

**Research Article****EFFECTIVENESS OF IMPLEMENTATION OF STANDARDS OF TRAINING CERTIFICATION AND WATCH KEEPING (STCW) MANILA AMENDMENT 2010 WITH AGAINST SEAFARERS' BASIC SAFETY*****Antonius Edy Kristiyono, Dewie Tri Wijayati Wardoyo and Maria Veronica Roesminingsih**

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Abstract

Proper readiness for sailors is the primary key to safety in sailing. Theoretical efforts and practical efforts need to be directed and appropriate. Education and training are one of the efforts that can be made in providing training on seafarer safety standards referring to the 2010 Manila Amendment STCW. This research was conducted to implement seafarer safety standard training using a simulation method. The research subjects were 100 cadets divided into two simulation groups, namely the cadet group with socio-drama simulations and the cadets with role-playing simulations. The results showed that the implementation of the 2010 Manila Amendment STCW using the simulation method had a positive impact on cadets. Both simulations show a good average score. But the role-playing simulation showed better results than the socio-drama simulation. This study shows that simulation application is appropriate and supports the strengthening of basic safety provisions at sea with the 2010 Manila Amendment STCW standards.

Keywords: Simulation, Socio-drama, Role Playing, Seafarers' Basic Safety, Manila Amendment STCW 2010.

INTRODUCTION

Transportation safety is absolute both in land, air, and sea safety during shipping (Rahman *et al.*, 2018). Shipping safety is very important for sailors. This safety cannot be separated from the standards that have been set to be followed and obeyed to avoid marine accidents. The current seafarer safety standard is the STCW Manila Amendment 2010. STCW Manila Amendment 2010 is a reference in seafaring education and training and is applied in all countries so that seafarers have standardized competence and expertise and can be accepted to work internationally (Trekner & Clive, 2010). The important value of discussing the 2010 STCW Manila Amendment is that it places more emphasis on cruise ship processes and safety. The maritime industry strives to provide the best possible service in terms of safety. To achieve this goal, competent personnel are needed in the field of shipping. About 80% of marine accidents are caused by human error. This error is due to insufficient regulations in regulating sailing safety. Based on the accident analysis report, the disclosure of marine accidents is a sign of inefficiency in cruise ship education and training (Ziarati, 2007). Another obstacle is the low level of awareness in implementing the 2010 STCW Manila Amendments, especially among cadets, and seafarers who are currently upgrading their training and staff at these educational institutions (Evans *et al.*, 2017). The implementation of the 2010 Manila Amendment STCW is an urgent need and must be carried out immediately because it involves the professionalism of Indonesian sailors working on foreign ships (Marselia & Hartono, 2017). The obstacle in this implementation also lies in the quality standards that must be met by cruise ship shipping agencies (Evans *et al.*, 2017). In implementing STCW, not all countries take part in monitoring the sea and protecting the marine environment because it is related to the allocation of funds needed in implementing

STCW because the marine environment includes handling marine pollution which causes pollutants from commercial ships operating in the area (Yoon, 2011). In the 2010 Manila STCW amendments several amendment points were applied to the 1978 STCW, including (1) Provisions for the transition period for the implementation of the Manila amendments, (2) Seafarers' medical standards, (3) Working hours and rest hours, (4) prevention of alcohol abuse, (5) Changes -important changes in seaman training, (6) Responsibilities of shipping companies (BPSDM, 2011). Based on the 6 points of change above, point number 5 is directly related to the research topic taken, namely regarding the implementation of the 2010 STCW Manila Amendments at the Surabaya Shipping Polytechnic. The implementation of the 2010 STCW Manila Amendments when it is associated with educational institutions 3 things must be considered, namely the exploration of Sections A-1/6 concerning training and assessment, Sections A-I / 8 regarding quality standards, and Sections A-I / 12 concerning the use of simulators that have a direct impact on training and assessment of sailors (Mabuti, 2013). The cadets of the Surabaya Shipping Polytechnic were not only given training in theory about the 2010 Manila Amendment STCW. Theoretical supplies were lacking if they were not carried out in practice. Seafarers in the field will face situations that will not be the same in sudden weather changes and can be bad for seafarers who are not prepared practically. Ship accidents cause various paths related to human, financial, and environmental safety (Hasugian *et al.*, 2018). This study aims to apply the 2010 STCW Manila Amendment policy in the form of a simulation to cadets at the Surabaya Shipping Polytechnic. Simulation involves participating in very real learning experiences that are very similar to real settings (Clapper, 2010). The simulation includes five types, (1) socio-drama, (2) psychodrama, (3) role-playing, (4) peer teaching, and (5) game simulation (Hasbullah, 2021). The simulation used in this research is role play and socio-drama. The important thing to do is a simulation to have a direct impact on seafarers about the STCW policy which has become a standard

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for seafarer safety. In addition, this simulation is carried out to provide seafarers with more mature preparedness regarding basic safety when they face situations to be ready to sail.

METHODS

This study uses a quantitative approach method. The research was conducted on 100 cadets of the Shipping Polytechnic. Then divided into two groups with different learning methods. The first group was taught using the role-playing simulation learning method. Role-playing, as it is most often used in the classroom, requires physical involvement from students, by developing classroom attentiveness and energy in lesson planning (Blank, 1985; Clawson, 2006). The second group was taught using the socio-drama simulation method. Sociodrama is a group-as-a-whole experiential procedure for social exploration and transformation of intergroup conflict (Moreno, 1953 in Kellermann, 2007).

Table 1. Manila Amendments STCW Basic Safety 2010

No.	Basic Safety	Action
1	Personal survival techniques	<ul style="list-style-type: none"> Understand safety information symbols, signs, and alarm signals Identify muster and embarkation stations Identify escape routes Locate and don life jackets
2	Fire prevention dan fire fighting	<ul style="list-style-type: none"> Know the procedures for man overboard, fire or smoke detected, and abandon ship alarms Use fire extinguishers Operate fire, weather-tight, and watertight doors fitted in the particular ship other than those for hull openings
3	Elementary first aid	<ul style="list-style-type: none"> Take immediate action upon encountering an accident or other medical emergency
4	Personal safety and social responsibility	<ul style="list-style-type: none"> Communicate with other persons on board on safety issues

Basic safety in the 2010 Manila Amendment STCW includes (1) Personal survival techniques; (2) fire prevention and fire fighting; (3) elementary first aid; and (4) personal safety and social responsibility. Each group is placed in a position to apply direct simulations of conditions that occur in the field with detailed tasks presented in (table 1). The research was observed, and all data was collected and analyzed using an independent sample t-test to find out the comparison of the two simulation groups in implementing the 2010 Manila Amendments STCW. The results of the analysis were carried out descriptive quantitative to provide an assessment of the results of cadets' readiness in implementing basic safety in sailing.

RESULTS AND DISCUSSION

Before carrying out the simulation implementation, all cadets carry out an initial test to find out that all cadets' abilities are the same. After that, a simulation was carried out and the results of the research were analyzed using an independent sample t-test to find out the comparison of the implementation of the 2010 Manila Amendment STCW. Before the analysis was carried out, a prerequisite test was carried out to find out that all data was normally distributed. Based on the results of the normality test in (table 2) shows the acquisition of group normality by role-playing simulation in the Kolmogorov-Smirnov Sig test. $200 > 0.050$ and the Shapiro-Wilk Sig. $0.075 > 0.050$. The gain in the group with the socio-drama simulation

on the Kolmogorov-Smirnov test was Sig. $0.200 > 0.050$ and Shapiro-Wilk Sig, $0.193 > 0.050$. The homogeneity test results obtained in (table 3) with the Levene test show that the Sig. $0.182 > 0.050$. So that all data is normally distributed and homogeneous.

Table 2. Normality Test Results

Simulation	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Score Role Playing	.099	50	.200*	.958	50	.075
Sosio-drama	.099	50	.200*	.968	50	.193

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Table 3. Homogeneity Test Results

Test of Homogeneity of Variances				
Score	Levene Statistic	df1	df2	Sig.
1.804	1	98		.182

Table 4. Results of the average value of the simulation

Group Statistics					
Simulation	N	Mean	Std. Deviation	Std. Error Mean	
Score Role Playing	50	95.36	3.218	.455	
Sosiodrama	50	91.38	4.025	.569	

Based on the results of the acquisition of values in (table 4) shows that the group of cadets who were taught using role-playing simulations got an average value of 95.36. Meanwhile, the cadet group who studied using socio-drama simulations obtained an average score of 91.38. Based on the acquisition of the average score, it shows that the group of cadets who were taught using role-playing simulations obtained higher scores compared to socio-drama simulations. Based on the results of the t-test showed the acquisition of Sig. (2-tailed) of $0.000 < 0.050$ so there is a significant difference between the cadet group which is simulated with role-playing and the cadet group which is simulated with socio-drama. STCW Manila Amendment 2010 is a strong enough standard to be provided to seafarers before they go to sea. Of course, this provision must be provided with the right strategy, so that the 2010 Manila Amendment STCW can truly provide good readiness for seafarers. Cadets from the Surabaya Shipping Polytechnic are always given training on STCW Manila Amendment 2010 as the primary material for them to master well. Efforts are made with debriefing in the form of education and training. One of the training innovations provided is simulation. For strategies to obtain the right simulation, a study was conducted to compare the two simulation methods, namely socio-drama and role play. The reason for choosing the two simulations is because they have similarities and almost the same capacity. After all, both play a role. It's just that what distinguishes socio-drama plays a role in solving social phenomena problems, while role-playing is directed to create actual events and events that might arise in the future. During the simulation, the two groups were given the same task, namely implementing the 2010 Manila Amendment STCW safety standards. The cadet group that underwent the socio-drama simulation faced the main problem, namely a ship accident due to human error where humans or crew members, namely cadets, experienced problems that resulted in damage to several parts of the ship and resulted in a collision of the ship resulting in injured victims. They have to do the simulation to work together to solve the problem and keep their ship stable and no casualties die.

Table 5. Independent Samples Test Results

		Score	
		Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F	1.804	
	Sig.	.182	
t-test for Equality of Means	t	5.461	5.461
	df	98	93.477
	Sig. (2-tailed)	.000	.000
	Mean Difference	3.980	3.980
	Std. Error Difference	.729	.729
	95% Confidence Interval of the Difference	Lower Upper	2.534 5.427

The cadet group with a role-playing simulation, faces a situation that allows them to be caught, namely avoiding the sinking of a ship due to extreme weather, large waves, and strong currents. Some of the causes of ship damage include natural conditions, technical failures, and factors related to ships in general terms (Hasugian *et al.*, 2018). All of these disasters were not carried out, but the cadets carried out basic safety measures to protect the entire crew from being killed. The results of the study showed that all groups tried their best with the same main goal but in different situations and different simulation paths. The results of the second simulation show that the score is quite high, and shows all the enthusiasm in carrying out the simulation. However, by simulating role-playing skills and getting better grades. Role-playing games can develop and enhance content skills and skills needed for future success by incorporating realistic, or real-world, problems (Clapper, 2010). So that for the implementation of the next training, role-playing simulations can be used to strengthen the provision of education and training in the 2010 Manila Amendment STCW in the future. The results of this study are in line with research conducted by Sarifuddin *et al.*, (2022) showing that the use of simulation media can increase the competence of cadets in implementing the 2010 Manila Amendment STCW. Simulation promotes the use of critical and evaluative thinking, encourages students with scenarios, creates situations that feel real as well as leads to interesting interactions by students, through the concept of practical experience (Bello *et al.*, 2016).

Conclusion

The implementation of the 2010 Manila Amendment STCW training which was carried out with practical simulations showed positive results on the ability of cadets regarding basic seafarer safety. The two simulations show good results, but the role-playing simulation shows better results. Simulation using role-playing has proven to be an effective effort to implement the 2010 Manila Amendment STCW as an effort to train cadets in efforts to protect basic seafarers' safety. The 2010 Manila Amendment STCW training is still possible to be carried out with other simulation methods. Further research is needed to apply simulations not only to socio-dramas and role-playing. This is to enrich and strengthen references to practical implementation strategies regarding seafarers' basic safety by implementing the 2010 Manila Amendment STCW.

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