



INTERNATIONAL STANDARD PROTOCOL FOR MARITIME COMMUNICATION: CHALLENGES IN CALIBRATION AND IMPLEMENTATION

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Abstract. In the light of the historical context of IMO provided maritime safety regulations, this article explores some of the challenges that the industry faces in their attempt to calibrate Maritime Education and Training (MET) to fit the international standard protocol of communication. Extensive research shows that despite strict international regulations and a presumably calibrated international MET curriculum, safety at sea is still compromised by human errors, due to language barriers and cultural diversity, but also due to inconsistent interpretations of established regulations. The article has analyzed the documents that outline the international requirements on maritime communication skills and arrives at the conclusion that established standards and regulations are indeed phrased as to allow for various interpretations with no superior supervision, which in turn cause fundamental differences in skills and competence of seafarers of different nationalities. The result of uncalibrated training is, indisputably, uncalibrated skills and if the maritime industry cannot agree on an internationally unified understanding and implementation of its own mandatory regulations, safety at sea will be at risk.

Keywords: Maritime Education and Training; Standard Protocol of Communication; Human Error; Maritime Communication; Maritime Safety; IMO; Maritime Industry.

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<https://doi.org/10.7225/imla30.61>

1. INTRODUCTION

Some of the most ground-breaking regulatory conventions in the maritime industry have been prompted in the aftermath of fateful accidents, due to their fatal consequences. A smooth sea never made a skilled sailor, and perhaps it is so that ultimately, innovation and skill will come about due to harsh conditions. The Safety of Life at Sea Convention (SOLAS), nowadays the most extensive existing document regulating and ensuring safety at sea, was first adopted in 1914, in the aftermath of the Titanic disaster. Its initial purpose was to contain the dependability of a vessel's safety equipment, so as to avoid similar maritime catastrophes. Today, due to augmented technologies that make vessels more and more autonomously reliable, equipment is no longer a liability at sea. Instead, EMSA's findings from 2022 (EMSA, 2022) indicate that human error accounts for approximately 80% of all sea accidents, due to communication gaps, misinterpretation of orders, and cultural misunderstandings.

However, exactly 100 years after the Titanic, yet another unconceivable shipping accident struck the world, the capsizing of Costa Concordia, reminding scholars that "accidents can occur even with ships that are considered masterpieces of modern technology and despite more than 100 years of regulatory and technological progress in maritime safety" (Schröder-Hinrichs, JU, 2012) due to one single, yet so far indispensable component onboard, i.e. the human element.

During his keynote at the International Maritime English Conference on Terschelling, Netherlands, Milhar Fuazudeen (2014), then Head of IMO Maritime Training and Human Element Section of Maritime Safety mentioned for the first time in an official IMO context, the importance of soft skills, particularly regarding maritime communication. According to Fuazudeen, "proficiency in General English and the necessarily restricted language of SMCP are not sufficient to ensure effective two-way communication on board ships".

Furthermore, "giving clear and precise instructions, listening and proper understanding, and the ability to give feedback are three other key communication tools that seafarers have at their disposal to help meet the standards enshrined in the STCW Code. It is essential that seafarers develop communication skills, as well as knowledge of the English language" (Fuazudeen, 2014:6).

One year later, in 2015, at the International Maritime English Conference in Johor, Malaysia, Fuazudeen (Fuazudeen, 2015) resumes his argument on communication as the most important of required soft skills onboard, in the aftermath of Costa Concordia

disaster. "How did a modern cruise ship end up being without command for about five minutes as it steamed straight towards well known and charted rocks one dark evening?" (Eason, 2015) leading up to the manslaughter of 32 people and a sentence of 16 years in prison for its master. "Where was the technology then?" asks Fuazudeen (2015), stressing that the first mate on the bridge, who was in command at the accident, did not speak English nor Italian, and had a difficult time understanding orders.

In an industry strictly governed by internationally adopted regulations, it may be unconceivable to think that members of the crew on Costa Concordia did not speak English. How could regulations be overruled to this extent, what were the flaws and what has the standard protocol of maritime communication to say about this? This article analyses the documents that define the standard protocol of communication at sea and identifies challenges in how it is understood and implemented by national agencies and MET institutions worldwide.

2. STANDARD PROTOCOL OF COMMUNICATION AT SEA – GOVERNING AGENCIES AND THEIR CHALLENGES

It is nowadays certain that Maritime English as *"the entirety of all those means of the English language which being used as a device for communication within the international maritime community contribute to the safety of navigation and the facilitation of the seaborne business"* (Trenkner, 2000) or as *"an umbrella term which refers to the English language used by seafarers both at sea and in port and by individuals working in the shipping and shipbuilding industry"* (Bocanegra Valle, 2013), has achieved its undisputed status as the only internationally endorsed language for specific purposes.

Maritime English is currently validated by a number of IMO regulations and certificates, not in the least its second key convention, the IMO Standards of Training, Certification and Watchkeeping, the Manila amendments (IMO STCW, 2010) which establishes concrete requirements on language proficiency for seafarers in operational and management positions onboard. This has been focal for all curriculum development in Maritime Education and Training (MET) worldwide, since the first Workshop on Maritime English (WOME) in Hamburg, Germany, in 1981. Today, the annual International Maritime English Conference (IMEC), makes extensive worldwide efforts to congregate Maritime Education and Training (MET) teachers in joint activities and shared curriculum developments, aiming to align teaching and learning, and skills and competence of seafarers.

In addition to IMEC, the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) is yet another very important point of reference for MET. Founded in 1954 as a forum for shared experiences and achievements amongst all stakeholders of the shipping industry, its recommendations, standards and model courses have a thorough impact on maritime safety and regulates largely the international standard protocol of routine communication, VTS-communication, with the UN International Telecommunication Union manual as main point of reference.

IMO articulates in its conventions a number of expectations and requirements for seafarers' communication skills, all of which stipulated in the STCW Code, (which also refers to the Maritime English Model Course IMO 3.17) but perhaps "the only compulsory Maritime English item designated by STCW 78, as amended," (Noble, 2017) and addressed in tables A-II/1, A-III/1, A-III/6, A-II/4, and A-V2, is that all seafarers in operational and management positions onboard must be conversant with Standard Marine Communication Phrases (SMCP). The SMCP were compiled and adopted in response to the Estonia disaster, in 1994 (Cole & Trenkner, 2009).

However, in parallel with the SMCP, the International Telecommunication Union (ITU) and instrumental to IALA, promotes similar communication procedures, directed to regulate routine communication requirements typical for the Vessel Traffic Service (VTS) Ship Reporting System. The ITU Manual (2020 a-b) as applied by IALA is the main pillar of maritime standard protocol of communication (Jurkovic, 2022) used worldwide to calibrate the competence and continuous education of Vessel Traffic Service Officers (VTSO).

Conclusively, several documents and guides that are internationally endorsed and recognized by the IMO, make solid attempt to define the standard protocol of communication at sea. However, a closer study of each arrives at the conclusion that they are not reciprocally calibrated, nor are there guidelines on how each national administration, or MET institution should implement the respective regulations. In addition, some are mandatory (STCW-SMCP) and some are optional/advisory (IALA-ITU). It is also problematic how they address each other in their respective formats.

One last aspect of importance is that currently, the entire international effort of IMEC, IAMU and IALA is directed at the development of teaching materials and locally phrased learning outcomes, whereas no effort is made on how to understand and implement the jointly acknowledged existing protocol in an internationally calibrated manner.

3. STANDARD PROTOCOL OF COMMUNICATION AT SEA – INCONSISTENCIES IN REGULATIONS

There are two most important regulatory documents of reference for the certification of maritime communication skills. The first is the IMO STCW Code (Manila, 2010), as amended, providing "detailed mandatory standards of competence and other mandatory provisions necessary to ensure that all seafarers shall be properly educated and trained, adequately experienced, skilled and competent to perform their duties in a manner which provides for the safety of life, property and security at sea and the protection of the marine environment"¹

The STCW Code is mainly used by MET institutions as a minimum requirement for national certification. The second document of reference for the certification of maritime communication skills is the IALA guidelines and the IALA VTS manual (IALA 2017, and 2022 a-b based on the ITU manual, 2020 a-b) directed mainly at VTS routine communication and strictly followed by most national agencies in their assessment of VTSOs communication skills.

One fundamental difference between these documents is that the STCW Code is mandatory for the certification of all seafarers, whereas the IALA guidelines are, albeit strictly implemented by many national authorities, mere guidelines. Despite this, on several occasions the STCW Code refers to Vessel Traffic Service Ship Reporting System as a superior, already established communication standard (tables A-II/1, A-II/2, A-II/3 and B-I/12 paragraph 68). Hence, one could rightfully assume that the so declared mandatory requirements of the STCW Code will accept the non-mandatory advice of the guides as conditional for the certifications of all seafarers.

Further analysis of the documents shows further inconsistencies. IMO STCW endorses IMO SMCP as a tool to facilitate efficient communication and all officers of the watch on vessels of 500 gross tonnage or more must be conversant with the section of the SMCP that will correspond their respective rank onboard (Cole & Trenkner, 2009). At the same time, IMO STCW also endorses VTS Ship Reporting System as provided by the IALA guidelines, and the ITU manual, as an already established minimum requirement for efficient communication at sea (see previous para-

¹ Adoption of the Final Act A and any Instruments, Resolutions and Recommendations Resulting from the Work of the Conference, Attachment 2 to the Final Act of the Conference, Resolution 2, The Manila Amendments to the Seafarers' Training, Certification and Watchkeeping (STCW) Code, Text adopted by the Conference, page 1.

graph). This leaves room for both misunderstanding and intentional misinterpretation of the STCW Code and the IALA guidelines (2022) respectively, depending on what any given national agency considers it serves them best.

IALA and IMO STCW Code mention VTS as a regulatory body for maritime communication standards, but none establish the prerequisites that VTS officers must have to enter their position, or how these prerequisites are to be achieved. For example, the IALA model courses refer to international language skills classification tools like IELTS (International English Language Testing System) of CEFR (Common European Framework of Reference for Languages) to assess the Maritime English skills of VTS officers. In turn the IMO STCW Code refers strictly to SMCP as prerequisite and requires that any officer of the watch onboard commercial fleet of 500 gross tonnage or more must be conversant with IMO SMCP (IMO, 2010; Cole & Trenkner, 2009). Unless clarified, different national agencies may again translate these two recommendations very differently, leading up to certificates issued both based solely on elementary SMCP proficiency, and/or on well developed, quite extensive and linguistically complex language tests. The skills and abilities of these seafarers respectively will be fundamentally different, with one substantially subordinated the other, despite them having the same rank.

4. STANDARD PROTOCOL OF COMMUNICATION AT SEA – EFFORTS TO SYNCHRONIZE TEACHING AND LEARNING WORLDWIDE

Notwithstanding reportedly extensive international efforts, research on the teaching, learning and assessment of the seafarers' communication skills show that regulative documents are inconsistent (see above, Gabrielli 2016, Jurkovič, 2022; Boström 2020 & 2021; Noble 2017) and allow for inconsistent interpretations and implementations. The shipping industry is responsible for roughly 80% of the world trade, engaging more than two million seafarers from 176 IMO member states. Hence, the stakes are high that MET, and in particular lifelong learning opportunities within MET, must be internationally aligned. However, reaching a collective consensus on globally accepted standards becomes challenging when 176 different national agencies must agree. Moreover, establishing unified methods of assessment and evaluation of STCW certification amongst 176 diverse interpretations of regulations adds, if possible, further complexity to the task.

The result of uncalibrated training is, indisputably, uncalibrated skills. In turn, calibrated skills will arise from

calibrated education and training. Recent European projects focused on improving communication at sea, like MarEng (2006-2010), Martel (2008-2012) and SeaTalk (2013-2015) have all been aimed at bridging the gaps between regulatory documents, providing a mutual agreement on how to understand and implement the maritime standard protocol of communication and unifying MET.

According to EMSA (2022) human error is responsible for about 80% of all the accidents at sea, and the results of DIGIMAR (2023) *WP 2.2 Maritime Communication Standard and Data-based Content Development: Overview of Cases in Marine Accident Report* are in complete alignment, with staggering numbers. 84.21% of 57 maritime accidents registered between 2011-2023 and leading up to fatalities or great environmental or material losses, have been caused by human error. Lack of communication was the primary cause in 26.3% of the accidents and a secondary cause in 64.9%. In only 5 of 57 cases was communication not mentioned as a cause. 40.4% of the accidents are reported to have resulted in collisions due to communication failures, and 10.53% in human loss. 12.3% and 45.6% of the cases are attributed to VTS and pilot communication failures respectively.

Both IALA VTS courses and SMCP sections that address VTS communication are currently under revision. It is however not acknowledged to what extent the revisions will be supported by international research and collaboration, as prompted by many national agencies and MET institutions. Furthermore, IMO, IALA and ITU must agree upon a clear distinction between mandatory and optional rules as well as discursive norms outlined in their requirements. Reasonably, if the IALA guidelines are the minimum requirement for efficient VTS Ship Reporting System, then perhaps they are also a reasonable starting point for potential international calibration of training and skills, of both VTS officers and seafarers. Once agreed that IALA courses can be an international common point of reference, then it can be used to bridge other inconsistencies in training and certification processes.

5. FINAL OBSERVATIONS

In the introduction we have drawn upon the similarities between the Titanic and Costa Concordia (Schröder-Hinrichs, JU, 2012), two representative maritime accidents, witnesses of a century of technological and legislative advances still indisputably vulnerable in the face of human frailty. Undoubtedly, not technology but the human element sank the Titanic, and the human element also sank Costa Concordia.

Safety onboard, be it efficient propulsion, stability control, or machine performance, is essentially dependent on real-time information exchange, situational awareness and the ability to make sharp, informed decisions. This is critical in challenging environments, close to land or in narrow and shallow waters. This paper concludes that inconsistent interpretations of the international maritime regulations largely contribute to the complexity and sometimes faulty implementation of the international standard protocol of maritime communication. The paper also concludes that whereas MET institutions make fair attempt to calibrate the mandatory international MET curriculum, national agencies take seldom part in those collaborations, they use different regulatory documents for their officers, and their documentation is sometimes optional, not mandatory.

According to the International Chamber of Shipping (2018), 90% of the world trade is carried by sea, which indicates the immense extent of the shipping industry's impact on world economy, welfare and climate change, particularly as it claims itself to be the least environmentally damaging form of commercial transport. Not only communication at sea has been standardized with the endorsement of Maritime English, but there are high expectations set on the ethical competence of the seafaring industry's integrity, accountability and respect for human rights. This calls upon regulations that will identify not only requirements on communication skills, but also requirements on various soft skills.

IMO – the International Maritime Organization – is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships. It is through IMO that the world's entire commercial fleet (176 member-countries in 2025) runs its safety and security issues, legal affairs, international regulations, and environmental concerns. It is also through IMO that all flag states set their standards for seafarers' competence. The standards for this competence must be mandatory, and not optional, and they cannot be phrased as to allow for a variety of interpretations.

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