

Effect of Implementation STCW 1978 Amandement 2010 Curriculum and Simulation Learning Media on Seafarers Competencies (Survey of Class III Nautica Training of Seafarers BP2IP Tangerang in 2017-2018)

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Abstract. This paper is to find out the Effect of Implementation STCW 1978 Amandement 2010 Curriculum and Simulation Learning Media on Seafarers Competencies (Survey of Class III Nautica Training of Seafarers BP2IP Tangerang in 2017-2018). This research method used descriptive quantitative which is explanatory. The research population is Class III seafarers in BP2IP Tangerang. The research sample was taken using a sample calculation of Slovin formula. Data collection uses questionnaire techniques using questionnaires. Questionnaire tests included tests of validity, reliability and normality. Correlation analysis. The hypothesis testing technique used is Path analysis with the help of the SPSS version 25.00 program. The research population of candidates for Class III Nautica seafarers batch VIII at the BP2IP training center in Tangerang. Data collection uses questionnaire techniques using questionnaires. Where the data the researchers took from the population of seafarers as many as 185 seafarers, from 6 classes, where the average of one class contained 31 seafarers. the sample is part of an object with certain characteristics taken from the population, to be studied and examined then the results are generalized. for sampling, the method used is a probability sampling method with a random sampling technique so that samples are determined. The sample in this study is based on the calculation of the Slovin formula as many as 126 seafarers in which each class is taken as many as 21 seafarers. The results showed that the Influence of the Implementation of the STCW 1978 Amandement 2010 Curriculum and Learning Media Simulation had a significant positive effect on Seafarers' Competence in Class III Nautica of batch VIII in BP2IP Tangerang in 2018. The Influence of the Effect of STCW 1978 Amandement 2010 Curriculum and Learning Media simultaneous seafarers competency of 34,2%, with a correlation value of 0.719 shows a very strong relationship.

Keywords: STCW 1978 amandement 2010 curriculum, simulation learning media, seafarers competence

1. INTRODUCTION

The Indonesian government program wants to make the Indonesian state the world's maritime axis to make the role of maritime education that can produce competent and competitive seafarers. In line with that the International Maritime Organization (IMO) Convention on Standards for Training, Certification and Watchkeeping for Seafarers (STCW) has been ratified by all maritime countries. IMO has supported all governments / interested parties to support and need to revise technical support / their vocational student trainees are in accordance with STCW 1978 amandement 2010. Furthermore, the European Maritime Safety Agency (EMSA) starts the completion of the assessment process and provides quality improvement in Maritime Education Training (MET) institutions in all members of the European Union and other maritime countries, one of which is Indonesia. As implementation of STCW 1978 Amendment Manila 2010, Indonesia has issued regulation of the Minister of Transportation number 70 year 2013 on Education and Training Certification and the

Watchkeeping, beside that Indonesian had Regulation of the Head of the Transportation Human Resources Development Agency (BPSDM) Regarding the Education Curriculum and Training on Competency Competence Improvement in accordance with the Standards Training, Certification and Watchkeeping (STCW) 1978 amendment 2010 applied at the Tangerang Merchant Marine Education and Training Center (BP2IP) which organizes education and training using 1978 Amendment Manila 2010 Curriculum which is a curriculum development at BP2IP Tangerang provided subjects and educational programs provided by educational providers that contain lesson plans to be given to participants in a period of education.

Curriculum supporting infrastructure is a physical form of the provision of educational facilities to support the success of the teaching-learning process in an indirect education. Supporting curriculum education facilities are equipment and equipment that are directly used and support the educational process, especially teaching and learning processes such as buildings, classrooms, desk chairs, learning tools and media. Media Simulator is a learning media, the media is often used as an intermediary in the learning and teaching process of students and educators. The media has a role to facilitate the achievement of an objective effectively and efficiently. The use of learning media used in BP2IP is in the form of customized educational equipment provisions contained in STCW 1978 Amendment 2010 the development of a seafarer's competence with excellence, professionalism and competitiveness, in accordance with national and international standards. Simulator learning media used at BP2IP Tangerang is to practice how to operate ships under the supervision of instructors who already have special competencies to operate the training equipment. The simulator learning media have fulfilled competency standards for seafarers in accordance with STCW 1978 Amendment 2010 so that seafarers are expected to no longer feel awkward when facing actual equipment.

To improve and support the success of the current teaching and learning process, the instructors are challenged to realize the life skills program as one of the focuses of analysis in developing the implementation of the curriculum. Therefore there is a need for supporting facilities for the curriculum as an indicator of the motivation to learn seafarers to achieve success. Therefore, in the translation, the development of a curriculum is needed so that students are able to understand the material of maritime competencies, with the aim that students are able to recognize and understand the subject matter delivered by the instructor. It is expected that with the development of the curriculum and the completeness of its supporting facilities, students are able to complete their education with satisfactory grades and results. One of the objectives of the STCW 1978 amendment 2010 is that new competencies and curricula must be continuously updated following the development of modern technology and real needs in the field. The Transportation Human Resource Development Agency has reviewed the marine technical education curriculum material with a ratio of 70% practice and 30% theory.

But in reality the simulation learning media contained in BP2IP Tangerang still have not been used optimally so as to affect the competency of seafarers graduates at BP2IP Tangerang. This can be seen from various indications including: 1. The use of simulation learning media is not yet complete due to learning media related to the simulation circuit used for learning, there is damage, one of which is the LCHS (Liquid Cargo Handling System) is a simulator circuit that is used to learn how to handle the

correct load on oil-loaded vessels (Tankers) and liquid gas cargo vessels (LPG tankers). The condition is currently damaged (35%) but can still be used even though it is not optimal. 2. The limited scenario of practical learning design in accordance with the 2010 STCW curriculum found in the simulator laboratory. 3. There is still a lack of seafarers who understand the simulation learning media that contains a detailed ship navigation system. A maritime radar with Automatic Radar Plotting Aid (ARPA) capable of making tracks using radar contacts. The condition is currently damaged (40%) but can still be used even though it is not optimal. 4. The use of simulator learning media has not been optimal causing seafarers who carry out simulator practice competency exams do not pass 100% on the first exam. 5. Damage to some simulators causes practice learning to be disrupted and diverted to theoretical learning, so the hours of theoretical learning in the classroom are more than the hours of practice in the simulator.

Based on the description that has been stated in the background of the problem, there are many problems related to seafarers' competencies. Each of these problems is very possible will affect the competence of seafarers. Therefore the problems related to seafarers' competence at BP2IP Tangerang were identified as follows: 1. How big influence did the apply to improve seafarers' competence at BP2IP Tangerang? 2. How big is the influence of simulation learning media to improve seafarers' competence at BP2IP Tangerang? 3. How big influence does the implementation of the STCW 1978 amendments 2010 curriculum apply to the media of simulation learning at BP2IP Tangerang? 4. How much influence does the implementation of the STCW 1978 amendments 2010 curriculum through the media of simulation learning to improve seafarers' competence at BP2IP Tangerang?

2. LITERATURE REVIEWS

2.1 STCW-2010 Curriculum

Unruh & Unruh (1984: vii) put forward the definition of curriculum development namely: Curriculum Development: problems, processes, and progress at contemporary circumstances and future projections "in accordance with the above understanding, curriculum development is not only a variety of abstractions that often dominate curriculum writing , but prepare various examples and alternatives for actions that are an inspiration from several ideas and other adjustments that are considered important.

Adoption of the Convention is an important step forward for seafarers with training and high-level certification is the target to restore confidence in seafarer standards. This Convention emphasizes the need to control the issuance of seafarers' certificates. Foreign certificates must be recognized by the flag state, and the system must ensure that new competency standards are implemented. Countries must provide more appropriate training and certification resources to achieve the objectives of the Convention. IMO will play the role of assessor for the implementation and enforcement of regulations through its MSC, which will decide on the acceptance of certification. Furthermore, the maritime community supports the Convention which is amended because it fits with practical realism (Chislett, 1996).

In general, the International Maritime Organization is still trying to develop its instruments, related to increasing the efficiency and competency of the Skippers and Seamen in order to achieve safety in the sea and prevent pollution. In other words, IMO has made many efforts to ensure that industrial shipments are equipped with highly

competent human resources. For further knowledge, it is important to make a comprehensive survey of the Convention and Code of STCW that emphasizes improving competence, especially by using simulator training (Swift, 2004).

Curriculum Function Besides having a role, the curriculum also has or develops various functions. Alexander Inglis, in his book *The Principle of Secondary Education* (1978), states that the function of the curriculum is: 1) the adjustive of adaptive function 2) Integration (the integrating function) 3) The differentiating function 4) The propaedeutic function 5) the selective function 6) Diagnostics (the diagnostic function) e. Curriculum Study Approach The study of curriculum often asks about the type of approach used in the discussion or in the preparation of the curriculum. The use of a type of approach or orientation generally determines the form and pattern used by the curriculum. Theoretically, according to its development, can be returned into four approaches, namely: subject approaches, interdisciplinary approaches, integrative approaches and systems approaches. The four types of approaches each have their own emphasis and hence give rise to principal beliefs.

2.2 Simulation Learning Media

The word media comes from the Latin *medius* which literally means 'middle', 'intermediary,' or 'introduction,' in Arabic, the media is an intermediary or delivery message from the sender to the recipient of the message. Gerlach & Ely (2013) said that the media when understood broadly are human beings, material, or events that build conditions that make seafarers able to obtain knowledge, skills, or attitudes. Another limitation has also been put forward by experts, some of whom will be given the following. AECT (Association of Education and Communication Technology, 2013) gives a limit on media as all forms and channels used to convey messages or information. Aside from being a conveying system or media introduction that is often replaced with the word mediator according to Fleming (2009: 234) it is a cause or tool that intervenes in two parties and reconciles it. The term media mediator shows its function or role, which is to organize effective relationships between the two main parties in the learning process and the content of the lesson. In addition, mediators can also reflect the understanding that every learning system that carries out the role of mediation, from the teacher to the most sophisticated equipment, can be called the media. In summary, media is a tool that delivers or delivers learning messages.

Next the author will review the definition of simulation learning. Simulation comes from the word "Simulate" means to pretend or act as if. Simulation also means imitation or act that just pretends to be. Simulation as a method of presentation is an attempt to gain an understanding of the nature of a particular principle or skill through a process of activity or training in an artificial situation (not really). With simulation, it enables seafarers to be able to face the real reality or have the ability to behave and act according to the real situation According to the Ministry of National Education Language Center (2013) simulation is a training method that displays something in the form of an imitation (meal) that is similar to the real situation; simulation: depiction of a system or process by demonstration using a statistical model or actor. Udin Syaefudin Sa'ud (2013: 129) simulation is a replication or visualization of the behavior of a system, for example an educational plan, which runs at a certain time period. So it can be said that the simulation is a model that contains a set of variables that display the

main characteristics of the actual life system. Simulation allows decisions that determine how the main characteristics can be modified in real terms.

According to Baldauf, Nolte-Schuster, Benedict & Felsenstein (2012), advanced levels of sophisticated simulations with combined SST and ship handling simulations allow for more detailed in-depth studies of the effectiveness of safety and security plans and procedures on different types of ship vessels. SST Functionality According to Rheinmetall (2011, p.3), this regulator offers and supports a training environment, meets and supports STCW standards and includes the following functionalities: a. Provision and implementation of exercises to meet STCW, ISM, ISPS and other related regulations such as Tanker Officer Training Standards. b. Conduct and manage crisis situations to train emergency processes and communication under pressure. c. Team training conditions to train management level and local teams. d. Training in virtual 3D scenarios, for example, on-board various types of ships as well as on-board certain types of vessels. e. Physical, thermodynamic and hydrodynamic mathematical models approach reality, taking into account the corresponding effects, for example, flash over, back draft, stability. f. Data recording of all training and communication data, to replay and repeat recorded exercises.



Figure 2.2: Ships Bridge Simulator Source: BP2IP Tangerang Train Ship Unit. (2017).

According to Baldauf et al., (2011, pp. 33-34), simulators provide the following capabilities: a. Do several exercises simultaneously at the same time. b. Absolute control of the environment and hydro-meteorological conditions in accordance with the purpose of the exercise c. Consider the real effects of wind, waves, currents, tides, and shallow waters on the ship itself d. Simulation of emergency situations including oil spill incidents e. Navigate guided on the boat and interact with helicopters f. Simulation of maneuvers with various targets. g. Maneuver with tugs and mooring operations to go together or leave the dock h. Ability to plan, assess, implement and monitor sea guard shipping i. Use of various communication devices, radar / ARPA, ECDIS j. Coordination and implementation of SAR operations, SAR Training, preliminary studies, and after the assessment of SAR efficiency (Baldauf et al., 2011, pp. 33-34) The use of simulation education media used in BP2IP in the form of educational equipment adapted to the provisions contained in STCW-2010 in order to develop the competency of a commercial shipping officer aims to produce seafarers with excellence, professionalism and competitiveness, in accordance with national and international

standards. Training facilities are used to practice how to operate ships under the supervision of instructors who already have special competencies to operate the training equipment. The training facilities have met competency standards for seafarers in accordance with STCW-2010 so that later it is hoped that cadets will no longer feel awkward when facing actual equipment.

So the use of simulation learning media is an educational and training tool used to improve the skills of prospective sailors in BP2IP Tangerang in operating ships. With these media, later prospective sailors will be better able to understand the work and responsibilities such as conditions when the ship sails and cadets are expected to operate the ship safely and safely to its destination.

2.3 Competence

Speaking of competency issues there are many opinions rather than experts or experts in their fields that give meaning to both the meaning seen from the word or language and from the definition or term. Definition of competence with the word competence which means "ability" or "capability". Same with English in Indonesian the word "capable" as a substitute for word / sentence: smart, expert in doing a job, all-knowing, skilled. (Parulian Hutapea and Nuriannah Toha, 2008: 2) Changes that occur in the field of Human Resources are followed by changes in the competencies and abilities of someone who concentrates on Human Resource Management. The increasingly broad development of competencies from practitioners of Human Resources ensures that Human Resource Management plays an important role in the success of the organization. Competence has now become part of the language of development management. Job standards or competency statements have been made for most positions as a basis for determining skills training and qualifications. Competence describes the basic knowledge and performance standards required to successfully complete a job or hold a position. According to Wahjosumidjo (2009: 34), competence is an integrative routine task performance, which combines resources (ability, knowledge, assets and processes, both visible and invisible) that produce higher and competitive positions. As a consequence of the definition of competency or competence, or else, the definition of competence refers to the ability of people to fulfill the requirements of their current or future roles. Thus, competency is not only related to current performance. Competence can also be used to predict future performance because competency is a continuous characteristic that generally cannot be lost.

3. THE RESEARCH METHODOLOGY

The objective of this research is to find out the Effect of Implementation STCW 1978 Amendment 2010 Curriculum and Simulation Learning Media on Seafarers Competencies (Survey of Class III Nautica Training of Seafarers BP2IP Tangerang in 2017-2018). This research method used descriptive quantitative which is explanatory.

3.1 Population and Sample

The research population is Level III seafarers in BP2IP Tangerang. The research sample was taken using a sample calculation of Slovin formula. Where the data the researchers took from the population of seafarers as many as 185 seafarers, from 6 classes, where the average of one class contained 31 seafarers. the sample is part of an object with certain characteristics taken from the population, to be studied and examined then the results are generalized. for sampling, the method used is a probability

sampling method with a random sampling technique so that samples are determined. The sample in this study is based on the calculation of the Slovin formula as many as 126 seafarers in which each class is taken as many as 21 seafarers.

3.2 Design Research

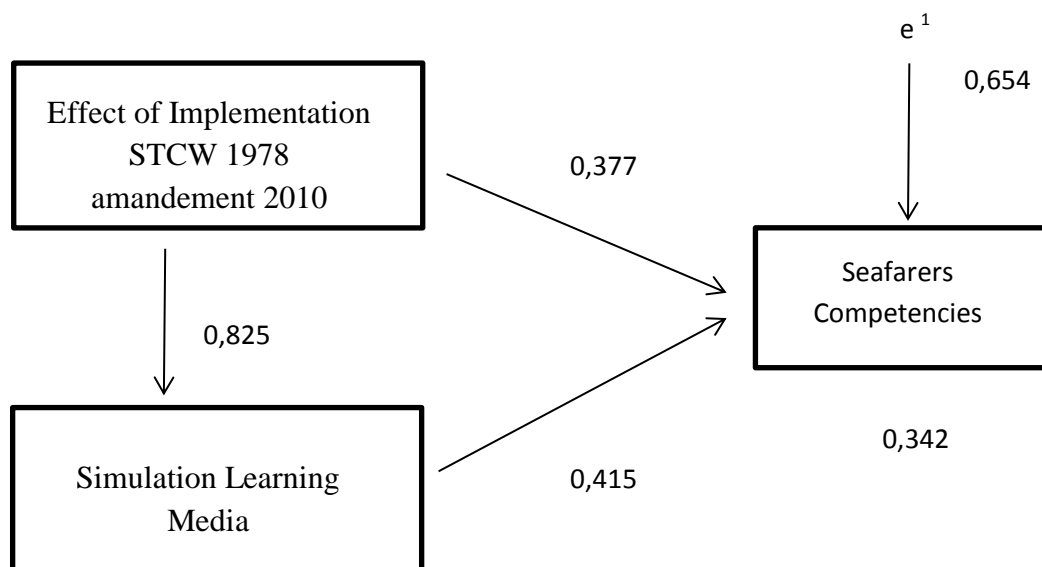
Data Collection The research instruments developed to measure the Effect of Implementation STCW 1978 Amandement 2010 Curriculum and Simulation Learning Media on Seafarers Competencies in BP2IP Tangerang are questionnaire from Likert Scale and documentary sheet. The questionnaire from Likert scale consists of five options that is a) very good, b) good, c) fair, d) poor, and e) very poor. This instrument is used to collect data from Class III Nautica Training of Seafarers are dealing with the current and existing learning process of Implementation STCW 1978 Amandement 2010 Curriculum and Simulation Learning Media. However, the items of questionnaire are same for all seafarers. The instrument filled in by seafarers is used to collect the data from the students' perspectives. Questionnaire tests included tests of validity, reliability and normality. Correlation analysis.

The hypothesis testing technique used is Path analysis with the help of the SPSS version 25.00 program.

4. RESULT

Path Analysis The application of the STCW 1978 Amandement 2010 Curriculum and simulation learning media to seaman competencies. The aim is to find out the direct and indirect relationships between these variables.

Based on the results of path analysis calculations, information can be given in summary



The results of path analysis showed that the implementation of STCW 1978 amendment 2010 curriculum directly affected seafarers competency and could have an indirect effect, namely through the variable implementation of the STCW 1978

Amandement 2010 Curriculum through simulation learning media and then to seafarers' competencies. the magnitude of the direct effect is 0.377, while the magnitude of the indirect effect is 0.342.

there is a direct relationship and indirect relationship between the application of STCW 1978 Amandement 2010 Curriculum to seafarers' competencies, as seen from the regression values and correlations of all sig <0.05 . The results of the first hypothesis indicate that the Implementation of STCW 1978 Amandement 2010 Curriculum directly has a significant effect on Seafarers Competence. This is supported by obtaining a significant value that is smaller than 0.05. Furthermore, the beta coefficient value is positive (0.377) indicating that if there is an increase in the Implementation of the STCW 1978 Amandement 2010 Curriculum in the amount of one unit, Seafarers' Competence will directly increase by 0.377. Then, the results of the correlation coefficient between the Implementation of the STCW 1978 Amandement 2010 Curriculum and Seafarers' Competence of 0.719 indicate that the level of the relationship between the STCW 1978 Amandement 2010 Curriculum Application and Seafarers' Competence is quite strong at 0.719. BP2IP Tangerang through the BPSDM Transportation regulation has the responsibility to consistently implement the curriculum effectively to meet the minimum standards of competence of the training participants.

The results of the second hypothesis indicate that Simulation Learning Media directly has a significant effect on Seafarers Competence. This is supported by obtaining a significant value that is smaller than 0.05. Furthermore, the beta coefficient value is positive (0.415) indicating that if there is an increase in the Simulation Learning Media by one unit, the Seafarers' Competence will directly increase by 0.415. Then, the results of the correlation coefficient between Simulation Learning Media and Seafarers' Competence by Seafarers Competence indicate that the level of the relationship between Simulation Learning Media and Seafarers' Competence is 0.726 and is a strong level of relationship. BP2IP Tangerang has the responsibility of ensuring seafarers who have implemented training at BP2IP have a level of training using appropriate learning media and have valid competency certificates to comply with STCW requirements. The application of the STCW 1978 Amandement 2010 Curriculum has a direct influence that can provide a positive and significant improvement through Simulation Learning Media. With the level of relationship is strong enough that is equal to 0.825. Seafarers using simulators as learning media for STCW 2010 curriculum materials, will be confident in working according to the reality in their field of work. 4. The Influence between the Application of the STCW 1978 Amandement 2010 Curriculum through Simulation Learning Media has a relationship that can provide an improvement in a positive and significant direction towards the Eight-Level Seafarers Training (DP-III) Competency at BP2IP Tangerang. With the level of relationship is quite strong, amounting to 34.2. This is in accordance with the vision of BP2IP Tangerang's mission to create maritime education that can produce graduates who have superior competencies having competitiveness in national and international shipping.

5. RECOMMENDATION

After conducting a discussion of the results of the study and concluding the data obtained, the researcher proposed several recommendations as follows: 1. To Management BP2IP Tangerang, it should optimally play an active role in supervising education and training based on the STCW 1978 Amandement 2010 Curriculum by

forming a new special division to monitor and ensure the implementation of STCW 1978 Amandement 2010 Curriculum to the maximum to improve the competency of training participants. 2. To Management BP2IP Tangerang, should send technical and administrative staff who manage Simulator Learning Media to special training centers that are in accordance with simulator specifications in BP2IP Tangerang for the purpose of producing trainers and technicians who are competent in maintaining and increasing the use of simulators as learning media which has been required by STCW 2010, so that learning using simulation media can take place well and effectively. 3. To Instructors / Teachers in BP2IP Tangerang in teaching should implement the STCW 1978 Amandement 2010 Curriculum syllabus to the maximum both material and practice, time or hours of learning are recommended to be adjusted to the curriculum that has been set, in each course that uses simulators as learning media is recommended to play a role actively guide training participants with full responsibility, and increase the teaching schedule with simulators to improve the competency of training participants. Instructors at BP2IP Tangerang are expected to develop their knowledge and competencies in order to master the STCW-2010 Curriculum and Simulation Learning Media to improve Seafarers' Competence at BP2IP Tangerang. 4. To the BP2IP Tangerang academic community, it should work actively for the quality of education and training in accordance with the STCW 1978 Amandement 2010 convention in improving the competency of training participants and ensuring the use of simulator facilities is always ready and maintained which is a learning media in implementing the STCW 1978 Amandement 2010 Curriculum. Therefore in the learning activities there must be classroom and laboratory monitoring data and the use of simulator tools that run effectively, questionnaires assessing the quality of learning, questionnaires assessment of instructors, assessment of the quality of learning facilities so as to increase Seafarers' Competence especially in the Training of Seafarers (DP- III) Third-level Nautics of the Eighth Force at BP2IP Tangerang.

Efforts to improve the Implementation of the STCW 1978 Amandement 2010 Curriculum, improve Simulation Learning Media BP2IP Tangerang party should pay attention to all aspects in accordance with the Head of the Regulation of the Human Resources Development Agency on Education Curriculum and Training on Enhancing Maritime Competence in accordance with STCW I978 Amendment 2010. Collaborative management of the BP2IP Tangerang Education organization with instructor groups both internal and outside instructors needed to work together in carrying out education and training applying the implementation of the STCW 1978 Amandement 2010 Curriculum which covers the subject matter and educational programs provided by an educational organization that contains lesson plans (Syllabus and RPS) that will be given to participants in a period of education, the media of simulation learning is an important tool in learning STCW curriculum material and evaluating competency testing. The Media Simulator needs to be ensured that it must always be maintained and ready to use and have professional technicians who assist. The simulation learning media contained in BP2IP Tangerang are classified as complete and have met the 2010 STCW Standards, but have not been used optimally. STCW 1978 Amandement 2010 Curriculum function as a tool to achieve educational goals, where the curriculum basically has the main components and support that are interrelated and interact with each other in order to achieve these goals. The simulation learning media contained in BP2IP Tangerang is a simulation learning media that has fulfilled competency standards for seafarers in accordance with STCW-2010 so that seafarers are expected to no longer

feel awkward when facing actual equipment. The media for simulation learning is a means of supporting the application of the appropriate and important STCW 1978 Amandement 2010 Curriculum. Reliable and competent instructors are needed to teach material in accordance with the curriculum by using simulators as learning media. Application of the STCW 1978 Amandement 2010 Curriculum and simulation learning media is the right combination to improve seaman competency. Real cooperation is needed from all parties at BP2IP Tangerang, both from educators, education staff, supporting staff and training participants themselves to create quality training in international standard training. The rules for using simulation media as learning media for the STCW curriculum must be socialized and obeyed.

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