Modern multimedia learning tools in MET

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Abstract: IT and modern technologies are an integral part of the learning process in any maritime university. Indeed, it is expected by the students, the ship owners and the shipping industry as a whole that the training of future maritime officers should be made up of such modern means. However, it is not only fashionable to use simulators and concepts like e-learning, but it is also a very effective way of training future maritime personnel, as well as retraining and improving the performances of the existing manpower in the industry. Thus it is not a problem of whether or not a maritime education center should have an educational program based on modern technologies, but rather how to optimize such a program. This abstract is about how we at Constanta Maritime University (CMU) are seeking to improve our approach to this relatively new but nonetheless highly important learning process in order to make it even more efficient. The main points of our interest are the simulators but we are also looking forward to improving the general presentation and content of our courses, and the realization of an internet based electronic university library with free public access. Of course we cannot upgrade the simulator ourselves, but we can improve the applications i.e. the content of the simulated scenarios and the way they are conceived.

Keywords: MET, multimedia, learning tools, maritime personnel, e-learning

1. Introduction

It can be said without being mistaken that the primary role and responsibility of maritime education and training centres is to provide the transport industry with qualified and competent manpower. These men and women are required to fill job positions ranging from sea-going to shore-based but no matter where they are actively involved, they have a crucial impact on keeping the shipping activity safe and the ocean’s waters cleaner. We at the Constanta Maritime University (CMU) believe that this apparently simple idea is not just the IMO aim [1]. We say that this credo ingeniously hides a greater truth: a properly operated ship, with an adequately trained crew and with full shore based support, is an efficient one, because it rarely runs into
dangers and has fewer incidents. Thus such a ship would be highly profitable, but we should not restrict ourselves only to ships, for this principle applies also to any commercial enterprise.

A very important question is how our students can accomplish such feats. The answer is almost straightforward: through continuous training. During the years they spend in universities as students, men and women acquire the skills and knowledge that gives them a chance of having a successful career in this challenging, competitive and highly dynamic maritime transport industry.

However the most important question is: How to best train our students? Of course, when speaking about the future mariners there is some help. Over the years the IMO has pondered on this question and, through the STCW convention, provides us with invaluable guidelines that cover the minimum requirements [2]. Ultimately, it leaves the responsibility of how to teach the students with the training centres. This brings us back to our question.

2. The conventional way

One possible answer is to look back and take note from what the traditional way of schooling has still to offer us. We must not think of the old ways as obsolete; indeed, what is considered traditional is in fact tried and tested. We take into account the traditional training, as conceived not so long ago by the seafaring nations who would take men on board and school them during voyages. It can be stipulated that this kind of training still exists today, in the form of the on board training program as some countries still practice it. These training programs rely on minimum background training or familiarization programs that give students a minimum degree of competency. They would then embark on board ships, where they would study both the theoretical and practical aspects of their future trade, and would return to their training centre for examinations, after which they would proceed to another voyage.

The down side of this kind of training is, in our point of view, the lack of standardized training. Where at the end of his or her education an individual would undergo a standardized test, one can never be sure that the cadet has covered the entire required curriculum [3]. Nevertheless it is a system that has good results and, among other good things, it allows students to experience life at sea from the early stages of their career and gives them the chance to determine whether or not it is truly their calling in life or not. However, this type of education requires a fairly large number of vessels and becomes even more practical when ship-owners become students’ sponsors, as they search for high quality future employees.

Another way of training future maritime officers is through the educational system. The approach relies on a rigorous theoretical training program followed by a one-year training program at sea, as required by the STCW. Even if topics like basic and advanced mathematics, chemistry or others may seem to exist just to beef up the curricula, they truly have their just place in the harmonious development of any future maritime officer.

This approach is a more realistic approach in the context of the global crisis. Maritime transport is not an activity that is ever likely to cease and, as such, at any one time there will be a demand for qualified men and women to man ships. During crisis moments ship owners and operators will look for every opportunity to cut back on loses and will not hire new cadets until they are absolutely sure that there is still a future for their company in this competitive business.

But what about the modern ways of teaching? The modern school has embraced the idea of a modern technology to the point that the two are nearly inseparable. Emphasis is put on fast computers and simulators as well as Internet. This article is about how we at CMU are trying to bring the best it and the new technological advances have to give to our students.
3. Simulators

The most obvious and most welcomed intrusion in the maritime education process for IT is in the form of simulators. However, engine, bridge and economic simulators are not only a fashionable asset for an education centre, but also extremely effective. Apart from bringing the student one step closer to the realities of working with ship equipments, simulator training does much to improve the overall teaching experience. The students are more motivated and have a tendency to gather even more information on related topics than is offered to them in class.

Moreover, they have a chance to experience the capabilities and limitations of each of the pieces of equipment that is simulated. Also the student can experiment with the integrated bridge systems. This means he can learn how to gather information from multiple sources, how to identify errors and malfunction types, and how to react in case of an emergency or in case of an equipment failure.

Furthermore, during simulated scenarios with a high degree of difficulty the students learn about their own limitations, something that cannot be taught otherwise in a safe environment [4]. No matter what job they are training for, whether as part of a ship crew or as part of the shore based member of the company, they are going to find themselves as part of the team. Although this is may not be considered a direct benefit from using simulators, teamwork, leadership and communication are all skills that can be acquired, practiced, and perfected during simulator training.

However, it is not just a matter of just having the latest in simulator hardware and/or software. The exercises need to be relevant, with possible practical application in the future, and pertinent to the purpose of the syllabus. We have found out that students really appreciate exercises that are inspired from real life events, and are generally put off by exercises that are not well designed, or that happen to be farfetched. As a consequence we put a lot of effort into creating complex scenarios, and we are constantly looking for ideas for new ones. One such source for scenarios, especially for ship bridge simulators, is the analysis of past incidents or accidents. Although such a reactive approach is not a novelty, we believe that it ensures that our training programs are up to date and responsive to the ever-changing requirements the maritime transport industry [5].

Perhaps the most important aspect of the simulator training program is that the trainee has a chance to put into practice what he or she has learnt or is learning in their studies in a theoretical manner. To go even further, simulators are an important part of the educational process, because they reduce the gap between what is learnt at school and what is asked in the line of work. At first glance this may not seem like something important but there are some important implications. Firstly, it raises the proficiency of students in the task they are going to accomplish in the line of work even before they ever step in the working environment. Secondly, because great care is taken so that the simulated equipment or systems are as realistic as possible, trainees have a chance to learn how to operate them effectively. Thirdly, the simulators, more often than not, do not have just one system model but a variety. This means that proficiency is gained on a system type. Lastly, we at the CMU are confident that, because of what has been stated above, students that have been taught with the help of simulators have a much easier time to be integrated in a working collective [6], because they require training only on topics related to details of their jobs. Thus the person in charge of the training has a much easier job, and these students have a higher chance to be employed.
4. The influence of modern technologies on university courses.

Another way modern technologies have upgraded the pedagogical experience is in the manner in which information is passed on to the students. The traditional way of teaching, as many of us know, was that the teacher was at the heart of the system emitting the information, passing knowledge to the pupils who were the receivers. Of course, no one can argue that this method is completely ineffective, or that it may be completely obsolete, or that it shouldn’t be used anymore. Indeed in many parts of the world it may be the only option for the teacher. However, with the advent of new technologies we can see that there are a few changes that have been made.

Because of the new communication technology being widely available and accessible to most of the population, the teaching experience has changed. Perhaps the most important technological advance is the use of the internet. Through the internet, information is easily accessible to anyone. It is just a matter of accessing the right source and even more important, learning how to process the information. It is at this point where we can say the role of the professor has changed; he is no longer the sole provider of knowledge, but rather he provides guidance for his students and helps them interpret their findings [7]. The teacher no longer has to dictate the information to the classroom, he can present slide shows with the overhead projector and make arguments on the presented topic. Thus the entire teaching activity inside a class is transformed into a debate, because generally speaking it is allowed for a student to challenge what the teacher says and present arguments and documents to the discussion.

Of course, the information obtained from the world web can sometimes be questionable at best. This is why, at our university, we are trying to make most, if not all, courses available in electronic format. We are also envisioning the development of a public internet based library where all students, both domestic and foreign, have access to both our courses and related materials. This related material should include links to relevant sites and articles and freeware computer programs including basic simulators. Part of this has already been done with great success and much appreciation from the students. Furthermore, we are considering building up a data base of filmed courses, where professors are filmed in class while teaching, over the duration of the entire course. We consider that these “virtual classes” will have a greater learning value than some downloaded text files, because students are given a chance to listen how a professor argues his information and, in a manner of speaking, have a chance to be in the classroom [8].

Furthermore, we are building up a data base of information such as films of simulations or demonstrations to present the students on various topics.

As an alternative, we are also looking forward to the introduction of computer based training programs which are certainly not a novelty, and we do not believe them to exhaustively approach any topic. We consider them more of a schematic course but we cannot argue their value as a teaching aid, and their popularity with our students. This is why we are considering the development of such computer programs of our own, with the purpose of being related with the main courses with clear links where further information can be found.

This library we believe is especially invaluable for the students that are going on the high seas, and need to prepare for their exams on the return from their voyage, or find themselves in the position to require one particular piece of information relatively quickly.

Possibly a surprising way we use the World Wide Web is the university’s internet forums which are incredibly popular with the students. Here students are able to discuss almost on any topic, and most appreciatively, have an informal contact with any professor. They have instant access to their scholastic situation as well as their parents, and learn how they have performed in recent or past examinations.
Furthermore, we believe that the way students are tested is slowly but steadily changing. Of course, at our university at least, the written test is the main form of examination. However standardised testing nowadays is also on Computer Based Testing (CBT). This type of examination is becoming increasingly popular because it generally takes a relatively low amount of time for the examination to occur, and it provides an almost instantaneous review of the student’s performance. Such tests may include multiple choice answers, listening and comprehension of a text or a situation.

Where applicable, we are trying to implement simulator aided examinations. This is especially true in the case where the trainees have to demonstrate that they have acquired not only the knowledge but also a set of skills and abilities [9]. However time consuming, and despite the resources needed for such an enterprise… we feel that this should be the next step in student examination.

5. Conclusions

IT and modern technologies nowadays are an integral part of the learning process in any maritime university. Even though the STCW convention does not explicitly require that students shall be trained using modern means, any maritime educational program could not be considered complete without them.

Indeed it is expected by the students, the ship owners and the shipping industry as a whole that future maritime officers should have a thorough training. However it is not only fashionable to use simulators and concepts like e-learning, but it is also a very effective way of training future maritime personnel, as well as retraining and improving the performances of the existing manpower in the industry. In other words modern technology must be implemented in order to accomplish the feats required of a modern society.

Unfortunately, at IMO level when they talk about MET and implementation of the STCW Manila amendments, the discussions are focused mainly on the training of already certified seafarers [10]. This was the state of facts also in the meeting held in London at the beginning of May 2012 of the IMO Sub-Committee on STCW where the discussions were very active around the new content of ECDIS courses, about the redesign of CBT courses and modification of IMO model courses 7.01, 7.02 and 7.04 regarding the training of Masters, Chief Mates, Chief Engineers and Engineer Officers. We consider that the renewing process for these courses that will imply major updates and modifications to the content of theoretical training for maritime officers must start with the IMO model course 7.03 dedicated to OOW training. After completion of this model course we can start the renewal process for watch engineer officers and to continue with the modifications of model courses for the training of deck/engineer officers for managerial positions [11].

The presence of IAMU representatives at the IMO Sub-Committee on STW became a must, due to the importance of MET decisions that will be adopted in the next months [12]. Over there, the IAMU representatives are the only ones that truly represent the interest and point of view of maritime universities from the perspective of the academic level of training for the future maritime officers. The other representatives of national maritime authorities are still trying to impose curricula and education methods suitable mainly for the already certified seafarers.

We have to add one more thing regarding the participation of IAMU representatives at the IMO Maritime Safety subcommittees. The IAMU delegates must understand that they are sent there to represent IAMU and not the national maritime authority. Of course they have many
friends among the national delegation, but sometimes it is possible that the interests of IAMU are opposite to the amendments proposed by their national authority and they have to express the maritime universities point of view.

Thus it is not a problem of whether or not a maritime education centre should have an educational program based on modern technologies, but rather how to optimize such a program.

References


