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Significance of Blooms Taxonomy in Tartary Education

A Case Study in the Maritime Industry

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Abstract

The maritime education is a modern, highly technical, professional discipline. The shipping industry requires a workforce with a great deal of skill, knowledge and expertise. Modern ships are equipped with very sophisticated toots, but having great tools is not productive unless the employees know the best way to use them. Unlike in most job tasks ashore, seafarers need high level of competence to ensure safe, secure and clean shipping industry. This paper discuss about the significance of Blooms Taxonomy in the maritime education and training. The action words of the revised taxonomy considers the cognitive processes to enhance the effectiveness of teaching and training methods. The verbs used in this taxonomy refers to the intended cognitive process that the trainer expects as the result of the educational activities.

Keywords: education, maritime, university choice, paradigm shift, psychology

1. Introduction

1.1 Educational Taxonomies

Educational taxonomies can be used to develop educational objectives for a curriculum, as well as identify specific areas that may be missing from an existing curriculum. Bloom's taxonomies are often presented with examples of verbs corresponding to each level, which can aid in identifying where a learning objective fits in the taxonomy. Bloom's taxonomy is a set of three hierarchical models used to classify educational learning objectives into levels of complexity and specificity. The three areas cover the learning objectives in cognitive, affective and sensory domains. Cognitive, in laymen sense, refers about “knowing” and basically concerned with knowledge and intellectual abilities. The affective domain describes the attitudes, values, interests and silks. Finally, the sensory or psychomotor deals with skills. The framework elaborated by Bloom consisted of six major and is better illustrated and presented as a pyramid to show its sequential impact on preceding stages. In the pyramid shaped model, knowledge acts as a foundation for all subsequent levels of learning. Therefore, the entire concept is established with the understanding that learners advance from each stage after mastering the previous level. However, this highly academic conceptual framework was later transformed to a taxonomy for teaching, learning, and assessment. This revised version contains verbs complimenting the pure educational objectives in the original Bloom’s taxonomy namely, remember; understand; apply; analyze; evaluate; and create. This is very constructive approach as it helps learners to understand specifically what was required of them at each stage. The cognitive domain list has been the primary focus of most traditional education and is frequently used to structure curriculum learning objectives, assessments and activities.

1.2 Students’ Education Choice

The post-secondary education is a crucial point for students as it usually defines the destiny that they will end up of being an industry professional or an entrepreneur. Therefore, students as well as parents must evaluate the options available to match with their qualifications ate secondary level and personal strengths and capacity to learn. If the ultimate objective is to secure a lucrative job a careful analysis of trends in the job markets related to the prospective education path to be assessed. In a shore-based job the applicants consider the remuneration, opportunities for higher education, infrastructure facilities, recognition in the society, reputation of the industry

and institutes etc. Students usually select their higher education path based on the cognitive understanding upon the feedback of friends, parents, siblings, teachers, peers about their experience. Generally, the perception about shore-based jobs is that seafarers are well paid. However, the sea life is not compatible with many students, and it has a negative impact on students' career choice. On top of that, maritime officers and engineers needs sound qualification for mathematics at secondary level. Therefore, compared to other academic disciplines the maritime education and training undergo considerable limitations about students' career choice.

1.3 Maritime Training and Education

In general, training can be viewed as a process comprised of six related stages or activities namely, assessment, motivation, design, delivery, evaluation, and revision. The actions associated with each level of Bloom's original learning hierarchy namely, remembering, understanding, applying, analyzing, evaluating, and creating reflect both educational goals and experimental experience. As far as maritime sector is concerned, the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, was adopted by the International Conference on Training and Certification of Seafarers on 7 July 1978. The International Maritime Organization (IMO) STCW Certificate of Competency (CoC) qualifies maritime workers to carry out. labor activities on board ships for the skills mentioned in it. Under the STCW Convention, all seafarers need to meet minimum standards of competence, age, medical fitness, and approved sea-going service (EduMaritime, 2021). Accordingly, merchant ship officer must fulfil standards of competence, seagoing service time, medical fitness and age etc. should be in possession of a valid certificate of competence according to your rank and functions on-board. For obtaining sailor's CoC, it is obligatory to work onboard. These standards are set by each national administration, but as a minimum, they should reflect STCW standards and STCW Code. The requirements of certificates also depends on the type of vessel that the person intend serving on.

This paper suggests that application of Blooms Taxonomy could improve the quality of education and training in tertiary education particularly in the maritime sector. The maritime industry is highly technical and comprised of many complicated theories and practices. Accordingly, researchers expect that the finding of this study will be useful for maritime training institutes to upgrade their syllabuses in a scientific manner. Thus, simplifying and streamlining the education and training process would help training institutes to attract more students. Seafarers always be ready to respond volatile working conditions. Instructors can refer to the learning objectives throughout the development process, which enables them to create activities that build on student understanding to make them more learner friendly. In other words, it helps to develop educational expectations, and instructional strategies of training institutes. As a result, it may help to increase demand for maritime education thus expand the choice of students at tertiary level.

2. Literature Survey

There is a major Influence of socioeconomic factors in the students' choice for tertiary education (Edirisinghe, Siddhisena, Siriwardena, & Ranwala, 2022). After the formal education, students as employees, will gain the required capacity to perform their tasks through various sources namely, innate ability, social engagement, formal education, and professional training. Innate ability means the different amounts of skills/human capital due to innate differences (Edirisinghe, Ranwala, & Siriwardena, 2021). Combination of visual, audial and kinesthetic content in realistic virtual scenario is a new concept of education, which has great potential for development (Voloshynov, Zhuravlev, Riabukha, Smolets, & Popova, 2021). As explained in (NRC, 1996) officer grade trainees taking part in most simulator-based training courses can be divided loosely into two groups namely, unlicensed cadets who work through a series of structured courses and fully qualified, licensed mariners who take stand-alone courses for updating, refreshing, and refining skills. Education and training of future maritime specialists is based on competency-based approach (Voloshynov, Zhuravlev, Riabukha, Smolets, & Popova, 2021). There are several stages to implementing the instructional design process and generally training needs can be developed by identifying gaps or missing elements between the trainee's required and actual knowledge, skills, and abilities as the first stage. The second stage determines specific training objectives, training methods, resource requirements, curriculum content, and assessment methodologies etc.

A Professional training process includes justification of training need; determine the type of training in demand; identifying goals and objectives; design and implementing training; obtaining feedback and valuating the program; and finally, revise the training appropriately if so required. On the other hand, education process consists of four primary steps namely, providing relevant instructions, course contents etc., Reinforce through exercises, clarify and review understanding and material, test to verify learning outcome. As explained in Kurtus, (2012) the first part of the education process is to set goals or objectives for what you want to achieve in the class. Then you follow steps to provide education to the students. Finally, you evaluate how well you use the process in succeeding to

achieve your goals. According to Dictional.com, education is the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life. The simulator training may provide both education and training in using a practical interface using simulated atmosphere. Therefore, a systematic approach and collective effort is essential to deliver an effective simulator training combining all these aspects. Although an explicit differentiation between simulator training and practical session in a college laboratory was explained in the beginning of this chapter, there are some similarities in practical training, for example, a practical training session given to undergraduates (internships) in a real-life working environment can be considered. Usually, it is given as a partial fulfilment of the degree program especially in an honors degree. The purpose of such practical training is to familiarize students, under supervision, with the essential tasks related to a degree. At the same time, the students learn to analyze the development challenges of working life which will have distinctive advantages in delivering an efficient, effective and competitive role in the workplace.

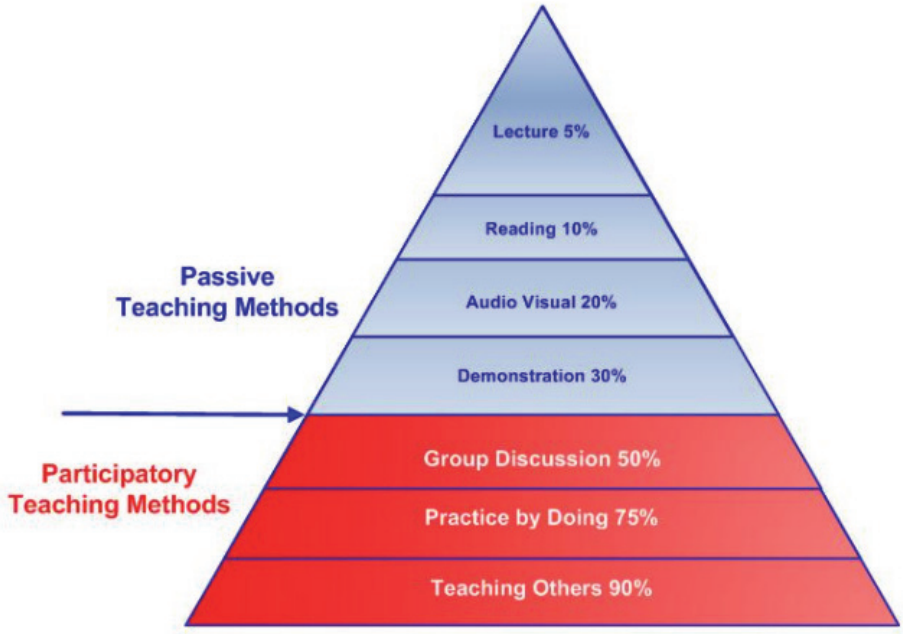

Figure 1. The learning pyramid Source: (PPC, 2021)

Figure 1 explains the percentage of retention of a training session. In the maritime simulator training more focus is given to "Practice by doing" and its retention share is very high compared to other methods. The importance of exploring systematic capacity building for training and development in maritime sector has become critical (Peiris & Edirisinghe, 2021). Unlike in the past maritime trainers uses various simulation method to provide students hands on experience without making the personnel, ships, ports and the maritime environment in danger. For example, if a trainer makes a mistake while in a practice session in real life situation it is very difficult to revert the situation. Maritime simulation is an important requirement in the training and professional development activities for seafarers to ensure safe and efficient navigation and seamanship (Jamil & Bhuiyan, 2021). The simulator training is usually aimed at very limited number of students at a time. Also, the trainer encourages a participatory role from students unless a session leads to an assessment for awarding grades/marks. Participatory training methods are very effective compared to traditional teaching and learning methods. This factor is useful to derive maximum impact from the simulator training. The virtual reality (VR) simulator immerses the users with a realistic experience of the work environment with the use of wearable head-mounted display (HMD). Although the technology with respect to VR was developed back in the 1960s, the usability and popularity of this system were limited until 2010s and it is relatively novel in terms of its application within maritime industry with increasing recognition and investment towards it by the relevant stakeholders (Kim, et al., 2021). In contrast to this, the virtual reality (VR) simulators or the cloud-based (CB) simulators have the potential to be employed to deliver distributed learning solutions for the MET community specially in the post COVID-19 era (Kim, et al., 2021).

3. Method

The research approach of this paper is tri faceted combining opinion survey, desk research and a case study. Since the paper aims to study the significance of Blooms Taxonomy in the maritime education and training a cross section of the industry including training institutes, industry professionals, past and current students, lecturers, examiners, qualification approving authorities were contacted. For example, the target population of this study consisted of some top official in relevant ministries including Ministry of education, Ministry of Ports and Shipping, top officers of industry associations such as Sri Lanka Logistics and Freight Forwarders Association, officers of carrier development unit of various higher education institutes, HR managers and line managers of firms covering both private, and public sectors. The conceptual model refers to learner/trainee perspectives and teacher/trainer perspectives. Therefore, the desk research was predominantly focused on analyzing the quality, quantity, and contents of training materials and how the Blooms Taxonomy can make a difference in maritime training approach. Secondary data will be collected through domestic and international publications. Contemporary reports and analysis of international institutions such as International Bank for Reconstruction and Development (IBRD); The World Bank; United National Industrial Development Organization (UNIDO); World Economic Forum (WEF); United Nations Educational, Scientific and Cultural Organization (UNESCO) were studied extensively to compare various trend and opinions. Reports of Department of Census and Statistics, University Grants Commission, Central Bank of Sri Lanka, Ministry of Education, and Department of Examinations have been referred to evaluate comments received in the interview process. A case study was done in a leading maritime training education in Sri Lanka to better understand whether the data collected through global analysis is commensurate with the reality in the context of Sri Lanka and to ascertain how far it can be helpful in the way forward.

4. Results and Discussions

Maritime training is a very complicated and an educational discipline with huge responsibility. This needs a workforce with highly specialized knowledge, skills and competence. They are either employed by the shipowner or by an independent company. Ship management is done by independent companies which use ships of some other companies or independent owners. The ship management company manages ships for the owner and pays him the yearly amount. These are highly complicated negotiations, and the previously agreed transactions are settled between the owner and the ship management company. The seafarers are compelled to work under significantly different working environment that doing ashore job. Therefore, training them too is equally complicated and involves a lot of time and responsibility.

The captain is in command of a merchant ship regulates the proper daily activities. Apart from this he will be responsible for other legal affairs and various maritime related issues. The Deck Department usually consist of Chief Officer/Mate, Second Officer/Mate, Third Officer/Mate, and Deck Cadets. These officers, depending on the type and size of ship, may have various duties to attend constantly. Unlike in duties performed in ashore there is a substantial component of uncertainty on board a vessel. Unexpected climatic conditions change in weather patterns, border management and port related challenges are inevitable. Engineering department consists Chief Engineer, Second Engineer/First Assistant Engineer, Third Engineer/ Second Assistant Engineer, Fourth Engineer/ Third Assistant Engineer, Fifth Engineer/ Engine Cadet, and Electrical Officer. Bothe deck and engine officers are exposed to heavy challenges in making quick and serious decisions at short notice. Sometimes none of contingency plans work rightly to these everchanging situations. Therefore, it is important them to be exposed to imaginary atmosphere that could be simulated on land and provide them to get practical experience. Apart from these top-level staff members there are another two categories namely, deck Rating and Engine Room Rating. They are non-officer categories. Bosun (head of the rating staff), Welder/Fitter, Able Bodied Seaman (AB), Ordinary Seaman (OS), and Trainee OS are supposed to deliver most of routine work, but training and experience are vital. Seaman is the most popular designation that the ordinary people are aware of. However, this constitutes two types namely, able seaman and ordinary seaman. An able seaman (AB) possesses standard qualifications and is eligible to assist the deck department. The ordinary seaman attends to tasks such as buffing, scaling, cleaning the deck and occasionally painting the superstructure, above the main deck. These details are mentioned here as to realize the specific protocol of performing duties on board the ship. Other challenge in human management on board is the combination of different nationalities involved in the crew. Unless they are well trained in simulated environment before joining the crew it may be very difficult to coordinate due to language issues etc. On the other hand, under the Engine Room Rating, Fitter, Motorman, Wiper, and Trainee Fitter / Trainee Wiper should be well fit in to the challenging working conditions onboard the ship. Irrespective of the duties they attend it is to be noted that such activities should be performed with utmost care and confidence. A simple error made by a single member of the crew can put the entire ship and personnel in danger. This factor is clear when investigating many maritime disasters in the world. The Catering Department is another key service area as the voyage may continue for weeks

or months. Chief Cook, Trainee Cook, and Steward usually attend these duties and the number may differ according to size and type of ship.

The maritime education and training staff are recruited because of their maritime experience and qualifications. Lecturers are generally certificated officers, and many are senior officers with an excellent depth of knowledge and understanding (Edirisinghe, 2018). The training and education process of seafarers, particularly the trainee officers is a huge responsibility to the maritime training institutes. Usually, the entire process is constantly undergone monitoring by the senior well experienced officers under struct guidelines by respective authorities. The faculty is very specific about the contents that the trainee should know at the end of completion of the program which is explicitly declared as learning outcomes. The learning activities are then lined up by respective lecturers and demonstrators. Generally, these students complete an academic period such as six months in the training institute ashore and similar period may be involved in practical training and learning on board the ship. The training institute and the respective authorities who certify the trainee's qualification need to consistently evaluate how the learners will learn under both conditions. It is obvious that the trainees will be exposed to the real-life experience after six months theory learning period. Therefore, it is vital that trainers ensure whether the students have learnt the contents of the program to be able to perform satisfactorily on board. This part of the training is called the assessment approach. The optimum leaning and teaching experience can be achieved by careful combination of these critical factors.

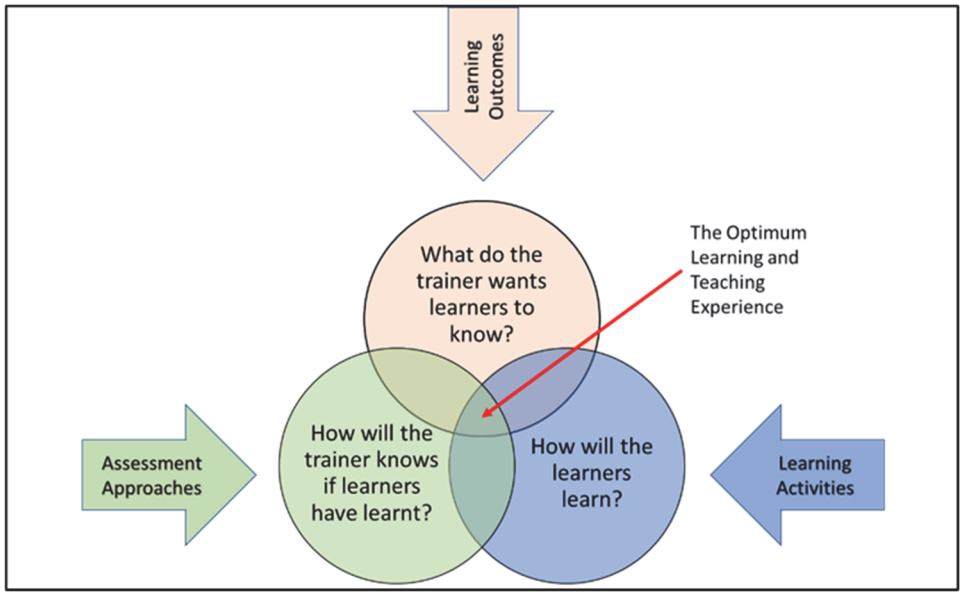

Figure 2. The teaching and learning experience

Any training or educational program, whether real or simulated, enriched with intended learning outcomes (ILO). These are like objectives in a broader sense as it too made of SMART characteristics namely, Specific; Measurable; Achievable; Realistic; and Timely. Technically, there are various levels of ILOs such as course outcomes, program outcomes, and permanent outcomes. At the completion of a specific module the course outcome is realized while the program outcome can be gained in completion of a particular program or a degree. On successful completion of educational or training programs students may be able to contribute to the respective industry and society. These learning outcomes are descriptions of the specific knowledge, skills, or expertise that the learner will get from a learning activity and in the current context, a simulator-based training course or program. This is a highly sensitive area, as any training or education program attracts financial investment as well as commitment of time in life of the student or trainee that can never be brought back. So, the time spent in following a training program is invaluable. If the outcomes are not met it leads the student in vulnerable situation while the sustainability of the course or program is at risk. The taxonomy formulated by Bloom and coworkers is well recognized since the 1950s. It is evident in literature that learning outcomes based on "Taxonomy of Educational Objectives" divides levels of educational achievements into three domains, cognitive, psychomotor and affective domain. Cognitive domain refers to knowledge and understanding while psychomotor domain refers to skills and abilities to do something

easily and well; affective domain refers to attitudes and beliefs (Gundić, Vujičić, Maglić, & Ivanišević, 2020). The revised version gerunds to describe the cognitive processes that students and learners are required to use for optimum learning and teaching experience. Cognitive skills provide the capacity to think and solve problems methodically. This domain reflects six levels namely, Remember, Understand, Apply, Analyze, Evaluate, and Create. The affective domain is emotion-based and describe the way people react emotionally and their ability to feel other living things' pain or joy. Through these skills students gain higher self-confidence and look to interact with peers. The psychomotor domain is action-based and deal with the ability to physically manipulate a tool or instrument. When considering the teaching and learning approach of the maritime simulator it is clearly evidenced that the trainee gets a substantial contribution through all three domains. It is then important to discuss fundamentals in achieving the optimum learning experience under two extreme contexts namely, learner/trainee perspectives and teacher/trainer perspectives. Accordingly, educational or professional program developers need to focus on three key aspects namely, students' learning activities, trainers' assessment approaches, and ultimate learning outcomes.

4. Conclusions

The objective of this paper is to investigate the significance of Blooms Taxonomy in the Maritime Industry. The outcome aims at the systematic improvement in program delivery through introducing student friendly learning process. Accordingly, it initially studied the contribution of the Blooms Taxonomy in the planning and implementation of education and training in general and then specifically focused on the maritime sector. The structure of Blooms Taxonomy can classify and organizes educational goals in a priority order. This is very important in maritime education. Since the maritime education is highly performance oriented and the employee need to prepare to work under volatile conditions. Through the Blooms Taxonomy the education and training process can be divided into specific, hierarchical categories. This systematic approach helps the training institutes to map their curriculum and plan the delivery of lessons to suit the industry requirement. Bloom's Taxonomy uses its key verbs according to the lesson level objectives build up to the level of the verb that is in the course level objective. Remembering is vital for a physical activity and decision-making person on board a ship. It is the most basic, requiring the least amount of cognitive rigor when studying, but highly essential when performing duties as a seafarer. Understanding, which is the level 2 of the taxonomy helps the students to demonstrate the facts that were remembered. As mentioned earlier, the maritime officer or an engineer need to take quick decisions in varying conditions and essentially with very limited resources. Ensuring that students understand the contents of the syllabi is vital prior to assign such serious responsibilities on board a ship. In the level 3, the training ensure that the students has the capacity to apply the knowledge and skills. This is very critical as students are expected to apply their knowledge and understanding, to different situations and in most cases they are unpredictable. For example, varying weather conditions, engine faults, handing of people with different qualities, values, education etc. in the ship. The careful incorporation of the terms in the taxonomy will systematically use strategic approaches such as answering questions or solving problems etc. higher stages namely, analyzing, evaluating, and creating are very crucial for maritime employments at supervisory and management levels. Training students about drawing connections between ideas, critical thinking may systematically guide students how to make accurate assessments or judgements on broad. In education and training the ability of creating is the destiny and the aim. This sequential approach may then connect with industry specific training modules such as ship construction, fundamentals of engineering, meteorology, electronic navigation systems, shipboard operations, navigation, and stability of ships. Institutional image and reputation has a tremendous effect on college choice, educational facilities such as engine simulators, bridge simulators, workshops with real equipment and tools in ships for hands-on experience. Job positions generally comprise employees at different levels ranging from captain, deck officers, Engineering officers, electro-technical officers, basic seaman positions, Stewards, cooks, petty officers, and more. Given the complexity of maritime sector, development of knowledgeable, skilled, and competent workforce in above employment categories. As a result, education and training in maritime sector will be more student friendly and highly result oriented. This would help maritime education and training institutes to penetrate the market effectively and students' choice for tertiary education too will be expended.

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References

Academies Press. Retrieved from Effective Training with Simulation: The Instructional Design Process: https://www.nap.edu/read/5065/chapter/5

dictionary.com. (2021). *Study.* Retrieved from https://www.dictionary.com/browse/study

Edirisinghe, L. (2018). Interactive Teaching Methods to Improve the Quality in Maritime Education. Proceedings of the 2nd DMU International Conference on Maritime Education and Training (pp. 32-42). Dalian: Dalian Maritime University.

Edirisinghe, L., & Jin, Z. (2018). The Reality of Container Exchange between Carriers: Clearing the Pathway to Virtual Container Pool. Transport Policy. https://doi.org/10.1016/j.tranpol.2018.09.009

Edirisinghe, L., Ranwala, L., & Siriwardena, S. (2021). Shaping the Education to Meet the Global Demands: Industrial Inclusiveness in University Curriculum. *Sustainable Development Research,* 28-38. https://doi.org/10.30560/sdr.v3n3p28

Edirisinghe, L., Siddhisena, K., Siriwardena, S., & Ranwala, L. (2022). Creating a Psychological Paradigm Shift in Students' Choice for Tertiary Education in Sri Lanka: The Influence of Socioeconomic Factors. *Journal of Educational Administration and Policy Studies,* 1-16.

Edirisinghe, L., Siriwardena, S., & Ranwala, L. (2021). Fundamental Prerequisites to Create a Psychological Paradigm Shift in Students' Degree Choice. *International Journal of Research -GRANTHAALAYAH,* 386-405. https://doi.org/10.29121/granthaalayah.v9.i10.2021.4339

EduMaritime. (2021). *What are the Types of STCW Certificates and CoC for Seafarers?* Retrieved from https://www.edumaritime.net/stcw/certification-general-requirements

Gundić, A., Vujičić, S., Maglić, L., & Ivanišević, D. (2020). Methods for demonstrating a competence and criteria for evaluating a competence in STCW Convention. *Scientific Journal of Maritime Research*, 245-251. https://doi.org/10.31217/p.34.2.5

IMO. (1997). The new STCW Convention. London: International Maritime Organization.

Jamil, M., & Bhuiyan, Z. (2021). Deep learning elements in maritime simulation programmes: a pedagogical exploration of learner experiences. *International Journal of Educational Technology in Higher Education.* https://doi.org/10.1186/s41239-021-00255-0

Kim, T. E., Sharma, A., Bustgaard, M., Gyldensten, W., Nymoen, O., Tusher, H., & Nazir, S. (2021). The continuum of simulator-based maritime training and education. WMU J Marit Affairs. https://doi.org/10.1007/s13437-021-00242-2

KT. (2021). *Simulation Based Training – The Value of Learning by Doing.* Retrieved from https://kepner-tregoe.com/blogs/simulation-based-training-the-value-of-learning-by-doing/

Kurtus, R. (2012). *Education Process.* Retrieved from https://www.school-for-champions.com/education/education_process.htm#.YbYK7b1BzIU

Millar, R. (2004). The role of practical work in the teaching and learning of science. Washington, DC: National Academy of Sciences.

NRC. (1996). Effective Training with Simulation: The Instructional Design Process. In N. R. Council, Simulated Voyages: Using Simulation Technology to Train and License Mariners. Washington, DC: The National

Peiris, A., & Edirisinghe, L. (2021, July). Seafaring: Key Foreign Exchange Earner to Sri Lanka. Bridge - CASA.

PPC. (2021). *The learning pyramid.* Retrieved from https://thepeakperformancecenter.com/educational-learning/learning/principles-of-learning/learning-pyramid/

Salman, A. K. (2013). The importance of using ship bridge simulation training to enhance the competency of masters and watch-officers: a case study of the Iraqi dredging fleet. Geneva: World Maritime University.

Stan, L. (2014). Simulation Sechnology in Educational Process. *Procedia - Social and Behavioral Sciences, 116,* 4521-4525. https://doi.org/10.1016/j.sbspro.2014.01.978

Sweeney, K. (2009). *Simulator-training-can-be-a-good-alternative-to-onboard-experience.* Retrieved from https://www.professionalmariner.com/simulator-training-can-be-a-good-alternative-to-onboard-experience/

Toz, A., & Koseoglu, B. (2012). Simulation Based Training on Maritime Education and Application on Ice Navigation Module. *Journal of Marine Technology and Environment.*

U.G.C. (2015). Sri Lanka Qualification Framework. Colombo: University Grants Commission- Sri Lanka.

Voloshynov, S., Zhuravlev, F., Riabukha, I., Smolets, V., & Popova, H. (2021). Application of VR technologies in building future. *CEUR Workshop Proceedings,* 68-81.

Wartsila. (2021, 12 02). *Simulation and Training Solutions.* Retrieved from www.wartsila.com: https://www.wartsila.com/voyage/simulation-and-training?utm_source=google&utm_medium=search-paid&utm_term=simt&utm_content=cta-link&utm_campaign=2021-WV-Search-TIER2-Ongoing&gclid=CjwKCAiAhreNBhAYEiwAFGGKPKYzFBeSwAVTB38pBoF_pFjpHVlvq_GeT2P_OJ4lx0mDuL-ho8R

Web References

https://www.sqa.org.uk/sqa/files_ccc/BenchmarkingSQAAdvancedCertificateDiplomaSriLankanEducationSystemSummaryReport.pdf

www.sqa.org.uk/. (na). *Benchmarking the SQA Advanced Certificate and Diploma in the Sri Lankan Education System.* Retrieved from https://www.sqa.org.uk

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