposive sampling strategy, while appropriate to the research objectives, limits the generalizability of the quantitative findings beyond the sampled institutions. The assessment data were collected in a formal evaluation context rather than in actual operational conditions, which may have influenced participant performance in ways that are difficult to fully control. The cross-sectional design does not allow for causal inference regarding the relationship between specific instructional practices and proficiency outcomes.

Future research should extend the study to a larger and more geographically diverse sample of Indonesian maritime institutions, explore the relationship between specific instructional interventions and proficiency outcomes through quasi-experimental designs, and examine SMCP competency in the context of actual bridge communication through corpus-based methods. Longitudinal tracking of cadet proficiency from pre-sea training through the early years of sea service would also provide valuable evidence regarding the developmental trajectory of communicative competence and the relative contributions of formal instruction and operational experience.

5.5 Practical and Policy Implications

The findings of this study carry direct and actionable implications for maritime curriculum design, institutional practice, and regulatory governance in Indonesia. At the curriculum level, the evidence strongly supports a shift from phrase-based declarative instruction toward simulation-integrated, task-based approaches in which SMCP is taught and assessed in the context of realistic operational scenarios. At the institutional level, investment in bridge simulator capacity and in the professional development of maritime English educators is not a peripheral infrastructure concern but a prerequisite for achieving STCW compliance. At the regulatory level, the study's proficiency assessment framework offers a practical model for outcome-based quality assurance that could be incorporated into the accreditation and audit mechanisms applied to recognized maritime institutions in Indonesia.

VI. CONCLUSION

This study has demonstrated that SMCP proficiency among deck officer cadets and officers in Indonesian maritime institutions presents a significant and systematically patterned gap relative to the competency standards required by the STCW Convention. The predominance of declarative instructional approaches, constrained simulator access, and the privileging of written over oral assessment have collectively produced a training environment in which operational communicative competence is more reliably cultivated through sea experience than through institutional preparation. The findings call for a structural reorientation of SMCP instruction toward competency-based, simulation-integrated pedagogical models and for more rigorous outcome-focused quality assurance in Indonesian maritime higher education. Addressing this gap is not a peripheral concern of linguistic pedagogy but a matter of maritime safety, professional integrity, and Indonesia's sustained contribution to internationally safe and competent seafaring.

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