E-LEARNING INNOVATIONS IN MASTER OF MARITIME TECHNOLOGY EDUCATION – LEARNING AND WORKING EFFICIENTLY WITHOUT INTERRUPTIONS

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Abstract. Satakunta University of Applied Sciences (later SAMK) started a Master´s programme for bachelor level Master Mariners 2006. The idea of this Master of Maritime Technology program is to produce leaders, experts and researchers for the maritime industry with a seagoing background of at least three years. The studies consist of 60 credits and half of this is studies mainly conducted through e-learning and video seminars and video lectures.

After nine years of experience several different e-learning platforms have been tested and used. Even more versions with their new and different qualities have also been tested. Methods of teaching maritime management, contracts, international treaties, insurance, risk management have been developed – All these in dept for future leaders or experts in shipping companies.

Technology in e-learning is a critical tool. It has to work, but it doesn't help if it works if the students are not learning by using it. The article envisages how the students get involved with a problem based learning which makes them solve problems by learning by doing. Master Mariners have good technical skills, but also those persons need to get pass the technology itself by multiple, different and changing practical problems which is closely related to their work but creates more and more learning on top of the knowledge already built during the bachelor studies and at sea.

Since the first developments in e-learning there has been a huge growth in the ability what the technology can do. The analyzes what the masters can now do from the vessel through internet envisages that the situation is very different than five-six years ago. The bandwidth has been reduced to make a living picture possible to both directions and participation in a real classroom situation from sea is no more just a dream in the future, but a reality.

The Master of Maritime Management program is built to start from the fact that bachelor is already a Master Mariner who has a at least 3 years working experience at sea and who wishes to enter into land based organization. Therefore it concentrates in the topics, which are not in depth covered by the STCW education. It closes the STCW topics out and develops the skills in economics, insurance, law, leadership, risk management etc. which are needed in Shipping company´s land organization.

The best practices in e-learning in developing these skills will be collected and presented in this paper and in the seminar.

Key words: IT and modern technology in maritime studies, maritime education and training (MET), maritime law, economics, insurance and management

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1 INTRODUCTION

Globalization emphasizes the role of maritime management. Ship owners' land-based facilities function as part of international transportation companies or in co-operation with them. The international agreement system develops rapidly especially because of new regulations concerning environment protection and safety and increasing technical requirements. Changes in operational environments required by the shipping industry, risk management and complex agreement system and contracts in shipping companies are special challenges in this field that call for our attention.

Students are responsible for their own learning. However, SAMK and its staff are responsible for providing tuition, guidance and a e-learning environment that support students' opportunities for constructivist learning, and challenging students to develop themselves into experts that master their own professions. A central task consists of supporting the student's willingness to learn. The learner is seen as a self-directing individual who seeks personal development – an individual with his or her unique prerequisites for becoming educated, growing as a human being, developing mentally and becoming a full member of society.

The constructivist approach to learning focuses on the notion that views are never directly transferred from tuition or teaching material into students' skills; what happens in students' thoughts and mind is essential. Learning is always constructivist, happening through formation of a new, individual view of the studied matter or phenomenon, and never through direct transfer of an existing view.

The approach to studying the skills needed in maritime management has been based on a solution that students need to be able to study mostly through distant learning. They have to be able acquire the information from the vessel anywhere in the globe and they have to be able to participate the classes and deliver their own presentations anywhere and anytime.

After 9 years experimenting a combination of distant learning and 2-3 or 5 days seminars in Helsinki and London every other month has proved to be most productive solution.

2 TECHNOLOGY AND E-LEARNING DEVELOPMENT

The bachelor level students who have graduated and fond work, are not easily induced to carry on their studies to the Master degree. This applies especially to Maritime sector where Master Mariners already have studied for 4-4,5 years at the University for their degree which gives them competence together with prac-tice at sea to work as Master Mariner as a captain without any limits in size of a vessel.

The studies have therefore been directed to those who aim to enhance their expertise and move on in their carriers and start to work in a land based organization. The problem is that most of them are still at sea and their work is usually organized in a very different way. Some work on a passenger vessel 7 days and stay home seven days, some work in ten days shifts, but many of them work in 4/4, 6/6 weeks shifts and some even 3/3 months shifts. This makes the organization of the studies quite demanding for the University. After experimenting different models it has become self evident that most of the studies has to be organized through e-learning and videoconference connections. 2006-2009 this was not possible for one third of the students as the use of broadband was limited. However the situation has changed dramatically 2010-2012 when only under ten percent of students did have problems to participate. Since 2013 there has been only some exceptions who face the similar difficulties.

Internet connections on vessels have become more freely available and there are very seldom problems in organizing their use for studying. Most ship owners already have a policy that internet is primary used for working, secondly for studying and thirdly for other leisure time activities.

SAMK master program for mariners has since 2011 been based on a model that lectures are held in Helsinki or London every second month. These lectures are held by teachers: Professors, lecturers or industry experts and they can also be recorded so that the students who cannot participate have an access to the lecture afterwards through a link which is placed in the e-learning platform together with the power point presentations and the other e-learning materials. Each of the courses starts with a 2-3 days lecture period where most of the students are present, but which can be participated through internet or which can be later studied as recorded. The rest of the contact studies during the course is online during the next 8-weeks period. During this period the student study the materials independently, prepare their presentations individually and present the presentations in different topics on-line to the other in small groups when the teacher is always present. They are able to reserve the group and time for their presentation electronically in the e-learning platform. All students are able to participate in all sessions, but all the presentations are also recorded and a link to the presentations is also added to the e-learning platform so that the presentations are available for all the students during the whole course. Before the topics and individually chosen assignments are delivered to the students they are forced to study documents which enhance their theoretical skills in

the subject. This makes the use of the individually chosen material easier and also prepares them to a better position to bring their individual working experience available to others. This is more closely explained below when the teaching of different topics is more closely explained.

The students presentations are evaluated in e-learning platform and they form part of their grade. The grades consist of different kinds of assignment, both common to all students and individual assignments as well as group assignments, which are carried out in small groups through e-learning platform. The different courses can evaluated in very different ways. Some courses are only bases on assignments, which are either electronically evaluated or manually evaluated by teacher with individual feedback to the student. Most courses still have exams which can be either based on time control only (performed from a specified address) or performed in a "exam aquarium" where the teacher is able to supervise the student and his/hers computer screen through video connection.

3   METHODS OF LEARNING AND TEACHING

The essential element of learning in the Master program is to understand the roles of the students and the teachers in a new manner. Carefully chosen students represent different shipping sectors. The study group, which has started their studies January 2014 can be used to emphasize this. Student work as deck officers in cruise industry, yachts, ice breakers, multipurpose vessels, RoRo-vessels, tankers, salvage tugs, passenger ferries, container vessels etc. some of them already work in land based organization after serving at least 3-5 years in one or several groups mention above. They form a group of twenty professionals together with more than 150 year of expertise from seafaring.

The studies are planned in a way that all this information and experience can be efficiently delivered to the others and combined with the theoretical knowledge from the University which they need to further develop in their working career. This needs careful planning by the teachers who need to plan the individual assignments in a way that the student is able to bring his expertise into the studies and deliver it efficiently to the other through electronic means despite the fact that he or she is somewhere far a way in vessel working either for example in the arctic or red sea. In this process the teachers role is crucial. He must have the needed theoretical knowledge and enough practical knowledge but he is also a consultant for the student in delivering his/hers knowledge (combined with theoretical knowledge) to the other students. The core of the method is to form a process where the student becomes a teacher of others assisted by a teacher who takes partly a role of an assistant in delivering the knowledge to the other students. Responsibility for delivering the knowledge is divided by the student and the teacher and the students takes the responsibility for teaching his or hers fellow colleges usually with pride and the result is usually excellent when the student experiences that he has delivered information to the other which is valuable and which he has already developed through studying more the theory behind his practical skills.

This method can be illustrated by following example. Teaching contract in shipping is usually difficult and boring. The legal regime and vocabulary is difficult for maritime lawyers. However the master mariners who know the practice in their specific field of transportation have a lot of practical knowledge. The teacher delivers them two cases during a specific course and they have to familiarize themselves carefully with the facts of the case which they will present to the others. The 40 cases are selected by the teacher in way that they form an entity, which gives all the students the information on the topic they need in their further careers. After having received both the theoretical and practical knowledge on 40 different kinds of situations hoe the law and practice solves the problems they have expertise, which is difficult to beat. During the presentations the students are able to ask questions and comment – and again bring their own expertise to the other students. The teachers role is to plan this process carefully in a way that all this forms an entity which develops the students knowledge in way that the outcome is the best possible. This same method can be used in different areas of law and contracts and we call it law and practice method.

Very much the same method can be used in risk management and insurance as well as chartering and safety issues. All these topics can be taught through the same method.

More commonly used method is presenting the articles of maritime economics. In this program the practice of using article presenting and analysis is made in a way that the student analyze the articles related to their own fields of shipping which they represent.

The learning results are tested electronically in the e-learning platform. The testing can be made in different ways. The presentations are connected to the further assignments which will be open only after the presentations have been delivered and while they have been available for all for an agreed period of time as recordings. The two ways which we have used are multiple choice questions assignments and PBL-problems based on the idea that the student have to apply the information to similar kinds of problems which they will solve either individually or in small groups. In some

courses the multiple-choice assignment prepare the students for problem bases learning type assignments.

All this demands a lot of preparatory work from the teacher but it also rewards the teacher with excellent feedback and good results. But it also helps the teacher in further developing his own expertise and maintains his own skills with practical information from working life.

4 CONCLUSIONS

Developments in e-learning can be summarized in two most important sectors. Firstly, the e-learning platforms used by the Universities have become more and more open source based platforms, which makes the development easy and it is no longer tied with the requirements of the platform developer. Participation in the development is the essential element. Use of open source based platform is has been crucial for developing our system of e-learning. Without it the innovations would not have been possible. The teacher are now able to develop their own learning strategies depending on their topics. Problem is no longer if you can do it but to decide how you can do things in most efficient way to save your own and your students time. Innovations in e-learning need to be efficient also in relation to the time used by those who participate as they are participating while in working life or in their own

time while the studies compete of their leisure time with their friends and family. They have to make the studies easy and lucrative.

Secondly, the development of videoconference systems needs to make the participation easy and they need to make the participation feel comfortable. SAMK has used previously AC Adobe but has now adopted a new system, which make it possible that all the students see each other constantly. The lectures can be participated in the classroom or through the video connection while every student is able to see all in the screen of the class or at their own screen on the different side of the world. Everybody is able to ask questions and get answers either in class or online. All this can and will be recorded. This practice will in my view be a revolutionary change in teaching and learning in the years to come and it will really for the first time make the learning available from every parts of the world when the student can really feel that they are learning together and meeting each other despite the physical distance between each other.

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