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IMPLEMENTATION OF ENGLISH FOR SHIP MANOEUVRING UNDER PILOTAGE AND TUG ASSISTANCE INTO TEACHING

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Abstract. The extension of the SMCP phrases related to ship manoeuvring under pilotage and tug assistance has been under consideration for more than a decade now. The disadvantage of the communication between the pilot on board ship with external parties in the local languages was indicated in a paper written by Japanese researchers and presented at the TransNav conference in Poland in 2013, under the title *Proposal for Global Standard Maneuvering Orders for Tugboats*. Almost at the same time, only a year earlier, an initiative was undertaken among the members of IFSMA, and in Copenhagen in 2012, the IFSMA resolution 1/2012 was passed at AGA38 to mandate G.A.M.E. (Association for Maritime English, composed of maritime professionals and maritime lecturers meeting in Bremen, Germany) to develop the phrases complementary to the existing SMCP in the part AII/3.6 *Tug Assistance*. The phrases were then developed by a German ship master and experienced pilot, Capt. Matthias Meyer, in cooperation with the other members of G.A.M.E. However, the path to their implementation has been long and slow even if English is widely recognised as the common working language at sea. Some niches are extremely reluctant to adopt it and, thus, improve the safety at sea for all the parties involved.

As a group of maritime lecturers teaching Maritime English and simulator practice, the authors have decided to introduce the phrases developed into the practice of their teaching due to their common belief that all good changes happen through education. The aim is to present to nautical students the problems related to the use of local languages in manoeuvring the ship under pilotage and tug assistance, to let them take the roles of the Ship Master, Pilot, and other external parties during their simulator practice, to be followed by a post-activity survey on the students' experiences during simulation and the attitudes it has created.

Keywords: SMCP Extension; English; Ship Manoeuvring; Pilotage; Tug Assistance.

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1. INTRODUCTION

The problem of the non-coverage of certain niches in maritime operations by Maritime English, as the generally accepted means of maritime communications, has been realised by different stakeholders in the maritime affairs. It has been focused on from different points of view: ship masters have expressed their own standpoint; pilots have been consulted; tug masters have also expressed their views.

Most of the respondents in different parts of the world, except pilots in some associations, have generally agreed that extended SMCP Maritime English should be introduced into ship manoeuvring under pilotage and tug assistance. For the standard manoeuvres, the use of standard phrases is well justified. However, changes are never easy, especially when culturally rooted, but it is necessary to develop and grow for the greater safety of all involved in maritime operations.

After having extensively and thoroughly written about this specific niche in which the ship master has objective difficulties in developing situational awareness, the decision has been taken to introduce this issue to the nautical students at the Faculty of Maritime Studies in Split, with Croatian as their only mother tongue. After being briefed in regard, the students were asked to participate in the simulation developed by the co-authors of this paper, which they readily accepted. The first simulation was performed with the students taking the roles of the ship master, pilot, and two tug masters, but having at disposal only the Maritime English phrases they had learnt, while the second simulation was performed with the students using the extended Maritime English phrases during pilotage and tug assistance, which covered all the extent of the operation and manoeuvre.

Next, the lecturers prepared a questionnaire for the students who participated in the simulation. The aim was to investigate the students' understanding of the need for the introduction of extended Maritime English phrases into pilotage under tug-assistance as well as their readiness to use English where the local languages, in this particular case Croatian, are typically used at present. For this purpose, the students were given a questionnaire with the simulation-related questions. Their responses are brought in this paper to support the mandatory introduction of Maritime English where there is no justified reason for its omission.

2. REVIEW OF THE RECENT LITERATURE CONSIDERING MANDATORY INTRODUCTION OF MARITIME ENGLISH INTO SHIP MANOEUVRING UNDER PILOTAGE AND TUG ASSISTANCE

The problem of the use of local languages instead of Maritime English, the generally accepted language in maritime communications, has been identified more than a decade ago. As described in detail in Čulić-Viskota (2014), several initiatives have emerged so far to present the problems involved and support the use of English in the niches where local languages still bravely resist. Ship manoeuvring under pilotage and tug assistance is one of them.

The problem in this field was recognised in the "Proposal for Global Standard Maneuvering Orders for Tugboats", by Ishigura and Sugita, Hayashi and Murai, published in TransNav, the International Journal on Marine Navigation and Safety of Sea Transportation, after the presentation held at the 10th International TransNav Conference in Gdynia, in June 2013. The authors researched the time delay between the issuance of the manoeuvring order and the actual taking of the expected action. They proposed and recommended "*that globally-standardized orders for manoeuvring a tug are settled and included in the SMCP for the bridge team to serve its function for maritime safety*". However, no manoeuvring phrases were proposed.

Almost contemporarily, an initiative was taken by IFSMA mandating G.A.M.E. (Association for Maritime English, which at the time was active in Bremen, Germany) to work out the missing phrases to cover the manoeuvring a ship with tug assistance, to complement the existing relative SMCP chapter. The Association, led by Capt. Matthias Meyer, former head of Bremerhaven Pilot Association, developed the complementary phrases according to, on the one hand, the practices Capt. Meyer stated routine, and on the other, with respect to the language already used in the SMCP. However, with all the work duly done, this initiative has not been taken into consideration by the IMO Maritime Safety Committee.

In the meantime, a number of initiatives to point out the problem have been undertaken. To mention just a few of them, we will mention the M.Sc. thesis by a Portuguese Lisbon pilot Carlos Manuel Pinheiro dos Santos, with the title "*Segurança da Navegação. Desafios da comunicação nos serviços de reboque portuário*"[1] (the authors' English translation: *Naviga-*

[1] Capt. Dos Santos' thesis was originally written in Portuguese. The authors of this paper have translated into English the thesis' title and some parts of the thesis for practical reasons, to quote them in this paper.

tion Safety. Communication Challenges in Port Towage Services), defended at the Department for Transport and Logistics at Escola Superior Náutica Infante D. Henrique in Lisbon in 2022.

In a reply to an author's personal inquiry, Capt. Santos wrote: "*I share the same opinion and believe that this problem is prevalent worldwide, especially in cases where communication occurs in a non-native language (except English) among all the key players directly involved in ship manoeuvres (Ship Captain, Pilot, Tug Master). A large part of the problem is that the communication used during ship manoeuvres, unlike mathematics, is expressed in words rather than numbers or symbols, making it susceptible to the inherent ambiguities of language. My background experience on board (as a Pilot, and in various roles on ships and tugs) has made me realise the need to develop my skills further and address these challenges.*" He also stated: "*… in my opinion, situations involving arrivals or departures should ideally be developed and practiced in a controlled environment, such as a simulator.*"

In his M.Sc. thesis, Capt. Dos Santos (2022: 56) describes "*by way of example and not exhaustively, the complex relationship that exists between these stakeholders. We can see that, at times, during manoeuvres, there are three different types of working languages, with the pilot being the only element that has the capacity to serve as a link between the external stakeholders (tugboats, mooring staff, etc.) who use the local language (other than English) and the captain and the ship's team who use the common language (English). On board certain ships, when the crew has a common origin, there is the possibility of a third type of language – the native language (e.g.: Russian, Turkish, etc.), which emerges spontaneously during manoeuvres, when there is great pressure or psychological stress, facilitating dialogue between the captain and the other members of the ship's team.*"

Capt. Dos Santos (2022: 58) further supports the thesis of the language babel on board ships during tug assistance: "*It would be assumed that there is a natural evolution of communication, imposing homogeneity, as occurs in other transport sectors, for example, aviation. However, during port towage services there are apparently two forces working in opposite directions. On the one hand, there is the promotion of the use of English as a working language, internationally recognized by the entire maritime sector and used on board in all circumstances with the aim of increasing navigation safety through simple and unambiguous communications. On the other hand, the force associated with culture-specific customs and traditions persists, which retain the local language (other than English) (Čulić-Viskota, 2014), and different types of instructions to request the same intentions (e.g. method, force or direction).*"

Capt. Dos Santos' thesis was based on an actual research among Lisbon harbour tug masters regarding the working language, and when asked about the support to the implementation of English in this kind of ship manoeuvring, 50% of the respondents were against it, but the remining 50% of the respondents were in favour of the implementation of English as working language as long as it is accompanied by specific training beforehand. Furthermore, Dos Santos research conducted among tug masters (2022, p. 86) revealed that "in the different questions about the type and sequence of instructions received, the vast majority of respondents responded that there are two (2) or more types of instructions. In this way, we can factually prove the existence of communication difficulties among the respondents." Finally, when asked about the use of English in this type of ship manoeuvre, "*a large number of respondents see the use of English as a working language as favourable, considering this tool as a collaborative benefit among those involved with direct action in ship manoeuvring.*" (2022: 89)

In the final Recommendations section of the thesis (2022: 92-3), Dos Santos states: "According to the principles presented in "*The Shiphandler's Guide*", ship steering and manoeuvring must be developed through teamwork and, to be successful, there must be a good understanding between Pilots, Tug Masters, Ship Masters and Crew, and Dock Masters about the principles of ship steering and manoeuvring and the factors that influence the manoeuvre (Rowe, 2000). To achieve the proposed objective, the stakeholders must use a common language – English – as the working language." On p. 94-5, Dos Santos further states: "*It is absolutely essential that the captain and the ship's team are able to verify the pilots' manoeuvring intentions (Ishikura et al., 2013), allowing all those involved with direct action in the manoeuvre to overcome existing communication barriers, working assertively around a common goal – to perform ship manoeuvres safely.*" On the following p. 96, Dos Santos states: "*To mitigate these barriers during the implementation of standardized instructions using the English language, we propose that a multidisciplinary structure of learning models be developed at national level, with appropriate legislation, which will allow the development and implementation of a type of communication with unambiguous, clear and easy-to-understand language, encompassing other topics relevant to the training process of the target population (see 2.2.9. Crew), in which the relevant theoretical and practical components should be further explored.*

As a starting point, a training plan would be drawn up in which this knowledge on standardized instructions in

the Portuguese language would be presented, through expository and audio-visual teaching methods and simulation exercises in appropriate simulators, which will allow the exploration of the theoretical and practical components essential for the development of these professionals. In the last stage, a new cycle of training and exercises would be implemented in which the participants would receive training on standardized instructions in the English language.

This training model should be extended to other stakeholders involved in ship manoeuvring, and should be adapted to the specificities and distinct functions of these individuals, with the aim of leveraging the sharing of knowledge and good practices in this sector."

Finally, Dos Santos proposes (2022: 97): "*A final suggestion within this theme could be to analyse the benefits of this learning. Thus, it would be interesting to apply a subsequent study to the training and exercise cycle on standardized instructions in the English language, in which two distinct groups would be considered, with and without experience in standardized instructions in the English language, exploring their performance through studies in a controlled environment (e.g. simulators).*"

With the belief that there is considerable room for improvement in communication in port towing services, Dos Santos recommends "*the use of unambiguous, clear and easily understood language regarding their intentions to be used by I) the ship's captain and crew, II) the pilot, and III) the tugboats, all working assertively towards a common objective – to carry out the ship manoeuvres safely.*" He concludes his thesis (2022: 98) saying: "*Although this research has scientific limitations …, its main function is to spark debate on this topic. If in some way the work attracts the attention of the maritime community, our objective has been achieved. We still have a long way to go to modernise and enhance this sector, and this work aims to be another contribution to this end.*"

Another paper titled *Pilotage and Tugboat Operation Interface Safety* (2023: 554) recognises the complexity of ship assistance services under pilotage and tugboat operation: "*It is carried out by a number of operators with various responsibilities, including the pilot, ship's crew, crews of tugboats, VTC regulators, and shoreline personnel. These operators are required to cooperate with one another as a team in order to safely guide the ship to its berth.*" As the first author of the paper is a tug master at Suez Canal Authority, the authors (2023: 558) are deeply aware that "*The ship crisis in the Suez Canal reinforced the importance of the pivotal role of marine pilots and tugs for navigation and global supply chains within the shipping lanes and within ports.*" The authors (2023: 559) recognised the importance of focusing on what they consider "*a new area of marine safety*", i.e. "*the safety of ship pilotage and tugboat operations interface … rarely studied…*". They see "*the interactions between the Ship Master, Pilot, and Tugboat as a sophisticated issue*" (2023: 560) and are aware that "*The potential risk of misunderstanding, ambiguity, misleading response is always existing and the consequences are always disastrous.*" They analyse the liability for damages during the passage of a ship through the Suez Canal, stating that "*The pilot must inform the Movement Control Office or the Port Office immediately by Inmarsat and tetra or V.H.F. (2) if his advice regarding the safety of navigation is not accepted or not respected by the vessel. Masters are held solely responsible for all damages or accidents of whatever kind occurring either directly or indirectly from their vessel's navigation or handling during the day or at night. Since the Master or his deputy is the only person in charge of the vessel, neither SCA nor SC pilot is held liable for any losses incurred during travel as a result of their recommendations. (authority, December 2020)*". Further on, the authors describe the relation between the ship Master and the Pilot according to the Guidelines for navigation, the Suez Canal rules: "*At the entrance buoys of Port Said and Port of Suez, the pilot's responsibilities begin and end. He merely offers guidance on how to sail the ship and manoeuvres it. He makes his experience and practical knowledge of the Canal available to the Master, but as he cannot be certain of every vessel's flaw or manoeuvrability challenges, the onus is entirely on the Master.*" Again, the authors emphasise: "*The manoeuvre and orders are carried out under the direction of the Master who is solely responsible for the vessel. It is therefore for the Master, taking into account the directions given by the pilot, to give the necessary orders to the helm to the engines and tugs. If, in the interest of quick manoeuvres the Master thinks it preferable to allow the pilot to give orders directly, manoeuvres carried out in these circumstances shall be considered as having been carried out by the order of the Master and engage his sole responsibility.*" Further on in the paper, in paragraph 7.8 *Roles and obligations between pilot and tugboat*, the role of the pilot is described in detail to enable the understanding of the complexity of their job aboard: "*The role of the pilot is to co-ordinate all available assets to safely conduct the intended manoeuvre. The towage, the ship's main motor, thrusters, and rudder, the ship's bridge and deck crews, the usage of mooring lines and boats to suit the particular vessel, the berth and approaches, and the environment are some of these assets. The pilot will try to avoid or avoid an unintended consequence created by the planned action of one tug by applying or removing a different force somewhere else. As long as it is safe to do so, the tug master's job is to follow out the pilot's instructions. They are in charge of the crew's and their tug's safety. If a per-*

son is asked to perform an activity, they should do so as quickly and precisely as they can. The pilot assumes that the tug is functioning as and were instructed because it frequently operates out of sight of the pilot and the bridge team. Any limitations on performing the essential activity must be communicated to the pilot as soon as feasible so that they can be taken into consideration. Equally, the conducting pilot is interested in any safety issues, risks that need to be cleared, or tug master observations."

Thus, there are numerous pieces of information flowing between the pilot and other parties, especially tugboats, which are communicated to the pilot in the local language, usually not understandable to the ship master. If, on top of that, the master cannot even see the tug in use due to its position relative to the ship, he/she cannot be expected to take any informed decisions but is nevertheless held responsible for any incidents/accidents resulting from the manoeuvre he/she cannot see or control. Mentioning the effectiveness of a pilotage service, the authors state: "*An expert pilot can berth a ship safely and in much less time than a novice master unfamiliar with the port and its procedures might be able to.*" However, we should be aware of the fact that not only expert pilots operate in pilotage waters and ports around the world. Therefore, it is another *pro* for the ship master's ability to follow all the pilot's intentions, and not just the ones about which he/she is informed or can make their own conclusions about from what they can see. Another fact considered by the authors of the paper discussed here is the advantage of the pilots' "*language ability when dealing with shore services*" but also in communication with the tugs and linesmen. If all the participants in the maritime traffic agreed to use English as a means of communication, the pilot's experience and the assistance of tugs would still be irreplaceable, but the situational awareness of the ultimately responsible person on board the piloted ship, i.e. the ship master, would finally be complete. Further on in the paper, the authors (2023: 590) state: "*The master and bridge team have a responsibility to assist and supervise the pilot. This involves questioning any acts or inactions by the pilot or other members of the bridge team if they conflict with the route plan or raise any concerns about the ship's safety.*" Again, it should be emphasised that only the master and the bridge team who understand the pilot's communication with the external parties in the process are able to assist, question, or supervise. The use of local languages in pilotage and tug assistance definitely does not contribute to clarity of communication for all the parties involved.

According to the authors (2023: 591), the training of pilots emphasises "*Bridge Team Management (with an emphasis on internal and external relationships…)*". The bridge team can only be expected to cooperate if they understand each other and can establish communication, for which the common language is essential. However, the authors (2023: 592) only mention "*Knowledge of English (capable of understanding standard marine vocabulary)*" as a prerequisite for the mutual support within the bridge team. However, "*understanding standard marine vocabulary*", which probably refers to the SMCP now in force, is not enough for a successful communication during pilotage and tug assistance as the SMCP lacks the phrases for the tug assistance under pilotage after the vessel has been taken in tow. From that moment on, the ship master depends entirely on the pilot's translation of the communication with the external parties, for which there is very often not enough time on the pilot's side, even if there is all the willingness to do it. Next, the authors state: "*When the master believes that a situation is clearly unsafe, it is his responsibility to alert the pilot to the danger and, if he determines that it is essential, to assume control of the vessel. The master's inaction is not justifiable.*" Again, the ship master can only react if he has full situational awareness of the pilot's decisions and moves.

Considering the Panama Canal passage with the Pilot on board, the authors (2023: 552) state: "*For the safe operation of the ship in pilotage waters, the master, bridge officers, and pilot all share responsibilities for effective communication and mutual understanding of their respective roles.*" Further on in the same text (2023: 597), in the part *Check List of Items to be agreed between the Master and the Pilot Navigation Advice to Pilot – Reach Agreement on Underway procedures,* they mention *"Communications procedure between vessel and tugs"* but without any details, so the reader can only guess the real meaning. Next, in the part *Common errors found in the Master – Pilot relationship,* they quote The Transportation Safety Board of Canada, TSB (1995) study mentioning the "*Misunderstanding between the pilot and master, inattention on the part of the pilot or the OOW, or a breakdown in communication between the pilot and the OOW were all prevalent in the 273 instances that were looked at.* • *The vast majority of responding masters, bridge officers, and pilots agree that effective teamwork is just as crucial to safe navigation as technical skill.* • *Recent events suggest that there are still issues with the effectiveness of bridge collaboration, such as the absence of a mutually agreed-upon passage strategy, a lack of communication, coordination, and cooperation within the bridge team, a lack of accurate progress monitoring by the OOW, etc.*" Furthermore, in the same paragraph, there is the statement: "*The majority of bridge officers and masters believe that pilots don't always give accurate, timely information on local conditions.*" • *Many*

masters and bridge officers reported that pilots do not always provide information to the master or the OOW regarding the passage plan. • *Language issues "sometimes" impede good communication with the master and the OOW, according to the majority of pilots; they "often" do so, according to a few."*

Next, the authors refer to the pilot's communication with the tugs, requesting "a little more" or "a little less" power from the tug(s). Even if the tugs are all different just as the piloted vessels are, such vague expressions should not be used instead of clearer expressions containing percentage.

The streams of thoughts justifying the coverage in English of the pilotage under tug assistance are numerous and are found in different parts of the world, entirely independent of the others as many different stakeholders in maritime affairs have become aware of the situation in which the ship master can easily become estranged, i.e. can no longer master the situation where communication has diminished or ceased entirely.

3. SCENARIO DEVELOPED AND ITS SCOPE

For the purpose of our research, a scenario of the conduct of a foreign cargo carrier was developed with the support of a harbour pilot from Split Pilot Association. The different phases of the "pilot-on-board" situation were discussed in detail. The phases are:

1. Prior to Pilot Embarkation
2. Pilot embarkation and Initial Communication with the Ship Master, Pilot Card and Master-Pilot Exchange /Checklist to Take Place
3. **Communication with the Tugs**
4. **Arrival at Berth**
5. **Berthing Completed – Letting Go the Tugs**

The phases 1 and 2 from the list above normally take place in English as the Pilot and the Ship Master have enough time at disposal and there are no third parties involved, except in some cases where either the Ship Master's or the Pilot's English knowledge is not sufficient. Regarding the Pilots in such cases, we are prone to believe that it is exactly the non-mandatory use of English by the external stakeholders that supports their not realising the need for the use of the common language throughout the operation.

The phases 3 to 5 are considered crucial for the Ship Master's situational awareness. The extended SMCP phrases covering them were presented to the students and, subsequently, the students were asked to use them in the simulation.

4. USE OF PHRASES IN ACTUAL SIMULATOR PRACTICE FOR STUDENTS – HANDS-ON MARITIME ENGLISH

First, the simulation was carried out before presenting the newly-developed SMCP phrases. The students were asked to take the roles of the Pilot and the Bridge Team members, i.e. the Ship Master and the Helmsman, and to conduct the M/V Adriatic into the North Port of Split, which is a cargo port, and to bring the ship to her berth using two tugs, Charlie and Oscar.

Once the students completed this exercise, they were told that the English SMCP phrases to accompany this operation had been developed. They were further briefed on this matter and asked to use the new phrases to cover the whole operation in English from the engagement of the tugs to their letting go.

The simulation was successfully carried out, with the students communicating in English throughout the operation.

5. SUBSEQUENT OBSERVATIONS BY THE STUDENT PARTICIPANTS IN THE SIMULATION

As the lecturers and authors of this paper had developed the post-activity "*Questionnaire on the experience of and satisfaction with the participation in the communication simulation*", the seven student participants were handed in the questionnaire, which is brought here together with the analysis of their responses.

QUESTIONNAIRE ON THE EXPERIENCE AND SATISFACTION WITH PARTICIPATION IN COMMUNICATION SIMULATION

Dear Participant,

This questionnaire is conducted to gather your impressions and observations about participating in a communication simulation of ship manoeuvring under pilotage and tugboat assistance. You took part in the simulation as third-year undergraduate students of Maritime Nautical Studies, which makes your feedback especially valuable for evaluating this stage of your education.

The experiment involved two scenarios:

1. The first simulation was conducted without a pre-prepared communication script, in order to more realistically depict spontaneous communication as it often occurs in practice.
2. The second simulation used a structured communication script in English, based on extended SMCP phrases and real operational examples, with the aim of standardizing and professionalizing communication.

The questionnaire is anonymous, and the collected responses will be used solely to improve the teaching process and for scientific analysis. We thank you in advance for your time and honest answers.

PART 1: Participation Without a Prepared Script

1. **How would you rate the clarity and effectiveness of communication during the first simulation without a prepared script?**

   (1 – very unclear and ineffective, 5 – completely clear and effective)

   1 2 3 4 5

   Responses: Option 1 – 1 student; Option 2 – 3 students; Option 3 – 2 students; Option 5 – 1 student.

2. **Which language did you use more during this exercise?**

   ☐ Croatian
   ☐ English
   ☐ A mix of both

   Responses: Croatian – 1 student; English – 1 student; A mix of both – 5 students

3. **What specific challenges did you encounter in a situation where communication was not pre-structured?**
   (e.g. uncertainty, forgotten phrases, lack of coordination with colleagues, improvisation, incorrect terminology, etc.)

   The students' responses were: "**Forgotten phrases**; improvisation."; "**Lack of coordination** with the colleagues, improvisation"; "**Inadequate** terminology and in some cases **forgotten** phrases"; "**Lack of understanding** by the colleagues"; "**Low confidence**, **forgotten phrases and terminology** itself"; "We had **problems with issuing commands** and **building the awareness of the situation**"; "**Bad communication** due to the **lack of knowledge of the terminology, confidence, and generally inability to master the situation**".

4. **How would you describe the overall functioning of the crew during this simulation?**
   (e.g. coordination, understanding, manoeuvring safety...)

   The students' responses were: "**Did not function**; **Bad coordination and leadership**"; "**Bad understanding, missing closed-loop communication, the manoeuvres did not always follow the commands**"; "**The assistance of the lecturer in the simulator was necessary**"; "**Lack of understanding** among the colleagues and **consequent insecurity in the manoeuvre**"; "**The participants functioned fairly well in the given conditions**"; "**Coordination was bad**, **understanding was O.K.**, the **manoeuvres insecure**"; "**A lot of insecurity and difficulties**".

PART 2: Participation with a Prepared Communication Script

5. **How would you rate the clarity and effectiveness of communication during the second simulation with a prepared script?**

   (1 – very unclear and ineffective, 5 – completely clear and effective)

   1 2 3 4 5

   Responses: Option 4 – 4 students; Option 5 – 3 students.

6. **How much did the prepared script help you express yourself more confidently in English?**

   ☐ Not at all ☐ Slightly ☐ Moderately ☐ Significantly ☐ Greatly

   Responses: Option Significantly **– 4 students; Option Greatly – 3 students.**

7. **What specific advantages did you notice when using the prepared communication script?**
   (e.g. confidence in speech, greater clarity, better coordination, consistency of expressions...)

   Responses: "**More confidence** in speech; **better** communication; **clarity** of instructions"; "**Better coordination**; **better use of the terminology** – higher level"; **expressions more professional** and **better clarity in the communication between the pilot and the tugs**"; "Clarity of communication"; **All of the above mentioned**"; "**The conduct of the ship and the manoeuvre were more easily performed**; **the communication between the Ship Master and the Pilot, as well as between the Pilot and the Tugs significantly improved in clarity and precision**"; "**Knowledge of specific terminology was of significant help**, and **everything was generally carried out with more self-confidence**."

8. **Did you feel that communication in the second simulation was more professional and more similar to real shipboard operations?**

   ☐ Yes ☐ Partially ☐ No

   Responses: Option **YES – 7** responses.

   Please explain your answer:

   "The second simulation was as it should be: **professional, clear, and effective**; "**The scenario helped us** to execute the conduct of the ship into the harbour and the manoeuvre"; "The use of the **professional expressions, i.e. phrases, contributed to the quality of communication**"; "The preparation contributed to **the feeling of reality of the situation"**; "We were taught the scenario in advance"; "The prepared scenario resulted in **less time spent on choosing the right phrase**"; "The **issuing of commands** and the **needs of the tugs and other participants** in the communication were **articulated more clearly**".

9. **Did you feel unnatural when communicating in English instead of Croatian with your colleagues who were acting as tug masters?**

   Responses: "**No**."; "**No**, we are **used to the Maritime English language and terminology**"; "**Not at all**"; "**Honestly not**, as **on board ship, the use of English is a common thing**"; "**No**."; "The **English** language is **regularly used in maritime settings and in private life**, making **communication in English** feel **neutral – if not entirely natural**"; "**At the beginning** of the simulation, it was **a bit unnatural**, but **we got used to it really fast**, and **the communication should always be like that for the benefit of the bridge crew who cannot speak the local language**".

10. **Do you think that communicating in maritime English instead of a local language/dialect in a situation involving ship manoeuvring under pilotage and tug assistance would place a foreign ship master in a more favourable position and increase their situational awareness?**

    Responses: "**Yes**."; "**Although the Ship Master does not carry out the communication with the tugs, he/she should at any time have the 100%-situational awareness**, and **this is possible only if they can understand what the pilot is communicating with the tugs**"; "**Definitely YES**"; "**When communication is carried out in English, understanding among the parties is much better than when communication is in the local language**"; **Yes**."; **Yes**."; "**I think -YES**."

End of questionnaire.

6. DISCUSSION OF THE QUESTIONNAIRE RESULTS

The questionnaire filled in by the students participating in the simulation after being briefed on the issues related to the use of the local languages in ship manoeuvring under pilotage and tug assistance has led us to the following conclusions about the students' understanding of the operation and their readiness to use the extended Maritime English phrases in whatever role they may take in their future real life as seafarers:

1. In Part 1, most students (**6/7**) rated **the clarity and effectiveness of communication during the first simulation without a prepared script (Q1) from 1-3 / out of 5. This clearly demonstrates that even if they understood what was expected of them, the communication was rather difficult** and time-consuming.

2. Most students (**5/7**) responded to **Q2** about the language they used as "**a mix of both Croatian and English**". This points out the need for the use of the mother tongue in high-strain situations when standardised structured phrases have not been learnt, but also the tendency to use English as a means of communication where they had already been taught it is used, only to a certain extent, i.e. in approaching port, arranging tug assistance, and making fast the tugs. However, they used Croatian in the communication with the other external parties even if the situation was entirely a standard one.

3. **As it is obvious from the students' responses with regard to the challenges in situations without a pre-structured** marine communication phrases (**Q3**), they repeatedly mention f**orgotten phrases**, **need for improvisation,** l**ack of coordination** with the colleagues, **inadequate terminology** (= lack of adequate phrases to accompany the manoeuvres), l**ack of understanding** by the colleagues (i.e. in cases when they were not using clear, standard, agreed phrases, but improvised along the way, l**ow confidence** resulting from inability to have the situation under control, **problems with issuing commands and building the awareness of the situation**. All of the above mentioned resulted in an atmosphere of confusion and disorder.

4. Regarding **Q4** about rating the functioning of the crew during the simulation, the students' responses contain various negative elements, e.g. **did not function**; **bad coordination and leadership, bad understanding, missing closed-loop communication, lack of understanding** among the colleagues and **consequent insecurity in the manoeuvre, a lot of insecurity and difficulties.** In these responses, the students showed understanding of the dysfunction of the crew as well as its results.

5. In Part 2, **Q5**, where the students were asked to **rate the clarity and effectiveness of communication during the second simulation, with the prepared script and extended standard phrases (Q5), all the students' responses were in the upper part of the scale, i.e. 4 or 5 on the scale 1-5. This demonstrates the students' awareness of the benefit for all the parties involved of using the common language in a manoeuvring operation.** Even if they used English instead of their mother tongue, their mutual understanding was better, resulting in a more effective communication.

6. To the question about the **helpfulness of the prepared script and standardised phrases in expressing themselves confidently in English (Q6), all the students rated it as significantly or greatly helpful, by selecting options 4 or 5 out of 5. Their responses emphasise the need for standardisation of those forms of communications that can easily be standardised** to extend the relative part of the SMCP**, with no harm done to any of the parties involved.**

7. To Q7 about the **specific advantages resulting from the prepared communication script, i.e. standardised phrases to conduct the entire standard manoeuvre, the respondents used various positive elements, e.g. more confidence** in speech; **better communication**; **clarity** of instructions; **better coordination**; **better use of the terminology** – higher level; **expressions more professional** and **better clarity in the communication between the pilot and the tugs**; **the conduct of the ship and the manoeuvre were more easily performed**; **the communication between the Ship Master and the Pilot, as well as between the Pilot and the Tugs significantly improved in clarity and precision**; **knowledge of specific terminology was of significant help**, and **everything was generally carried out with more self-confidence**."

8. In response to **Q8 about the contribution of the pre-structured standardised communication phrases to the professional level and the reality of the simulation, all the students expressed their enthusiasm for the standardisation** by unanimously choosing the positive option**.**

When asked to explain their answers, they mentioned its contribution to **professionality, clarity, and effectiveness**, **contribution of standardised Maritime English phrases to the quality of communication** and **the feeling of reality of the situation**; they realised **less time was spent on choosing the right phrase**; and the **issuing of commands** and the **overall communication was articulated more clearly.**

9. In response to **Q9**, **about whether it felt unnatural to communicate in English instead of Croatian with their colleagues who were acting as tug masters, the respondents** definitely denied any feeling of unnaturalness, artificiality or oddity. Their responses demonstrated an entirely opposite attitude, i.e. the feeling of naturalness or even spontaneity in using English on board, by using positive words and phrases, or even expressing surprise with the question of unnaturalness of using English in maritime operations. They felt it entirely natural. Some of them demonstrated even the full situational awareness worded as: "**The communication should always be like that for the benefit of the bridge crew who cannot speak the local language."**

10. In response to **Q10**, **the respondents showed understanding for a foreign Ship Master's role, "who should at any time have the 100%-situational awareness**, and **this is possible only if they can understand what the pilot is communicating with the tugs**"; furthermore, by emphasising that "**When communication is carried out in English, understanding among the parties is much better than when communication is in the local language**", the respondents demonstrated their understanding of the importance of team work on board and the inclusion of all the participants in a maritime operation.

7. CONCLUSION

To conclude, the authors would like to stress the following:

1. Standardisation and structured communication positively affect communication in maritime operations by reducing time required to word the generally standard necessary commands.

2. This creates the feeling of more confidence in communication based on the use of the common language, in which all the participants feel equal, and the situational awareness is not only the privilege of some of them.

3. Various initiatives from different parts of the world have shown understanding for and interest in standardising the communication in the niches currently still using local languages, e.g. ship manoeuvring under pilotage and tug assistance. This would provide a more comprehensive situational awareness and confidence for any Ship Master not speaking the local language of the port they are calling at, which contributes to their equality and inclusion.

4. The authors, as maritime lecturers, would like to suggest the introduction of pre-structured scenarios covering the manoeuvre of a ship to port under pilotage and tug assistance, involving external parties such as Tug Masters on the tugs engaged, VTS, pilots on other vessels in the vicinity, etc. for practice in the simulator.

All the standard communication during these manoeuvres has been covered by standardised phrases proposed by Capt. Meyer (2020) and successfully used in this simulation by the 3rd-year nautical students of the Faculty of Maritime Studies in Split.

Conflict of interest: The authors declare no conflict of interest.

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