

Hybrid Twinning on Marine Engine Simulators*

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Abstract: The notion of twinning can refer to a number of things. Here, however, we refer to the specific recommendation by the IMO Model Course 3.17 – Maritime English, as also discussed by a number of recognized Maritime English instructors, anticipating the teaming of English teachers with teachers of technical subjects held on marine simulators. This recommendation coincides with contemporary trends in teaching English for Specific Purposes, such as Content-Based Instruction, Content and Language Integrated Learning and/or English as a Medium of Instruction. In particular, we provide specific examples of hybrid twinning classes conducted on marine engine simulators at the Faculty of Maritime Studies Kotor, University of Montenegro. Additional possibilities and pedagogical implications of the presented and related activities are also offered. We hope they can be of assistance and inspiration to other teachers involved in maritime education for upgrading their teaching methodologies as it has been the case with the authors.

Keywords: Twinning, Maritime English, Engine room simulator, Online/hybrid teaching.

1. Introduction

The ever-demanding position and role of teachers are at special test today. In addition to constant professional training, they need to keep up with modern teaching methodologies and technical opportunities and requirements. On top of those, we have had a new hybrid teaching environment where blended formats has become a necessity.

When it comes to the teachers of English for Special Purposes (ESP), the main guiding line should be the professional needs and requirements for their language learners [1][2][3]. These would be the main specifics of ESP instruction compared to that of General English (GE), often requiring the application of combined (advanced) teaching methodologies. Even within Maritime English, a distinction is made between General Maritime English and Specialized Maritime English [4], i.e. English for Deck Officers, Engineering

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Officers, and Electrotechnical Officers. Moreover, Maritime English has a variety of language branches comprising distinctive genres and registers to cover various maritime professional and communicative purposes, such as maritime law, shipbuilding, vessel traffic services and many more [5].

Having in mind numerous multicultural complements onboard world fleets and the importance of proper communicative performance among the members of this specific professional discourse community, maritime language skills have been in special focus of both the maritime community and maritime English teachers. This paper aims to present a practical way of incorporating the aforementioned aspects through a contemporary recommendation for the Maritime English (ME) teaching called twinning.

2. Modern Trends in ESP teaching

The specific features of ESP teaching are also reflected in the interaction between teacher and student, i.e. instructor and language learner. This type of language classes should always be closely related to the professional discipline and discourse community it is meant for. Not rarely, the language teacher can take the role of merely a “language consultant” [6]. Considering the specifics of Maritime English, there have even been suggestions for the standardization of certain professional competencies, the process known as “marination”, according to which the ME teachers would spend a certain period onboard, even obtain some basic Certificates of Competences. This would provide them with a better insight into the profession, as well as better authority in the maritime community and among the language learners [7].

3. Twinning

The notion of twinning can refer to various types of joint and coordinated activities, such as, for example, of peer institutions for a mutual purpose and benefit in terms of expertise, performance or funding. Another aspect anticipates two teachers or instructors, with various perceptions on the possible team members [8][9]. One of the possibilities is to have two language teachers working together, which is generally considered more appropriate for primary and secondary school students [10] [11] [12] [13].

In this paper, we refer to combined classes taught by the team of a language teacher and professional instructor, as suggested for modern ESP instruction [14][15][9][16]. In particular, we refer to twinning as a contemporary ESP trend in ME anticipating the team teaching or co-teaching of language and simulator classes. As it is generally the case with education for seafarers, some guidelines and requirements are provided by the Interna-

tional Maritime Organization and its international convention on the Standards of Training, Certification and Watchkeeping for Seafarers (STCW), with more detail and recommendation given by the Model Course 3.17 – Maritime English [4]. Following those, some of the leading researchers in Maritime English instruction have also been pointing to the importance of teaming up teacher(s) of English for Maritime Purposes (EMP) with teacher(s) of technical subjects on marine engineering simulators [17]. In this paper, we are providing practical examples, implications and possibilities of its application which would also fulfil some of the most contemporary ESP trends such as Content-Based Instruction (CBI), English-medium Instruction (EMI) and Content and Language Integrated Learning (CLIL)(Fig.1).

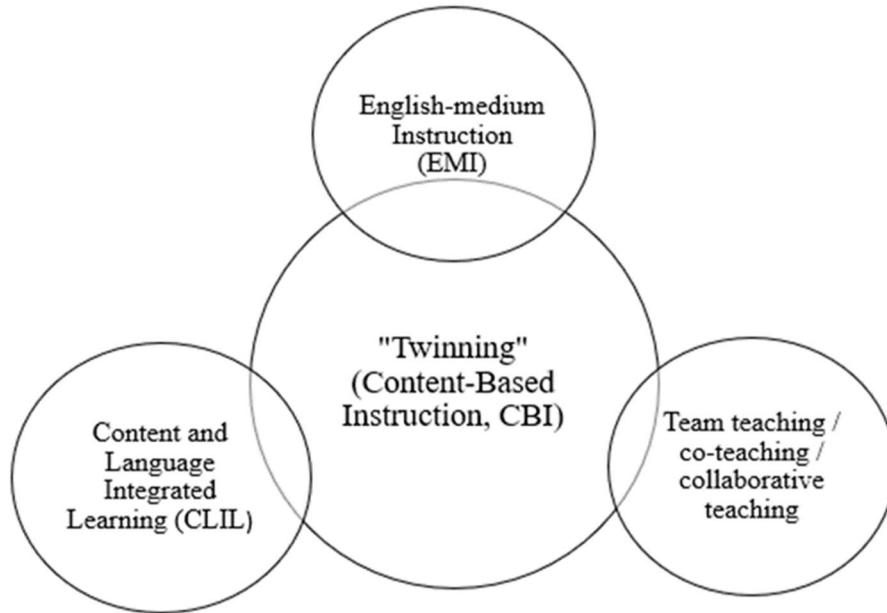


Fig. 1 – Modern approach to ESP and ME teaching [18]

4. Twinning on Marine Engine Simulators

The twinning activities have been conducted with second-year students of Marine Engineering and Marine Electrical Engineering study programmes at the Wärtsilä Engine Room Simulator compliant with international standards and regulations such as STCW 2010 Convention and Code, ISM Code, relevant IMO Model Courses and Conventions. Due to the pandemic restrictions in the past two years, this interactive activity was designed to be held in the online format through the Zoom application, which provides it with another important implication in terms of the imposed hybrid teaching environment and all its challenges. During these classes, the technical teacher in charge of simulator classes operates the simulator, whereas the

students give instructions and explanations as coordinated by both the English and technical teacher. In this way, in addition to acquiring and applying knowledge and skills through a technical subject, the students acquire and practice their language skills as tools that help them expand their professional views and perspectives and exchange professional activities and concepts [19].

Moreover, the teachers themselves greatly benefit from the preparation and conducting of twinning classes. Language instructors get more and better familiarized with the profession, while the teachers of technical subjects have the opportunity to improve their own English skills and possibly correct some of the “broken” English they have been using or could have incorrectly acquired during their onboard service or otherwise.

The twinning classes conducted at the Faculty of Maritime Studies in Kotor so far have been primarily review and experimental classes. Their purpose was to review the gained knowledge from both subjects and practice productive language skills. For example, texts on marine boiler design and operation are a part of the language syllabus, but are also an important area of technical subjects, even a subject per se. One of the twinning classes was therefore dedicated to boiler monitoring and control system (Fig. 2). Another example would be starting the generators and electrical systems, monitoring and responding to possible errors and faults (Fig. 3). Similar classes are organized in relation to other marine systems and possible onboard situations and activities, such as, for example, fire-fighting. The special advantage of these classes is that they comprise, test and broaden the acquired technical and language knowledge from a series of units previously taught. For example, when operating the fuel system, it is interconnected with the main engine, diesel generators, boilers, comprising pumping and separation systems, valves, alarms, monitoring systems and similar. Also, a lot of the teaching materials overlap between the two study programmes mentioned, thus both classes can attend online at the same time and can interact and simulate the cooperation and interdependence during onboard activities and situations. Considering that in regular circumstances different classes are not usually put together, and the number of students to attend the simulator stations is limited, this would be an advantage of online teaching formats.

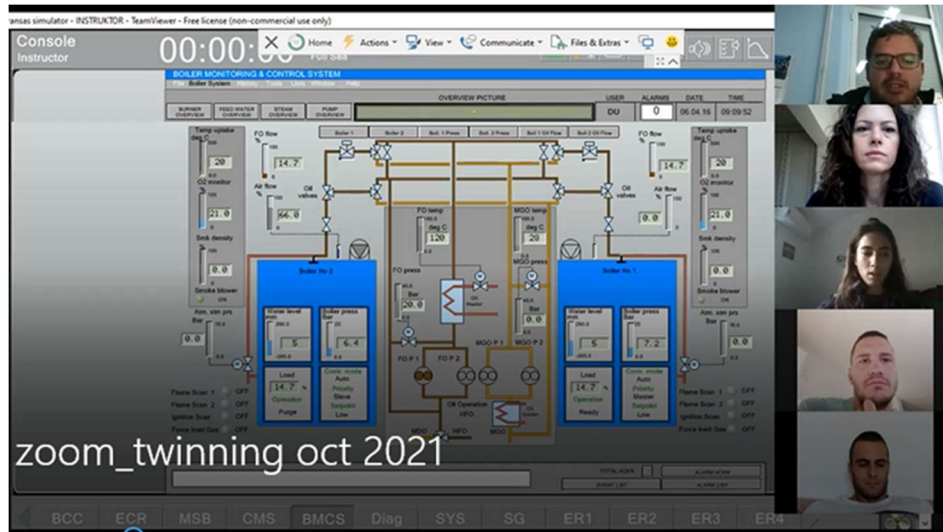


Fig. 2 – Online twinning class – Boiler Monitoring and Control System

Bearing in mind that the classes presented have been designed and conducted during the pandemic period, the format presented would generally be a great asset for preparatory classes, i.e. before the students start working in groups on simulator stations, or as follow-up activities and review classes in any circumstances. Also, as already proved, it is an excellent opportunity to have combined classes of different study programmes, as, in our case, Marine Engineering and Marine Electrical Engineering, this way being able to exchange their experiences and learn from each other to upgrade their knowledge on certain systems.

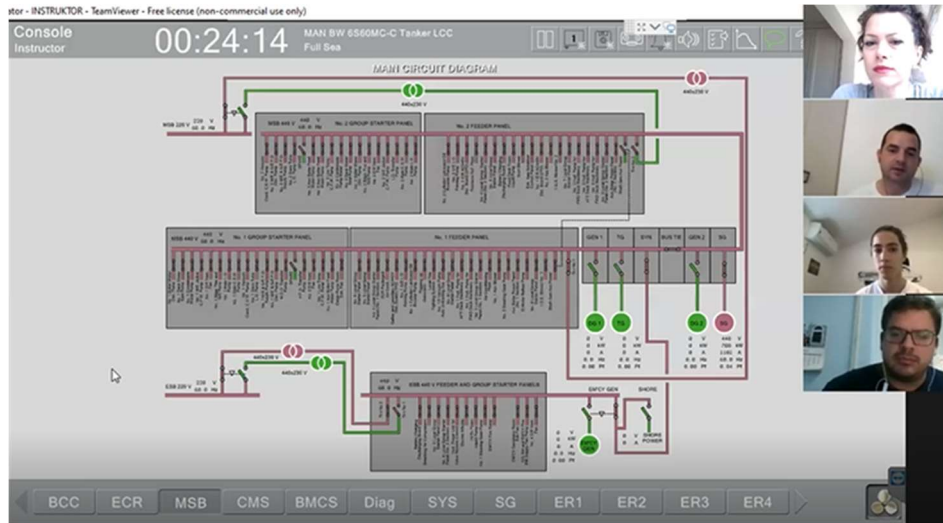


Fig. 3 – Online twinning class – power system operation

4.1. Challenges and pedagogical implications

In addition to meeting the official requirements and recommendations for the twinning activities, as mentioned, a series of challenges need to be addressed here. As more and more classes migrate to the online environment, teachers are called upon to pay special attention to interactivity and motivation issues. A research survey conducted in the USA shows that, although the majority of teachers rated the student learning outcomes in online education as equal or even superior to face-to-face instruction, they all share certain common concerns. For example, about 70% of academic staff believe that “students need more discipline to succeed in an online course than the one conducted face-to-face [20].

The phenomenon of emerging digital generations here makes the process much easier for the students, although teachers are now more than ever forced to overcome the gap and use additional web-based tools and applications to maintain the focus and engagement of the online attendees. Online simulations here particularly come in handy. In addition, the twinning activity on a marine engine simulator is meant to be interactive in multiple ways. First of all, it anticipates close interaction and collaboration between the teachers, then between the teacher(s) and the student(s), and finally, it is interactive and collaborative among the students. That way, it encourages students’ collaborative learning, gaining certain experience and collective meaning-making [21]. They are generally more consumed by the process presented and going on on the screen. They assist their colleague in explaining the process, continue the explanation or clarification of the procedure, add comments or correct him/her.

This is a very important aspect for engine room personnel. The exercises conducted have actually been a great introduction to Engine Room Resource Management (ERM), which is even designed as a separate course. ERM is a system of achieving safe engineering operations by proactively managing personnel, equipment, and information. Generally, it anticipates monitoring an individual performance while working within the engineering team in various situations. The ERM exercises are generally designed to be done in teams, e.g. two students per simulator station, so that they can discuss the situation and help each other, which is a common situation and a necessity in engine room daily operation, especially in case of a failure, error, breakdown or similar problem to be promptly and efficiently resolved.

The other issue in hybrid or online format of classes, but also those held on-site, is that they lack the experiential component. Since twinning is the simulation of real-life onboard situations, we can say that this aspect is also partially fulfilled. Also, in addition to reviewing the previously gained knowledge, these activities also review previously gained practical knowledge of the teacher(s) and some of the students who have already had

some onboard experience. The shared “hands-on” experiences is generally recommended for helping learners enjoy learning, learn more and remain committed and engaged [20].

Twining classes provide another great advantage to the students. In addition to the multiple benefits mentioned, they are also a great preparation for their future jobs interview, both in terms of (Maritime) English proficiency and especially in answering technical questions frequently asked in relation to ship systems and their operation.

4.2. Related Activities

In terms of language, specifically, some immediate class activities following the twinning class could be done through the Moodle platform commonly used as a distance learning platform at the Faculty of Maritime Studies, such as short quizzes, (technical) vocabulary exercise(s) and/or translation exercise(s). The teacher can also subsequently go through the recording, detect possible incorrectly used vocabulary and expressions, grammar or pronunciation mistakes and prepare additional exercises for the next class. Naturally, a similar can be done for the paired or “twinned” technical subject, as well.

In addition, the simulator offers the possibility of creating tests related to simulator exercises (Fig. 4). Those are in English, thus providing and requiring proper reading comprehension, especially in terms of technical English. The assessment can again include both technical and language components, in variable ratio, and the overall performance can be tracked through the Trainee Performance Monitor. Having in mind that these online tests generated on the simulator are generally a multiple-choice concept anticipating primarily receptive language skills, they would be a good combination with twinning classes which would again be crucial for the enhancement and testing of generative language skills and productive use of technical vocabulary.

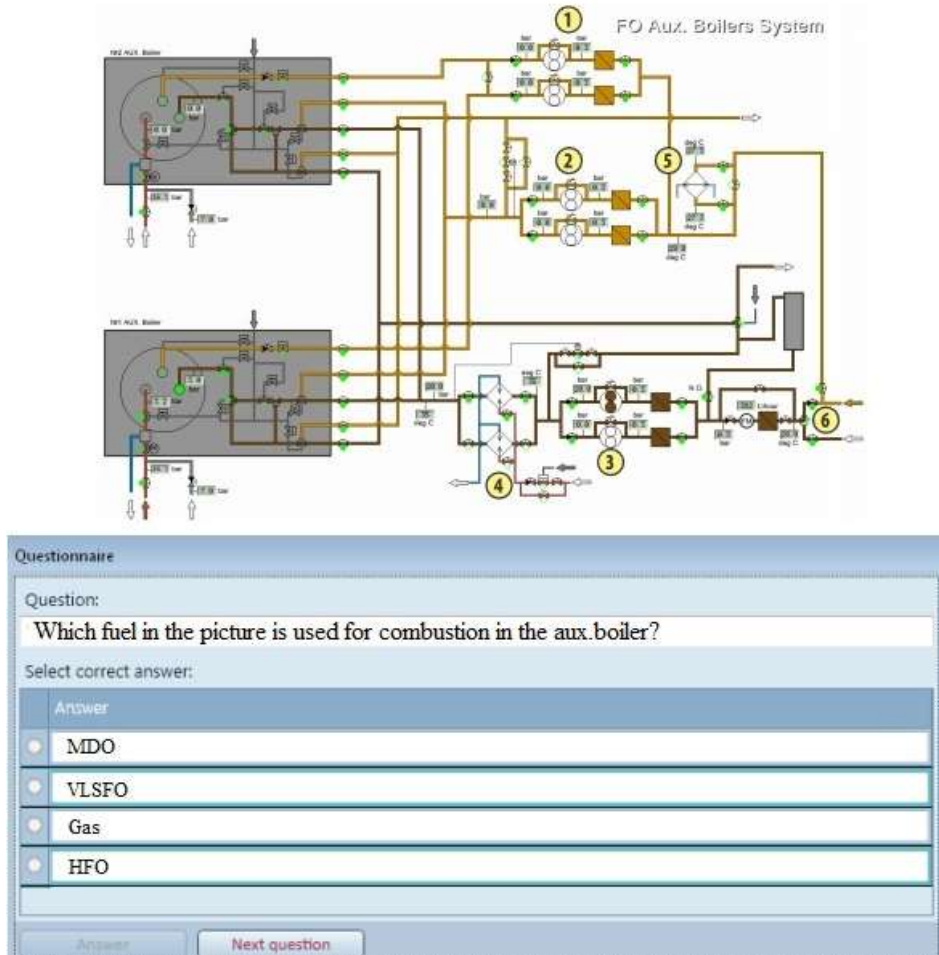


Fig. 4 – An example of a simulator test question

The technical subject taught on the simulator is a distinct example of English Medium Instruction, including assessment and testing. What we tend to do with the twinning refers more to CLIL or Content-Based Instruction of language. The portion of the learning outcomes of the two subjects would be challenging to define and conduct, but the intertwining and necessity of cooperation are more than evident.

4.3. Other twinning possibilities

The activities referred to above have been conducted in the most practical way in terms of the limitations imposed by the pandemic. Another possibility would be to have a group of students at the simulator stations where they do the practical operation as assigned by the teacher(s). At the same time, the rest can follow online, answer questions and give instructions or

help their colleagues complete the assignments and provide adequate responses to the situations, give comments, and similar.

Naturally, in the regular teaching environment on the site, the simulator classes are done in groups where the English teacher can also join and have a more or less active role, depending on the class design. For example, it can be done similarly to the online format where the students need to explain their actions regarding the operation of a particular part of the ship's system or reaction to a situation.

Similar twinning classes could also be designed on nautical simulators, for Vessel Traffic Service stations. To the best of our knowledge, there are no official twinning courses or subjects formally designed and taught through twinning activities. The twinning classes presented in this paper have been conducted not as regular classes but as additional, review, and experimental classes. The students' responses and feedback, however, have been very positive. Thus we believe it would be more than helpful to have similar activities as integral parts of the subjects' syllabi or a separately accredited twinning subject.

5. Conclusion

The idea behind this paper was to present some practical solutions and experiences in terms of contemporary recommendations for teaching methodologies and class designs, particularly in terms of English for Marine (Electrical) Engineering purposes. The examples of twinning exercises are given aiming to meet both the practical needs of our language learners, but also to meet some general requirements and recommendations in terms of the Maritime English instruction. Having some practical experience with this kind of classes, the authors also provided further pedagogical implications and possibilities of the method, anticipating both hybrid and regular teaching environment. The next big step in that direction would be the possibility of including the classes as regular tutorials or as an accredited twinning subject of the official study programmes. Having in mind the afore considered, it is a method that should be more widely explored and tested, and eventually integrated into regular ME courses. The authors are in favour of further research and will hopefully be able to exchange relevant experiences, findings and recommendations with other colleagues.

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