

THE NEED FOR IMPROVING ASSESSMENT SYSTEM IN MARITIME EDUCATION AND TRAINING

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Abstract. STCW is a fine example of communication failed to go beyond its creators' community boundaries. After hearing from the shipping industry about shortcomings of the STCW79 and the fact that it has failed to achieve its objectives, international maritime community virtually created a new convention. Compare to its predecessor, STCW95 based on a contrastive philosophy. The 1995 Convention adopted Competency Based Training (CBT), as a new maritime pedagogical practice. After a decade of its implementation answer to the question of what has fundamentally changed since then was hard to answer. Changes that realized by STCW95 for many training institute did not exceed curriculum modification of already existed ones, whereas, STCW95 aimed to produce a change in concept and worldview of maritime education and training. The case is worse with maritime administrations and competency certification authorities in many countries. The bureaucratic nature of these regulatory organizations prevents many of them from effecting basic change required by the convention. One of the main indicators of this reality is the assessment system. Currently, the final evaluation of competency still heavily relied on written and oral examinations, albeit simulators, in some countries, are small part of their assessment systems. The last revision of STCW Convention in 2010 seems to overlook this problem and it did not affect how the competency of mariners evaluated. This paper discusses how the assessment for certification in practice today not only does not measure the authentic competency of the mariners but also how it shaped the pedagogical practices of the maritime training institutes. The paper recommends *Quasi-community* as a novel framework for teaching and assessment in maritime domain (Emad and Roth, 2016). This method allows the student seafarer not just learn how to be successful in the examinations but how to be authentically competent and perform better on the job.

Keywords: Maritime Education and Training, STCW, Assessment, Competency Based Training, evaluation, Seafarers' competency.

Introduction

To develop the knowledge, skills, and competencies that seafarers require to perform their job on board ships they attend Maritime Education and Training (MET). To assure the quality of MET outcome, maritime administrator in each state assess the competency of the graduate from their MET systems and if they are successful they are assigned a certificate of competency. This will assure shipping companies that the holders of certificate of competency who want to work for them meet the requirements of the job and are able to perform their skills competently. This method is not only exercised in maritime domain but it is a common practice in many professions. The employer in those professions require a technical organization (certification body) to re-evaluate the ability and competencies of their prospective employees. These professional certification organizations assess the candidates and if meet the requirements issue them a certificate of competency. These certificates, for many occupations, acts as a permit to work in that profession. Unfortunately, in most cases, including seafaring the evaluation for certification is limited the assessments to a series of written and/or oral examinations. The less than optimal performance of many of the educated and certified seafarers on board ships questioned not only the quality of certification but also the value of education and training in maritime training institutes. My research was designed to study such processes in a system that intended to increase the competency of practitioners in the maritime domain. My intensive case study research on the processes of a post-secondary education and its related certification for maritime vocation confirms that the separation of assessment from education created challenges for the seafaring students and MET institutes.

Study such as mine (Emad and Roth, 2008, 2009, 2016), show how the present certification assessment system has changed the objectives of the MET practices from learning knowledge and competencies needed on board ships to simply learning what is needed to successfully pass the certification examinations. In this system the students, assisted by their instructors, learned to avoid failing the exams for the certificate and not what is required to operate ships.

In this paper after providing a background of maritime education and certification system I explain different elements of this system and discuss how the assessment system affect the change in objectives of seafarers learning and lecturers teaching.

Background

Those who would like to become a seafarer have to attend MET institutions get educated and then get certified to be able to work on board ships. Shipping is an international industry and seafarers may get hired and sail in any part of the world thus there is a need to have a uniform international standard for MET and certification system. The international convention, the *Standard of Training, Certification and Watchkeeping of Seafarers* (STCW) is set out to regulate the maritime education and certification processes. STCW lays out the training standards for the MET institutes and the certification procedures anywhere in the world. The requirement of STCW has to be implemented by maritime administration of each country. In Australia, Australian Maritime Safety Authority (AMSA) is the maritime administrator and the responsible organization for certifying mariners. Any person who would like to be certified has to attend an educational institute, then attend a ship for on-the-job training and undergo the certification assessment conducted by certification authority. The assessment process includes written and oral examinations—the so-called competency certification assessment.

Method

This research paper is based on a qualitative ethnographic case study conducted in the context of training at a MET institution. The study is designed to better understand the challenges in a system of maritime education specifically designed to increase the competencies of prospective seafarers. My database was collected during a series of courses presented for students applying for maritime certificate of competency. The data of the case study presented in this article is collected from a series of courses presented for students who have already acquired their first-level certificate and been employed by shipping companies. In the process of promotion in their job they require to upgrade their certificate thus they re-attend college. Thus, all of the course participants (students) have work experience. The data was collected during interviews and focus group from students and their instructors. The secondary database included student's course notes, teaching syllabus, sample tests and also certification procedures, rules and regulations in addition to the related academic publications.

Current practice in MET institutions

The maritime education and training system is greatly influenced by the requirement of the competency certification system. The prerequisite for attending the certification examination is for the candidate to attend a specific number of courses in a MET institution. The

certification examination itself is comprise of a series of written examination and finally an oral examination. To match those requirements the MET institutes, adjust their program accordingly in two parts, namely *training* which covers mainly practical and hands-on skills and *education* that comprise of teaching theoretical knowledge.

Training courses

My study shows the training in the training institute works relatively successful in reaching its objectives and most of the students and instructors were satisfied with the results. The training courses generally are approved by the maritime administration. It means that in most cases the training institutes have the authority to assess the students for the course and issue the relevant certificate. The main criterion for assessment in these courses is the ability to perform successfully the targeted tasks. These courses are consisted of theoretical and practical parts and include hands-on activities. Students in my study generally were satisfied by what they were able to learn from most of the training courses. Although the marine administrator asks for part of the assessment to be in written examination (generally multiple-choice questions), the students are primarily evaluated while engaged in carrying out the tasks and the instructor have to be convinced that the students are competent in performing that type of tasks. Many of the participants in this study, was satisfied with the result and mentioned that these courses are very useful, very applicable to what they are going to do on board ships. Students stated that the practical nature of these courses and the direct relation that they could make between training and on board practice was a motivating factor. They believed that they would be able to transfer their newly developed skills to their work. My analyses reveal that the students are more satisfied with these courses than by other aspects of their college-based education. They actually felt more confident, prepared, and competent to do the related tasks in their workplace.

Theoretical Knowledge

To attend certification examinations seafarers, have the choice to attend the preparatory courses in the MET institute or to self-study and prepare themselves for those examinations. For most of the theoretical subjects, my study shows that the students generally find it more convenient to prepare themselves on their own. However, for the more challenging exams that demand higher cognitive ability, for example ship stability, they prefer to attend courses in MET colleges. Course attendees' primary concern in the college was to pass the certification

exams rather than learning knowledge and competencies that they need on board ships. Many of the students participated in my study mentioned that when they are not able to get the proper amount of knowledge to pass specific exams on their own they decided to come to college to do those particular courses. They articulated their objective for attending the course is to develop the type of knowledge required for passing the certification exams. I found that in general, students' perception of the certification examinations mediates their approach to learning while attending college. It was evident from the fact that their primary demand from their course lecturer was to prepare them for the exams.

To attract students to their courses, MET institutes have to consider the objectives of students since they are their customers. This was the incentive for MET institutes to concentrate on teaching the students how to pass the examinations, a fact evident from the data collected from the course instructors. For many of the instructors, the examinations constitute an obstacle, as they believe that the students do not even feel the need to understand the tasks while they have been asked a question but to merely provide specific answers. My classroom observations revealed that lecturers put substantial effort into the delivery of information that historically appeared in competency examinations. This was in direct response to students' requests and the lecturers' desire for students to be successful. This shift in objectives from the acquisition of job-relevant knowledge and competence to knowing enough to pass the certification examination is a source of weakness and a drawback in maritime education system.

Assessment for certification

Assessment is a process by which lecturer and the student themselves evaluate the student's learning quality and process. Thus, it is an important part of every education system. Assessment gives an insight to whether the objectives of the MET system is achieved and the student developed the required skills and knowledge. However, as studies show, assessment may actually contravene attainment of educational objectives (e.g. Emad and Roth, 2008). My observations in the present study show that this is also the case in the current MET system. The current STCW requirement which guides the maritime certification system around the world created a contradiction in those systems. As the result, some aspects of the system become impediments to achieving the goals of STCW.

My study shows that students' perception of assessment shaped their approach to learning. They discussed the assessment from the beginning of the course and wondered about the nature of examinations' questions. They collected most of previous examinations' questions.

Those who had experience of attending these examinations, for their earlier certificate, were aware of the type of assessment they should expect. Students were concerned about specific issues in the exams. One of the issues was the validity of the exam questions. Students considered the questions to be outdated and have no practical implications for their jobs. The instructors also were in agreement as they believed that often the examinations are old and have not been up-dated.

The conventional assessment system in use is not able to achieve its claimed objective; i.e. evaluating the knowledge and understanding an officer needs to be able to act competently on board ship. In the current practice the maritime authorities created a bank of questions. As the examination's questions are drawn from that bank, the questions may appear identically across different examinations.

My findings are consistent with those of other studies that revealed the severely compromised nature of examinations that reused the same questions year after year (e.g. Stutman, 1997). Students' perceptions about assessment significantly influence their approaches to learning and studying (Struyven *et al.*, 2005). This affects the way education and training system performs. Students aim to pass the exams knowing that all they have to do is to get ready for the set of largely known questions. Answering these questions became the primary objective of teaching and learning. As an instructor mentioned that what he is having to do is trying to figure out what marine authorities may want in certification examination and as the result what he ends up to do is wasting lot of students learning time teaching history instead of teaching today. The instructor also oriented toward teaching outdated knowledge, rather than focusing on teaching useful, present-day knowledge, because he wants the students to be successful in the certification examinations.

Continuous demand of students from teachers resulted in final sessions of the courses to be assigned for reviewing the sample questions from the available previous competency examinations' question bank. When the students are under pressures for the score they have to give up or beat the system teaching the test questions and corresponding answers is one response (Bloor, Sampson and Gekara, 2014). Some of the maritime authorities tried to solve the problem by creating a new set of questions for their question bank. They may not be aware that the renewed question bank can only be a temporary solution, as some years down the road students and lecturers are going to have those questions. This solution may not solve the flaw but at best may postpone the problem. Inappropriate assessment procedures encourage superficial learning and varying the examination questions may not be enough to fully evoke deep approaches to learning. It seems that the action might not change the

perception of students about the examination and as a result it most probably not affects the way that the students approach learning.

Discussion and conclusion

My study shows that the assessment system as enacted today does not allow an authentic evaluation of the competency of the candidates. The students thereby may engage in defensive learning, acquiring what they need to be successful on the examinations irrespective of whether what they learn is actually useful on-the-job. There is no indication that a graduate is competent for the targeted job. This causes the education and training system to perform in a way that make the students better in taking test rather than to be competent in performing the required tasks on ships. Likewise, my analysis suggests that the assessment system needs to be redesigned. Thus, the students may be able to engage in authentic learning where they may learn a wide range of practices they have available for addressing problematic situations on board ship.

My research resulted in development of a novel framework for teaching and assessment in maritime domain namely *Quasi-community* (Emad and Roth, 2016). The quasi-communities design to identify and improve learning in maritime education and training system. It will allow the pedagogy to co-develop through the lecturer's practice and students' participation in their teaching and learning. This method may allow the student seafarer not just learn how to be successful in the examinations but how to be authentically competent and perform better on the job.

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