**SEACONF CONFERENCE 2022**

**ROMANIAN NAVAL ACADEMY “MIRCEA CEL BATRAN”,**

**CONSTANTA, ROMANIA**

**MARSNET Project „ Maritime Simulators and Training Facilities Network for Enhancing the Exchange of Good Practices and Digital Learning”**

KA220 - Cooperation Partnerships in Vocational Education and Training,

2021-1-RO01-KA220-VET-000029412

**MARS-NET PROJECT DISSEMINATION EVENT**

**20th of May 2022/12.00-13.00**

***E1****:* ***“Dual education and digitization of maritime higher education system”***

**Friday, May 20th, 2022**

08:30-09:00 - Registration

09:00-09:30 - Conference opening session (flag rising ceremony)

09:30-10:30 - SeaConf Conference plenary session

10:30-11:00 - coffee break, photo group

11:00-14:00 - MarsNet Event 1: ,,*Dual education and digitization of maritime higher education system*”

11:00-12:30 – Partners simulating facilities description and MET practices in partner institutions (each partner institution will deliver a presentation on this topic);

12:30-14.00 – Paperwork presentations (selected paperworks)

13.00-14.00 - *Discussions – debates, Q&A session, interviews on project impact on MET partner institution*

14.00 - Closing remarks

**Note:**

The presented articles selected will be further published in SeaConf proceedings upon its acceptance by the publishing committed, indexed in SCOPUS, EBSCO and ProQuest databasis. Authors’ instructions and the submission guideline could be accessed on the next link: <https://www.anmb.ro/ro/conferinte/sea-conf/submission_guidlines.html>. For papers’ publication the authors shall pay 20 Euro in case of Conference Proceedings and 30 Euro in case of Scientific Bulleting acceptance (SCOPUS indexed).

**Important dates:**

* Title and abstract submission: 31st of March;
* Full papers submission: 20th of April;
* Paper revisions, if the case, for final publishing version: 28th of May.

**Workshop Scientific Board:**

**Chairman:**

Captain (ROU Navy) Associate Professor Alecu TOMA, PhD (Romania);

**Members:**

Commander (ROU Navy) Associate Professor Sergiu LUPU, PhD (Romania);

Professor Taner ALBAYRAK, PhD (Turkey);

Colonel Associate Professor Catalin POPA, PhD (Romania);

Commander Marcin Kluczyk, PhD (Poland);

Rima MICKIENE (Lithuania);

**Evaluation methods for students on learning by simulating environment based on marine power plant simulator**

### **Iwona Królikowska1, Marcin Kluczyk1, Paweł Wirkowski1, Catalin Popa2**

1 Senior Lecturer PhD, Polish Naval Academy, Department of Marine Engineering, Poland, [i.krolikowska@amw.gdynia.pl](mailto:i.krolikowska@amw.gdynia.pl)

1 Senior Lecturer PhD, Polish Naval Academy, Department of Marine Engineering, Poland, [m.kluczyk@amw.gdynia.pl](mailto:m.kluczyk@amw.gdynia.pl)

2 Associate Professor, Romanian Naval Academy, Romania, [catalin.popa@anmb.ro](mailto:catalin.popa@anmb.ro)

**Abstract**. *Nowadays work and learning are two elements that are constantly present in the biography of every seafarer. They are both a formal requirement resulting from many regulations that must be met in order to be able to work as a seafarer, and an individual awareness that the process of continuous training is necessary for professional functioning in the constantly changing world of the maritime economy. This presents a seafarer with a difficult task of continuous professional development and learning new rules and principles of work. Therefore, teaching seafarers is subject to the "classic" conditions of adult learning - determined both by the needs of the ship and the institution, but also by the implementation of the postulate of creative approach to one's own educational path, including self-education. Moreover, the job of a seafarer is not characterized by job security. In order to maintain it, it becomes necessary to develop new competences, including learning about new technologies. However, adult education has its specificity that should be taken into account if you want to conduct training in an effective way and be able to evaluate it effectively. This specificity results from the accumulated over the years a baggage of experience, knowledge, beliefs, stereotypes and routine behaviors. In order to be able to effectively prepare the didactic process of adult learners, it is therefore necessary to take into account the factors that determine the specificity of adult education. Adopting appropriate methodological solutions, certainly enables effective and optimal organization of education, and at the same time makes the didactic process effective. Training on simulators allows the use of computer technology as a didactically attractive and adequate training technique for adults. It allows to raise the level of their training, faster mastering of the assumed skills, developing the necessary professional habits to create real situations similar to those they will encounter at sea. In the article the authors have sought to point out that learning on marine power plant simulators is not only a faster or cheaper way to learn, but also a method of active teaching and learning. In modern simulators reality is imitated, thanks to which the student has experiences similar to those that will be carried out in the real world. We also emphasize that teaching on simulators is easier to organize or less dependent on meteorological conditions, which is particularly important in the case of work at sea. We characterize mechanical simulators as devices that give the possibility of departing from the traditional teaching method. An unquestionable advantage of the considered training method is the possibility to simulate failures and critical events in a ship's engine room without the need to expose personnel and equipment. The article analyzes the advantages and limitations of the introduction of a simulation environment for training the manning of machinery departments of sea-going ships. We present the methodology of assessment in the process of operating devices with the use of a simulator and an example of verification of competences acquired in this way in an environment similar to the real one. As part of the verification, the procedure for operating an air compressor in the simulator environment and in a real object with similar parameters was presented.*

**Keywords:** *maritime education and training, evaluation methods, engine room simulator*

**EVALUATION OF SIMULATOR USE IN MARITIME EDUCATION AND TRAINING (MET) INSTITUTES**

**Ergun Demirel1, Taner Albayrak2**

1 Associate Professor PhD, Piri Reis University, Turkey

2 Professor PhD, Piri Reis University, Turkey

**Abstract.** *Maritime Education and Training (MET) is highly important for seafarers to carry out ship operations and ensure safety at sea. Most vocational courses are conducted in the classroom and simulators to facilitate learning and familiarize cadets with equipment onboard. The simulators are generally used in maritime universities and there are no simulator facilities at shipping companies except a few companies. A limited number of shipping companies are benefited from the simulators at MET institutes limited with only some training.*

*This study aims to evaluate the cadets’ perception of the simulator applications at MET institutes and propose reshaping the use of simulators to achieve better learning for them. The study starts with a literature review of previous studies on simulator training of seafarers and continues a survey concerning cadets’ perception of the application. At the end of the research, the findings will be evaluated and as a result of the study, suggestions will be presented for the planning and execution of the simulator training at the schools.*

**Keywords:** *Maritime Education and Training (MET), MET Simulators, Simulator Training, Safety at* *Sea*

**CADETS’ PERSPECTIVE ON MARITIME EDUCATION AND TRAINING**

**Ergun Demirel1**

1 Assistant Professor PhD, Piri Reis University, Turkey

**Abstract.***The existing standards and quality of Maritime Education and Training (MET) are always under discussion worldwide and all concerned parties are trying to define the problem areas and deficiencies. Every year, the topic of MET is discussed at national and international forums, and many scientific articles are published on this topic. These publications are usually made by educational specialists and educators. There are two aspects of education: lecturer and. To order to better assess the current state of education, the opinions of students should also be taken. One of the parties which were directly affected by training is the learners (cadets) themselves. To pinpoint the gaps to be filled in the MET, the students’ perspective on such matters needs to be investigated and considered.* *This study aims to define the student’s (cadets) position in the sphere of maritime education and training, in particular the quality and efficiency of education in METs institutions as well as on sea training which is an integral part of the overall training process.*

**Keywords**: *Maritime Education and Training (MET), Quality of Education, Efficiency of Education, Sea Training, STCW*

**EVALUATION METHODS FOR TRAINEES ON LEARNING BASED ON VIRTUAL ENVIRONMENT USING THE NAVIGATIONAL SIMULATOR**

**Alecu Toma1**, **Sergiu Lupu2** , **Andrei Pocora3, Catalin Popa4, Rima Mickiene5**

**1** Associate Professor PhD, Romanian Naval Academy, Romania, [alecu.toma@anmb.ro](mailto:alecu.toma@anmb.ro)

**2** Associate Professor PhD, Romanian Naval Academy, Romania, [catalin.popa@anmb.ro](mailto:catalin.popa@anmb.ro)

**3** Assistant Professor PhD, Romanian Naval Academy, Romania, [andrei.pocora@anmb.ro](mailto:andrei.pocora@anmb.ro)

**4** Associate Professor PhD, Romanian Naval Academy, Romania, [sergiu.lupu@anmb.ro](mailto:sergiu.lupu@anmb.ro)

**5** Deputy Director, Lithuanian Maritime Academy, Lithuania, [r.mickiene@lajm.lt](mailto:r.mickiene@lajm.lt)

***Abstract.*** *A good method of learning is by doing. In order to acquire the necessary skills for integration to the labor market, in accordance with the European Union Directives, trainee centered education principle and „learn to practice – practice to learn” principle are respected. A simulator is a device that is designed to simulate aspects of real world. The simulation process has a number of benefits, among which we identify: low costs, eliminating real hazards, eliminating dangers or breakdowns and repeatability of simulated situations. In the educational process, the simulator is a means by which a number of specialty learning objectives can be achieved. In the naval domain, the maritime simulators are used in the learning process because the virtual environment can simulate unusual naval situations and also for economic reasons. The maritime simulators integrate modern equipments that manage to provide virtual training in terms of gaining onboard standard routine for seafarers and to improve the safety in exploiting of the merchant vessels and navy ships. Through the simulator the seagoing personal can be trained for normal navigation situations, but primarily for special and unwanted situations (ship handling in special conditions – heavy seas, hazards, fire, man over board) that may occur on board. This creates premises for preparation for crisis situations and to educate him for their management. Simulators have been accepted as a major source to providing high professional knowledge and technical skills necessary for ship operation management, precaution and carefulness against potential of danger and ability of its treatment when an accident happens, collaboration and leadership abilities, neatness, arrangement and responsibility. This paper aims to present how throught the maritime simulator the seagoing personal can be trained for normal navigation situations, but primarily for special and unwanted situations (ship handling in special conditions – heavy seas, hazards, fire, man over board) that may occur on board.*

**Keywords:** *training, evaluation, maritime simulator, virtual training*

**THE ROLE OF THE MARITIME SIMULATOR INSTRUCTOR FOR TRAINING AND COACHING PROGRAMS**

**Alecu Toma**1, **Sergiu Lupu**2, **Andrei Pocora**3, **Catalin Popa**4, **Marcin Kluczyk**5

1 Associate Professor PhD, Romanian Naval Academy, Romania, [alecu.toma@anmb.ro](mailto:alecu.toma@anmb.ro)

2 Associate Professor PhD, Romanian Naval Academy, Romania, [catalin.popa@anmb.ro](mailto:catalin.popa@anmb.ro)

3 Assistant Professor PhD, Romanian Naval Academy, Romania, [andrei.pocora@anmb.ro](mailto:andrei.pocora@anmb.ro)

4 Associate Professor PhD, Romanian Naval Academy, Romania, [sergiu.lupu@anmb.ro](mailto:sergiu.lupu@anmb.ro)

4 Senior Lecturer PhD, Polish Naval Academy, Poland, [m.kluczyk@amw.gdynia.pl](mailto:m.kluczyk@amw.gdynia.pl)

**Abstract.** *In the educational process, the simulator is a means by which a number of specialty learning objectives can be achieved. In the naval domain, the maritime simulators are used in the learning process because the virtual environment can simulate unusual naval situations and also for economic reasons. The maritime simulators are used in the learning process because these can simulate aspect of real world. Preparing students through maritime simulators is beneficial in terms of simulation of the ship in all its complexity: the wave behavior, operating of the naval equipment and communication, especially to prepare for unpredictable or special situations that may arise in the current operation. The methods of passing on knowledge may be split into two main groups - training and coaching. Training a person involves instructing them in the execution of various tasks or procedures to a required standard. Coaching, however, involves the development of existing abilities through delegation and monitoring. The training process is done at initial operational level for undergraduate students, while coaching is done at managerial level for master students and seagoing personnel. Creating scenarios closer to real situations is the responsibility of the instructor. There is a great importance for the simulator instructor to a have thorough background or experience in teaching or instructional techniques. It will be just as necessary to have the skills to organize a lesson, transfer knowledge and ideas, relate to people in simulator training as it is done in training systems using other teaching tools. The instructor’s role in to form the necessary skills needed for a safe watch by the efficient use of navigation equipment and systems on the bridge, GMDSS communications and onboard communications. The instructor has to role of creating the teamwork spirit through the officer of the watch has to manage and use the human resource onboard a vessel in order to achieve its goals. Taking into consideration the multiculturalism in the naval domain, the officer of the watch has to enlarge his communication capabilities in order to integrate himself in the bridge team. The simulator instructors have an important role in developing the competences of trainees. This paper aims to present the rules and methods of the simulator instructors from MBNA in the process of developing abilities and functional-acting competences, stated as standards in STCW.*

**Keywords:** *simulator instructor, training and coaching, skills, watch duties*

Justification of the sustainable development of inland waterway transport through the Environmental Performance Index

Vilma Locaitiene1, Rima Mickiene2, Catalin Popa3

**1** Senior Lecturer PhD, Lithuanian Maritime Academy, Lithuania, [v.locaitiene@lajm.lt](mailto:v.locaitiene@lajm.lt)

**2** Deputy Director, Lithuanian Maritime Academy, Lithuania, [r.mickiene@lajm.lt](mailto:r.mickiene@lajm.lt)

Associate Professor PhD, Romanian Naval Academy, Romania, [catalin.popa@anmb.ro](mailto:catalin.popa@anmb.ro)

**Abstract**. *The relevance of the research into the sustainability of inland waterway transport and its development is highlighted by the modern approach to engineering and technological progress on measuring the ecological efficiency of human development in the anthropocene, as well as the fundamental and applied scientific debate on cleaner engineering and technology and taxonomy of sustainability issues. This confirms that transport sustainability assessments must include environmental, social and economic issues. Well known that inland waterway transport is an alternative to road and rail transport in terms of sustainable development. In this context, the development of inland waterways and this mode of transport would make it possible to implement the Single European Transport Area Roadmap, which aims for a competitive, resource-efficient transport system. On the one hand, inland waterway transport is recognized as a safe and environmentally friendly system, and on the other hand, restrictions on the sustainable operation of the inland waterway transport system, such as the adaptation of the waterway network to shipping and logistics chains, also the questions regarding efficiency and effectiveness of the operation of these waterways need to by clarified. Thus, this research seeks to theoretically and empirically justify the view expressed in the scientific debate that inland waterway transport has a direct positive impact on improving the ecological condition of the country. The Environmental Performance Index (EPI) is used in this research to formulate guidelines for setting priorities for the development of the inland waterway and transport system in the country. The EPI index ranks countries according to the environmental safety and viability of their ecosystems. The research conducted by the authors is based on the analysis of the quantitative, statistical and ranking and qualitative value of the components of the EPI, the results of which presuppose good practices and models for the development of inland waterways, and transport.*

**Keywords**: *inland waterways, inland waterway transport, sustainability, Environmental Performance Index*