



Tempus MArED project - The Role of Maritime Educators and Trainers

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ABSTRACT

European Union projects promote the economic growth of its member countries and the strategy of integration allows non-EU countries' development in areas of economics, education, etc. One example is a Tempus program that supports the modernization of higher education in the EU and its surroundings. Modernization and harmonization of the maritime education and training (MET) curriculums with the STCW Convention and Manila amendments of 2010 is a challenge for maritime educational institutes around the globe. In 2013 a Tempus MArED project was launched as a response to these latest amendments. The main objectives of the project are modernization and harmonization of maritime education in Montenegro and Albania. This paper highlights parts of the educational process - maritime educators and trainers and the role of the bridge simulator, which achieves its purpose only with a certified trainer able to prepare adequate tasks and apply the simulator to training.

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1. Introduction

At the beginning of 2012, the Manila amendments to the STCW Convention (International Convention on Standards of Training, Certification and Watchkeeping for Seafarers) came into force. Consequently, maritime educational institutions had to modernize and harmonize their curriculums and syllabuses. Changes include the application of ECDIS and leadership and managerial skills being included into the curriculums. The modern approach of delivering knowledge is reflected in the upgrade of ex-cathedra lectures with so-called 'approved laboratory equipment training', where simulators represent a large percentage of the recent pedagogical approach.

Naturally the education of seafarers was different in the past. Table 1 shows the curriculum of the Adriatic maritime school of Dubrovnik for the academic year 1852/53.

A lot stands out, depending on the course. For instance, three hours per week of practical seamanship is taught in the first year and none in the second. Perhaps that is because the mid-19th century was during a transition period from a time when most seafarers began their careers onboard ship. Also the navigation, which presumably comes under nautical science, merits the same number of hours, but in the second year - probably in the hope that the knowledge will not be forgotten in such a short time.

Paradoxically, today, despite the extraordinary advances in navigational techniques, far more time is spent studying the topic. Moreover, vessels are far more complicated machines now than they were then, far more advanced in virtually every way - yet the study of safety culture is now considered necessary, as is the study of environmental issues.

However, if we look at the maritime education and training (MET) within an institution the essence of education are educators and instructors. They must have excellent professional knowledge, teaching skills and assessment experiences for different maritime areas, as well as, preferably, a keen understanding of global maritime circumstances. They need not only the knowledge, but also professional maritime experience.

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Table 1: Curriculum of the Adriatic maritime school, academic year 1852/53

Subject	Teaching Hours/Week	
	I. year	II. year
Religious	2	2
Mathematics	4	2
Commercial	2	-
Science		
Practical	3	-
Seamanship		
Nautical Science	-	3
Shipbuilding	-	3
Total	11	10

Unfortunately, not every good seafarer is a good teacher. Problems arise in preparing teaching material, basic teaching ability and methodologies, understanding the fundamentals of pedagogy and strategies, lesson planning, etc. A maritime educator must succeed in conveying acquired knowledge in an interesting and challenging manner.

The International Maritime Organization 'solved' the problem of lessons planning and curriculums according to the STCW Convention with the implementation of IMO Model Courses, covering all maritime subjects, and are a great help for MET institutions and for maritime administration institutions, enabling those willing to provide appropriate training and assessment of maritime personnel/seafarers. Another attempt to fill the pedagogical gap of professional seafarers who appear in the role of educators are 'Train the Trainer' courses, which are spread all over the maritime world, indicating that such trainings are in demand.

2. MET requirements for teaching staff

One of the sections in each IMO Model Course is a staff requirement specifying in detail the recommended qualifications of teachers in a particular field.

The STCW Convention sets minimum standards for the education and training of seafarers. Part of the convention is a code, which specifically deals with the education and training of deck and engine officers and other ratings employed on vessels. If we focus on the area of maritime educators more closely, we see that the code actually sets very superficial requirements for training staff. STCW Convention regulation I/6 says that 'those responsible for training and assessment of competence of seafarers must be appropriately qualified in accordance with the provisions of section A-I/6 of the STCW Code for the type and level of training or assessment involved' (STCW, 2011). A-I/6 does not specify what constitutes adequate qualifications of the maritime educators or training staff.

Directive 2008/106/EC of the European parliament and of the council on the minimum level of training of seafarers requires that each person who conducts the training of seafarers takes into consideration the training program and an understanding of the specific objectives of the particular type of training. A person must be qualified for the task for which

training is being conducted, and if using a simulator an educator receives appropriate guidance in instructional use of simulators and gains practical operational experience on the particular type of simulator being used under the supervision and to the satisfaction of an experienced assessor (EU, 2008).

Therefore, it is understood that a teacher shall have participated in the course, based on IMO Model Course 3.12 'Assessment, examination and certification of seafarers' and IMO Model Course 6.09 'Train the trainer'. But none of them are obligatory. Thus, in the STCW Code and EU Directive nowhere can it be found that the teacher must have professional experience or a certificate of competency for deck or engine officer, at least not directly.

Aware of these failings and so as to enhance the quality of maritime education, maritime faculties, colleges and universities in general set higher requirements for teaching staff than do private maritime training centers. Most of them require teachers in the maritime department to have in addition to a Master's degree, professional experience as deck or engine officers. In this manner, the quality of education meets the STCW, national, and university requirements for training staff.

2.1. Simulator training

Another point of view which must be considered in maritime education is simulator training. A navigational simulator plays an important role in MET. It is a didactic tool that simulates the actual marine environment, movement and operation of several ship types and propulsions, and the possibility of integration of more simulators for one task, which further contributes to the simulation of a real ship's handling.

Another important aspect of the simulator applies to its research value. The simulator can be used to determine the safety criteria for the arrival and departure of various vessels; it can simulate different environmental conditions and limitations by which the factor of risk may be predicted. Ship simulators that simulate work on the navigation bridge should satisfy the requirements of the STCW (International Convention on Standards of Training, Certification and Watchkeeping for Seafarers) Code, section A-I/2.

Today, the market is crowded with maritime simulators. We have determined that Transas, offers the best-in-class navigation systems and integrated bridge solutions, recognized training and simulation solutions, a renowned Vessel Traffic Management System and coastal surveillance systems, fleet and port management systems, onboard and individual decision support systems for professional crew and pilots, as well as popular applications for leisure and marine mass markets (Transas website).

Simulators offer a modern pedagogical tool for the training of seafarers because it simulates situations a student will meet later on the ship and also offers a wide spectrum of possibilities for preparation of tasks from various fields of shipping.

Most important for simulator training is the role of the teacher, who must be skilled in the use of simulation tools, know the hydrodynamic characteristics of a ship, should hold a certificate as Master, have two years' experience in handling vessels, have

Figure 1: Integration of different simulators contributes to the simulation of the real ship's handling



Source: ?

the training and experience necessary to operate a ship handling simulator as a training aid - and have the imagination to create challenging educational scenarios. (IMO, 2002)

Although the STCW Convention, Code and EU Directive do not directly imply this in their regulations, it is clear that a simulator instructor, according to IMO Model Course 6.10, must fully understand the personality of a seafarer, the importance of simulation in maritime training, and have pedagogical skills in order to impart sound and practical training to the seafaring community, have the qualification and experience, a seafaring background, and the aptitude to not only pass on knowledge, but have the ability to motivate the students (IMO, 2012). A skilled and enthusiastic trainer can very well make the difference between one maritime training center or faculty and another.

The biggest challenge for the teacher is the planning and preparation of exercises for a student to obtain certain competences. For students who do not have work experience on board the ship, the objective of the exercise includes providing a sense of experience and the general view of work as an officer of the watch.

Figure 2: Integration of different simulators contributes to the simulation of the real ship's handling



Source: Authors

3. Tempus project MAReD

In light of all these requirements for MET institutions, especially for teaching staff and equipment, the EU Tempus MAReD project was launched representing Modernizing and Harmonizing Maritime Education in Montenegro and Albania. Both countries have difficulties in the area of maritime education, especially with financial resources, the qualifications of teachers and teaching facilities. With the help of EU partners Slovenia, Croatia, Spain, Austria and Romania, both the Maritime faculty of Kotor (Montenegro) and the Faculty of Technical Science VLAËre (Albania) have successfully completed most of the project objectives:

- Modernization and harmonization of maritime undergraduate study program;
- Accreditation/re-accreditation and implementation of undergraduate maritime study program;
- Development of modern and harmonized training of seafarers through IMO model courses;
- Accreditation and implementation of IMO model courses;
- Update existing and build new teaching and infrastructural resources in order to meet existing standards in maritime education and training;
- Establishing a permanent and sustainable mobility scheme between EU and PC partners;
- Fostering cooperation between academia and maritime sector industry and service sectors.

The curricula and syllabus catalogues were prepared in order to harmonize study programs to the latest international requirements for the education and training of seafarers. The faculties also upgraded teaching equipment by buying nautical simulators. Upgraded educational sources are for the education and training of both students and seafarers, additionally increasing their professional competences (MAReD report).

The wider objective of the project is to provide competent and qualified human resources in the maritime sector. The involvement of partner countries in this case is shown especially in sharing good practices: revision of current curricula with those existing in partner countries; know-how transfer of teaching experiences, study visits of teaching staff from PC to EU universities; exchange of teaching material; upgraded facilities for the practical exercises of students and seafarers; 'Train the Trainer' experience exchange, etc.

Already in the application of the project itself it was highlighted the importance of the education of the teaching staff and equipping the faculties with nautical and engine simulators. Through the implementation of the project was further revealed the need for additional training of teachers, not only in the use of simulation devices, but also in the approach to teaching, because teachers are mostly former professional seafarers who do not have pedagogical education.

Training of teaching staff was carried out in two work packages, WP.2 and WP.4. UPC Barcelona (Polytechnic University of Catalonia) conducted the first two trainings in the year 2014 and 2015. Teachers from Montenegrin and Albanian universities participated in training activities in order to improve existing teaching methods. Teachers and teaching assistants from partner countries who had been trained were directly involved in the teaching process aiming to improve existing methods at their institutions. Training has been focused on the use of simulators; the second part of training was focused on maritime transport and management topics. The third training was organized by the Faculty of Maritime Studies and Transport, University of Ljubljana. The Train the Trainer course was based on the IMO Model Course 6.09 and contains theoretical and practical chapters including the content of psychomotor responses in all conditions. All trainings were conducted by experienced maritime teachers.

The Tempus project is definitely a good approach to upgrading existing teaching habits, succeeding in the cross-border cooperation of institutions through a mutual exchange of experience and practice, helping in the harmonization and modernization of maritime education and training.

4. Conclusion

Maritime educational institutions on the Adriatic coast have a long tradition of education and training of merchant navy officers. Croatia and Italy have around 20,000 seafarers (Marinov, 2015), Montenegro 4,300, Albania 2,000 (Castels, 2015) and Slovenia around 300. Therefore, there are many maritime training centers and faculties along the Adriatic coast (Figure 3). Smaller numbers of students are an automatic educational advantage for maritime faculties but in Montenegro and Albania due to the rapid growth of private training centers, it is necessary to make significant investments into existing public educational institutions in order to maintain a certain level of competitiveness in the country. At public institutions the sense that the student has a stake in the studies even on the national level remains, something that is eroded by private institutions run rather more as companies. And as it is necessary to maintain connections with IMO and the SCTW courses, to constantly adapt to changes, even at times to accommodate the industry, the ship owners, as well as the knowledge obtained by researchers, the smallest of maritime countries requires an excellent maritime training capacity.

The traditional concept of seafarers training based on 'ex cathedra' followed by practical 'on board' training has significantly changed from the days seafarers came of age onboard ship. Simulators have advanced to the point where we can be more confident that they can make up for lack of time onboard.

Project Tempus MArEd is a comprehensive approach to the successful reform of curricula and the establishment of professional maritime courses at maritime faculties in Montenegro and Albania based on utilizing various marine simulators. Nevertheless, we should once more stress that the success of this project will owe more to the teachers who make the most of

Figure 3: Integration of different simulators contributes to the simulation of the real ship's handling



Source: Authors

training, including keeping up to date with changes in the technology.

Each educational institution must, to be competitive, comply with two essential conditions: (i) be equipped with the most advanced simulator equipment, (ii) employ such training staff as will be able to pass their experience and knowledge on to the younger generation of seafarers who are beginning their sea career.

Although we have seen that educational institutions provide proper training of teachers, it would be advisable that the STCW Convention and consequently national legislation give concrete expression to the requirements for maritime education instructors and teachers.

For some, perhaps the sailors, more significant is the question whether the seafarer of today is better off than the seafarer of yesterday. They study a great deal more, so we must hope it is worth their while. Yet are they better off today, are they as well off as they ought to be? Unfortunately, in this honorable profession according to a recent article in *The Telegraph* of London, '... today's man of the sea is also probably poor, probably exploited, and living a life that contains, at the least, chronic fatigue and overwork; boredom, pirates and danger. Suicide rates of seafarers are triple those of land-based occupations and carrying sea cargo is the second deadliest job on the planet after fishing.'

Add to that the chronic (and historical) stresses of lengthy stretches of time at sea, away from home, and such absurd abuses as allowing workers to go unpaid, which is far more common than most of us realize, it is safe to say that along with our well-planned curriculum we owe an extensive overhaul of the conditions of workers at sea, lest we remain responsible for aiding and abetting the hardships of the world's seafarers.

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