New challenges in the maritime academics

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Abstract: - Today, the maritime sector is an international, technological and multicultural industry. This step forward from the traditional organization of the maritime industry, more classically and single nation, to the present stage has made through a long process. First stage has been represented by the multicultural crew onboard ships, followed by the international management of ships and finally by the introduction of latest technology in daily activities. All these changes take time but the results overcome expectations, being materialized in an increased level of safety and secure in all activities. All these standards achieved are base on peoples as personnel onboard ships or in company offices all over the world. To keep the actual level of safety and secure is necessary to have inside of the company peoples trained accordingly with requirements. These persons are trained before to become part of the company, during their study years. To provide necessary trained person for activities in an economical sector must to have an adequate training system. Many peoples who act inside of the maritime industry are “products” of the maritime academic training system. In this way, to come closer to present requirements of maritime industry, the academic training system has to be partial change, revitalize and bring it from the past to the present time. We want to present in the present paper our opinions and points of view about how can be realize this alignment with the industry, what supposed, what is already made and most important, what must to be make for a successful accomplish with the present requirements in the maritime transport activities.

Key-Words: - Maritime industry, Maritime academic, Human resources, Development, Technology, Challenges

1 Introduction
What means the maritime industry? Which are her components? What needs have? How can achieve these needs? Are just few questions which coming in mind of a person who doesn’t has any contact with this activity sector in the past. For many peoples the maritime industry means ships and aspects related to, like seafarers, cargoes, harbors, amount earn monthly, visit of different part of the world and other social aspects. But, see it like an industry, the maritime sector have many components. The ship is just one pieces of this puzzle. The maritime industry suppose owner companies, ship management companies, spare parts companies, harbor operators, harbor authorities, personnel recruitment companies, training centers, specialized schools, universities and many other companies and authorities which have activities in connection with maritime industry.

All these components have one common element, the ship. This mean that is necessary to have knowledge about ships to be able to do a good work in one of these companies. To have knowledge about ships supposed to have specialized studies in the background, because ships and mainly, particularities about ships, are not parts of personal general culture.

So, start to become clearly the role and scope of specialized studies and training, to provide basic and advanced knowledge for activities in the field. Knowledge’s are not necessary if you intent to work onboard ship only, are necessary in all relative activities.

The role of the actual maritime training system, including academic level, is to offer to industry persons with adequate competencies. These competencies must to comply with industry requirement and with national and international maritime organizations requirements. The requirements of industry are most important to be complied, because this is the workforce market for graduates and, if they will not be able to prove their competencies will not be accept inside [4]. Anyway the requirements of maritime organizations are covered because are included in industry requirements.

To achieve the required competencies is necessary to have an adequate training system, with competent persons inside, able to prove achievement of these through own experience. This means to have trainers and lecturers with a vast experience behind, able to transfer their competencies and experience to others. In actual stage this is the most difficult problem of the entire training system, to bring inside experienced persons, who wants to teach other from own knowledge and professional experience [5].
Is difficult because experienced persons who want to become part of the system, are hardly to be finding, and those who wants don’t have enough experience. People interests to become trainers and lecturers are represented by younger graduates or junior officers who couldn’t acclimate to life onboard ship. In this case is difficult to base the training process on trainer or lecturer experience, have to create other type of experience, a teaching experience, based on techniques and use of equipments to reach the competencies.

With this point we touch other difficult situation meet inside of specialized training system, the adequate and competent human resources. When industry asks for better trained and competent personnel, asks if there are competent trainers and lecturers. To be competitive on market is necessary to prove your lecturers and trainers competencies.

Younger graduates and junior officers’ have competencies acquired during study years; they have complete theoretical competencies, but don’t have enough or neither practical experience. This missing must be compensated through development of skills and competencies in use of latest training technology, like computerized programs and simulators. Regarding the use of simulators, at international level, is consider that simulators can cover more than half of practical experience if are used in a correct way.

We, as maritime university, tried and still keeping efforts to cover practical misses of our lecturers, we develop projects to offer necessary competencies to them and to be able to provide a high qualified training to our students. In this way we consider that investments in human resources are better and offer all support to have a maximum level of knowledge and competency for lecturers.

We consider that competency of our lecturers is part of the end competency of our graduates, will help them to integrate faster in the international workforce market and to prove their professionalism.

2 The maritime industry

As definition the maritime industry has three main components: people, environment and technology. Each of these components have own particularities and must be manage as better as possible to avoid difficult situations which can be generate by these.

In the maritime system, the people could include the ship’s crew, pilots, dock workers, Vessel Traffic Service operators, and others. The performance of these people will be dependent on many traits, both innate and learned.

As human beings, we all have certain abilities and limitations. For example, human beings are great at pattern discrimination and recognition. There isn’t a machine in the world that can interpret a radar screen as well as a trained human being can. On the other hand, we are fairly limited in our memory capacity and in our ability to calculate numbers quickly and accurately like machines can do a much better job. In addition to these inborn characteristics, human performance is also influenced by the knowledge and skills we have acquired, as well as by internal regulators such as motivation and alertness [11].

The design of technology can have a big impact on how people perform. For example, people come in certain sizes and have limited strength. So when a piece of equipment meant to be used outside is designed with data entry keys that are too small and too close together to be operated by a gloved hand, or if a cutoff valve is positioned out of easy reach, these designs will have a detrimental effect on performance. Automation is often designed without much thought to the information that the user needs to access. Critical information is sometimes either not displayed at all or else displayed in a manner which is not easy to interpret. Such designs can lead to inadequate comprehension of the state of the system and to poor decision making.

The environment affects performance, too. By “environment” we are including not only weather and other aspects of the physical work environment (such as lighting, noise, and temperature), but also the regulatory and economic climates. The physical work environment directly affects one’s ability to perform. For example, the human body performs best in a fairly restricted temperature range. Performance will be degraded at temperatures outside that range, and fail altogether in extreme temperatures. High sea states and ship vibrations can affect locomotion and manual dexterity, as well as cause stress and fatigue. Tight economic conditions can increase the probability of risk-taking.

Last component, the technology, presents most important aspects in the maritime industry. Technological development in the maritime field was like a boom, many evolutions been made during last ten years.

This accelerates development imposed new criteria for seafarers’ competencies and also requirements for their training.

Technological innovations supposed radical changes of equipments like radar and communication devices, involved use of satellites for ship positioning and ship to ship or ship to shore communication. These new improvements required new seafarers’ competencies, also changes of concepts about working onboard ship [1].

Is note that technological changes and innovations processes may sometimes outpace the ability of seafarer to change and adapt, often due to the fact that seafarers lack a deep knowledge or understanding of the systems.
with which they work. As systems and technologies are reconfigured or changes, seafarers may not be fully aware of the potential implications of their actions on the system. Old operating procedures or habits may have unintended or poorly understood consequences under the new system, but if the individual is not informed or instructed of these changes he may be unaware of them [7].

Enhanced automation or technological improvements may also lead to reduced manning levels, which in turn places additional pressure on seafarer to become proficient with even more complex systems. These pressure are exacerbated by the fact that increased automation makes it difficult for seafarers to override systems, reducing their ability to intervene to prevent a malfunction or accident. Increased automation may decrease the margin for seafarer error while at the same time reducing the seafarer ability to intervene if an error does occur [7].

Taking acknowledge about the new developments of technologies used in daily activities and what is necessary to be known in operation of these, the training system decided to made own changes in the training process to come alongside.

In some cases were made major changes, especially on teaching curricula and techniques used for acquiring of necessary competencies. If changes stops only to curricula has been no problems, but these changes needs other changes, like lecturers new competencies in operation of new technologies and understood of the entire process.

The actual requirements for training in order to perform in the maritime industry force the training system to bring his lecturers and trainers to adequate level of competencies and for touching of this objective development of new train the trainers’ courses are necessary [8].

3 Needs for training in maritime industry

Now, after the ships have been modernized, armed with computerized equipments and high technology in order to provide a safety operation, to increase protection of the human life and of the environment, is the time to improve people capabilities [3].

These requests can be solved through a better learning and a training period before taking responsibilities onboard. During this period, they must be teach about new ship types, their characteristic operations, the differences between different types, about technology already onboard, configuration and operation, situations which can be met during a voyage, organizing and managing of onboard activities and duties and about everything is necessary to provide a rightful and safe activity.

This is in our duties, as academic staff, to satisfy the present requests and necessities of the maritime industry, to provide people, both deck and engine officers able to work and react in different conditions and situations encountered during activity.

The maritime universities have important duties and responsibilities near the maritime activities. The maritime academics do not have only the role of training, they are also formative institutions for maritime officers, including personality modeling and developing a responsible behavior of their actions. Is human nature to borrow from other people’s personalities, from teachers or trainers in this case [10].

Being examples, the teachers have to show only the better part of their personality, oriented on their professional knowledge and skills and to correct the intention of the trainees to become a copy, to help them develop their own personality, based on a model.

For this, is important for teachers to use in the training process their experience in working with people, to complete theoretical knowledge with practical examples and advices. To do these is necessary that teachers to possess an adequate level of training and to have knowledge’s from domains complementary to their teaching area. These can be achieved from their start in teaching activity in the academic field or in time through periodical updates.

Trainers trained from the beginning of their academic career, is a more acceptable condition, they having still fresh the theoretical knowledge acquired during studies period. It will be necessary just to familiarized them with the teaching techniques, how to use different teaching materials and learn them to touch the maximal goal, in order to have at the end good prepared people for their future professional life. For teachers with years of activity in the training process, the scope is to keep them in line with technological development, to convince them to pass from classical teaching methods to the new ones, to include in their activity the use of computerized and simulated application, also distant open learning and e-learning concepts [9].

Starting from these ideas, Constanta Maritime University developed a project addressed to lecturers, new in domain or experienced, called MARCON from “Development of maritime lecturers competencies according with industry requirements”, inside of it, has been created a curricula of courses based on actual requests for training level of trainers. The generated courses are focus on techniques and methods for conception of teaching materials, to involve latest technology in the teaching process, to develop new methods of approach between students and lecturers, how to facilitate the interaction between them at class in order to stimulate students’. Another important section of the present project is dedicated to involve younger
lecturers in the teaching process of the mandatory IMO courses for deck and engine officers. Taking account the particularity of these courses and requirements for trainer aptitudes, during the project, younger lecturers will follow special courses in order to certify them as IMO trainers and competencies evaluators [10].

4 Facing challenges through lecturers increased level of competency

We stated earlier which are the new challenges in the maritime industry and which are the needs of this sector regarding training level of the persons involved. Also, we presented one initiative of our university in order to improve performance of his lecturers, younger or experienced, and, in this way to face challenges brings by the new conditions arise in the maritime industry.

Now we will show practical solutions applied to realize this objective, to be a competitive institution on maritime market, with competent lecturers and better trained graduates.

To create competencies or to update older ones is necessary to concept and develop a number of courses and trainings dedicated to the lecturers, persons who have in background a professional formation. Starting from this consideration and studying the requirements we appreciate as necessary trainings in adjacent fields of main teaching field, like development of course content, use of e-learning in the teaching process, advantages give it by the new technologies for training, what means a correct human resource management, applying of the new research direction and integration in a society based on knowledge.

All these courses and trainings are integrated in a continuous development process of maritime universities from all over the world and are create in a manner which permits access to them to all maritime lecturers’ interests in improvement of their qualification, competencies, skills and abilities.

Initial and continue formative activities for academic staff supposed training in modern teaching techniques, IT domain, simulation applications and in human resources management.

The courses generate cover areas of interest as “Teaching curricula development”, “Using of simulation techniques during training process”, “Advanced concepts in virtual learning method”, “Human resources management in maritime academic”, “Maritime academic system development in knowledge management context”, “Use of new technologies for research purpose”.

These courses have importance in the context of changes in the maritime training system, where in the present it seen the tendencies to pass from theoretical base to theory-practice combination.

“Teaching curricula development” is a course dedicated to familiarize younger lecturers with actual premise requested by maritime field curricula which must contain IMO requirements, as compulsory, also new elements imposed by technical development in the sector. Here are explains modalities of curricula conception, contents, compulsory elements, hours repartition on course and practice, detailing of each course and practice class, trainer and trainee manual elements, use of electronic course development and ways to be delivered to the trainees and other aspects characteristic to each curricula.

Also, are explains methods for use of different equipments and techniques for a higher attraction of students to course objective. At the end of this course lecturers will be able to concept a correct course curricula, will define clearly course objectives, evaluation methods and will have capacity to decide if students touch the expected competencies. Actually, many of course content are provide to students as power point presentation only. The new methods of teaching involves use of more interactive materials like videos, audios and discussion base on case study, all of these to offer to student possibility to understand the principles, not only to retain automatically information.

Second course developed, is one of the principals, here is describes the actual simulators used in the training process and present in the university possession. There are included simulators of ship handling and navigation, liquid cargo operation, engine operation and crisis situations.

Simulators are new teaching techniques introduced in the training process. Once appear these requests trained persons for their use. The increased necessity of simulate training asks for more persons able to use it. For this, younger lecturers can be the ideal solution to become simulator trainers and the present course let them to enter in this area of training and provide knowledge’s and practice in simulation.

As we stated previous, in the present, authorities with competencies in maritime activities take in consideration the simulator practice as real practice. This advantage increases the importance of simulators inside of training process. A person who have abilities to conduct an operation in a simulate environment will be able to control it in a real situation. In many cases the simulate situation are difficulty than in reality, also, simulation permit to cover situations never or very rare meet in reality and according with these consideration, a person trained enough in simulator will face in a more professional manner the real situations [6].

The course named “Advanced concepts in virtual learning method” is created according with the European initiative to improve the education system through a
better communication between actors using the advantages offer by the latest technologies, the virtual world. The concept develop in this course is over the present idea of virtual learning, treat as a web based systems, where are posted materials with scope to be downloaded or accessed to be read on the web. The next level in this trend is to create the “virtual teacher”, a technology based on interaction between teachers and students on a virtual platform.

Human resources concept in the present project is build on actual strategies in the maritime academic regarding management principals of human elements. The system changes made in the last period affect also the human resources manage, dividing personnel in sectors of activities, as teaching and research areas. Management of resources in teaching area supposed capabilities to organize academic staff on university curricula, to nominate right trained person to according course, to lead activities during course period, including student management on curricula activities.

Knowledge management represented a creation, maintain and consolidation process of knowledge’s inside of an organization, for their use in the most adequate modalities to create values and to generate competitive advantages.

Knowledge management system is a specific technological system designed for the management of functional bringing in of distributed elements of hardware, software and network compounds in a single functional unit, which sustains knowledge production, acquisition and transfer processes inside one organization. In order to realize this design of knowledge management system in a virtual community is imperative to have a profound understanding of cooperation inside groups or organizations, this implying both artifacts and social conventions. This field consists beside computer sciences (knowledge engineering, distributed artificial intelligence, user interfaces) of some other disciplines: psychology, ergonomics, linguistics, sociology, organizational and management sciences [2].

At the end, but not in the last, the research activities are very important in lecturer formation and to this the project includes elements to help our younger colleagues to become good researchers. The scientific activities are based on the technological advance and the use of these is essential in many research fields. To be able to initiate and complete a research project suppose to know necessary technologies for it scope. Also are included techniques of research, ways to realize it and how to evaluate results in order to disseminate realizations to the scientific world.

Through development of these courses is expected to create competencies for younger maritime lecturers and to improve the competencies of the older lecturer’s.

The bilingual creation of courses, Romanian and English, permit other lecturer from national and foreign universities, maritime in particular, to take part to these trainings with impact in the number of persons included in the program.

Taking acknowledge of materials contained dedicated to initial and continue formative of maritime lecturers and after to reply with own evaluation, consideration and proposals for improvement of courses will lead to a better correlation of lecturers competencies with maritime industry needs.

4 Conclusion

The world economy is changing, the maritime industry, as part of it, is changing too and the requirements and necessities are remodeled. To achieve these new challenges is necessary to redesign the training system, the approach principles and people involved.

It will not be easy to change the actual format of maritime training system, mentalities or main topics approach. The transition must be started from the new lecturer’s generation and completed with older lecturers through programs for initial and continue formation.

This program’s idea has the advantage of mobility, the ability to reach to different generations, to shape up the content according to present requirements and to apply that parallel with the daily activities. Being based on printed and virtual components, it can be accessed by own personnel and by the outside personnel, from other universities or from economic field on interesting fields.

The courses developed are created in the actual trend of maritime education and come to help lecturers to improve their competencies or to create new ones, particularly those related to the use of latest technologies, computerized and simulation procedures.

The actuality of designed courses has been proven by the international interest in achieving of latest techniques inside of the teaching process.

The competencies and qualification achieved at the end of the teaching processes will make the maritime academic system more attractive, with competent personnel and able to provide to the maritime industry, well trained officers to face the new realities in the field.

The involving of new technologies in the academic educational process, as a response to actual challenges from maritime industry have benefits for students and lecturers, increasing competencies for both and approaching the second by the latest revolutionary educational trends.

In the same directions, the benefits are for the shipping industry, as beneficiary of the technological training results.
References:


