EFFECTIVENESS OF SEAFARERS TRAINING USING MARITIME SIMULATORS

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ABSTRACT

The shipping business is among the most globalized of all enterprises and is described by complex measured supply chains, including a great extent outsourced work power of "just-in-time" realized specialists from developing nations and the transitional East European states. Regardless of long-standing endeavors by global bodies to institutionalize and manage the instruction and preparing of seafarers, varieties in practices and norms continue. Managers practice opposing impacts on instruction and preparing suppliers, from one perspective requesting the earnest arrangement of more enrolls (empowering corner-cutting), and on the other grumbling about the low quality of volunteers got (asking crackdowns on low quality suppliers and more thorough examinations) – the preparation twofold tie. This paper thinks about these issues through the investigation of the tricky utilization of automated appraisals in seafarer examinations, drawing upon discoveries from an examination, including research in six diverse contextual analysis nations furnishing maritime work and meetings with partners.

Keywords: Seafarers, Maritime Industry and Supply Chain Management.

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1. INTRODUCTION

The section begins with a short presentation about marine industry and the seafarers, covers the historical backdrop of marine mischance. Featuring the need of oceanic training and utilization of simulators in sea training, the part additionally covers different kinds of simulators utilized as a part of training of seafarers. The significance of assessing training and different techniques for assessing training is additionally secured.

2. MARINE INDUSTRY AND SEAFARER

The way that around 90% of the world cargo is transported by ships is sufficient prologue to the marine business. The cargo transported by the trader armada throughout the years has demonstrated an enduring increment and thus the quantity of ships occupied with this vital movement of the world economy. The ship owning design far and wide, till the nineteenth century, was that the ships were claimed either by the trader or by the exchanging organization. Liners or what was then called, a typical cargo transporter benefit, was not accessible. A fresh start was made by an organization situated in USA on January 5, 1818. On this day an American ship named James Monroe, landed from New York City to Liverpool. This vessel was claimed by the Black Ball Line, and this occasion went down in the history as the primary normal transporter line benefit on a tried and true timetable. This noteworthy occasion by Black Ball line reformed the delivery. They began a standard ship benefit on that course and cargo which was not the full load limit was acknowledged for delivery.² This is set apart as the start of another time in the transportation business. The business never thought back from that point, however there have been bunches of good and bad times. The meaning of a Seafarer, as indicated by McKay and Wright (2008) is a man who works or has worked in any way inside the Maritime Industry. These days, seafarers' obligations have encountered sensational transfiguration, receptive to changes in the business, for example, broad utilization of containerization and as additionally transportation under banners of accommodation. The opposition has changed the manner by which seafarers perform and rest. Execution has been limited to less work force (of Multinational starting point), and port remain radically decreased. ITF in examine in 2006 demonstrates that nautical as a decision of vocation, for a few youth is these days finishing. Pretty much 700000 people by and by the work inside the delivery business, and this number is decreasing extensively! The Industry has seen diminishment in labor, joined by uncommon changes in framework by the presentation of containerization between the 60's and 70's, on account of driving Shipping Companies turning this technique for transport; utilizing their vessels under banners of comfort empower the engagement of seafarers on poor terms and states of business, as additionally to maintain a strategic distance from consistence with worldwide laws which may have restricted their exercises.

3. ASSESSMENT OF TRAINING EFFECTIVENESS IN MARITIME INDUSTRY WITH REFERENCE TO MARITIME SIMULATORS

All maritime training has been focused on specialized abilities of individual in ship taking care of and route. Presently it is recognized that this information must be joined by administration and leadership abilities. The real advantage of having simulator training to seafarers is to bring down the perils of mischance. The impacts of such missteps could be costly and now and again disastrous". In such circumstances the maritime simulator is viewed as an extremely supportive and useful instrument. Picking up utilizing simulators could be an ordeal wherein the learner could commit errors and learn without worrying about the outcomes. The thought while running the activities is for the most part to learn so that under comparative circumstances locally available, the sailor is presently arranged ahead of time to start an activity which he/she has drilled in a not all that requesting condition.

Toward the finish of activity, the simulators can likewise give the extremely essential criticism to upgrade the locally available execution of the learner. Simulators likewise help the students to complete a portion of the exercises by recreation, which, in actuality, can't be done and learnt by essentially doing it installed a ship or in genuine workplace. Exercises like separate, moving in basic conditions, crisis techniques or topographical spots which might be hard to rehearse installed are accessible promptly on maritime simulators. The simulators, when utilized legitimately helped by experienced and all around prepared educators can be an

extremely valuable instrument in procuring the information for safe activities. The learners get the truly necessary certainty by dealing with the reproduced situation without anyone else and setting them up to attempt their assignments parts and 38 capacities. This should bring about gaining better abilities without presenting themselves to genuine risks.

4. PRIMARY OBJECTIVE

- To Study the Effectiveness of Seafarers Training in India with Special Reference to Maritime Simulators.
- To find out different types of simulators being used in maritime training.

5. REVIEW OF LITERATURE

According to Tanker Operator (2007) "the advantages of maritime simulator are evident however there are a few hindrances. It allows a seafarer to get fundamental fitness, supporting abilities and information to qualify as an officer in a likewise little era." Simulation driven evaluation and training in light of PC upgrades training to be given in marine industry. To upgrade the quantity of master seafarers it is basic to build up a broad training, examination, instruction and affirmation framework.

According to IMO (1994) "the improvement in electronic industry has emphatically affected the application and advancement of simulators for marine related targets of training. A few shifted sorts of simulators are getting to be open to huge number of clients as an establishment for quality training needs". A simulator can be clarified as a gadget that reciprocals certifiable points of view. The way toward utilizing recreation distinguishes whole exemplary points of interest, for example, dangers related with real frameworks task, shirking of harm in the event of a mischance as well as damage and evasion of high expenses. . Simulators are known to be repeatable and can mimic quick exercises.

Rooij and Van (1992) have portrayed that reproduction is a handy following progressively of marine taking care of, route and radar, balance/load, impetus or other ship framework fusing an interface material for creative use by the applicant or student either outside or inside the working encompassing and agreeing to models of execution. 36 Maritime simulators is a stage or gadget which reproduces the tasks anticipated on-load up trader vessels and in operational exercises. Marine simulators offers genuine training of activity, thorough impacts of condition and deliver diverse blames in framework guaranteeing training utilizing group methodology utilizing visuals for higher authenticity.

Dankjaer (1992) has expressed that "the maritime simulators were the aftereffect of new advancement in and mechanization which made new demands on maritime 37 training and instruction".

6. RESEARCH METHODOLOGY

Research type adopted in this study is a descriptive research as the study involved fact finding in order to determine the effectiveness seafarers training using maritime simulators. The collected data enables the researcher to respond to the research questions formulated in this study which aims at meeting the objectives identified in this study.

6.1. Sampling Technique Adopted

In this study the sampling procedure was purposive sampling based on one stage, where respondents were chosen through a random sampling technique. The sample size of the study is 1000. The study was conducted at Selective Maritime training centers across India. The institutes were selected among the many centers in the country to offer seafarer training. The

target population of the study is a researcher's population of interests to which she or he would like the results of the research to be generalized. In particular, the target population for this study comprised of the seafarers in the study area. Their choice was based on the fact that this is a group of seafarers who are undergoing maritime simulator training and hence depending on the nature of their training they tend to undertake maritime activities as there are fewer jobs available for them.

6.2. Questionnaire

A questionnaire consisting of both open and closed ended questions was prepared by the researcher and administered by the trainees themselves at the center.

6.3. Reliability and Validity of Data

Pattern (1998) depicts validity as a system that guarantees that the procedure actualized to gather information has gathered the proposed information effectively. Validity alludes to the degree to which an experimental measure sufficiently mirrors the genuine significance of the subject under study. Self administrated questionnaires were given to respondents who got guaranteed of their secrecy and privacy. The information accumulation strategy was submitted to the chief training officer who proposed some changes in accordance with the training questions.

An extensive literature review, interview and self-administered questionnaire surveys were conducted. The above steps ensured that the multiple sources of data collection, such as literature, interviews and questionnaires were conducted under conditions and in an environment acceptable to the respondents and therefore ensured that the process and findings was truth worthy and valid.

6.4. Research Tools Used for the Present Study

The primary data were collected from the respondents were analysed with the help of various statistical tools, such as Percentage Analysis, Karl Pearson's Coefficient of Correlation, ANCOVA, Multiple regression model, etc.,

6.5. Relationship effect among Training Effectiveness, Simulator Facilities, Training Courses, Training Delivery

The Karl Pearson Correlation Coefficient test was used to study the correlation effect among the study variables connected with the Effects of maritime simulators in seafarers training. All the three important dimensions of the seafarers training is studied with the hypothesis that there is significant correlation exist between the variables connected with the effectiveness of seafarers training.

Table 1 Correlation coefficient Result

		Training Effectiveness	Simulator Facilities	Training Courses	Training Delivery
Training Effectiveness	Pearson Correlation	1			
	Sig. (2-tailed)				
Simulator Facilities	Pearson Correlation	.043	1		
	Sig. (2-tailed)	.179			
Training Courses	Pearson Correlation	.032	.224**	1	
	Sig. (2-tailed)	.315	.000		
Training Delivery	Pearson Correlation	.033	.115**	.079*	1
	Sig. (2-tailed)	.298	.000	.013	
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

From the above correlation coefficient table, it was inferred that, Training Effectiveness and Simulator facilities expresses positive correlation, it implies that more number of simulator facilities will make more effective in training programme. Positive correlation value was found between Training Effectiveness and Training Courses; it further explains a positive relationship between these two variables. If the training effectiveness is it has direct effect on training courses. Training Effectiveness and style is positively correlated with Training delivery, it explains these two variables are expressing the direct relationships and underlines that improved level of training Delivery will enhance the respondents to come up with improved Training effectiveness.

Simulator facilities and Training course expresses the positive correlation significant at 99 per cent confidence level. It implies that more the number of simulator facilities will effect on more in influence of training course. A positive correlation found between Simulator facilities and Training Delivery among the respondents at 99 per cent confident level. It expresses both these variables are moving in the same direction, ie the increase in simulator facilities will significantly influence the training delivery in training effectiveness.

It was observed from the correlation test table that, Training course showing the positive correlation with Training Effectiveness and significant positive correlation training and Simulator facilities at 99 per cent confidence level. Further, Training course shows positive correlation at 95 per cent confident level with Training delivery, and explains direct influence of training course on their training delivery.

Training Delivery expresses positive correlation with Training Effectiveness, significant positive correlation with Simulator facilities at 99 per cent confident level and significant positive correlation with Training course at 95 per cent level of confidence. Hence it was concluded from the correlation coefficient analysis that Training Effectiveness among the respondents are strongly influenced by Training delivery and style, Simulator facilities and Training course of the respondents.

6.6. Impact of Simulator facilities, Training Course and Training Delivery on Training Effectiveness

The impact of Simulator facilities, training course development, training delivery on training effectiveness of the respondents are studied through multiple linear regression analysis. The Enter method was used to find the influence of each dependent variable on the independent variable training effectiveness among the respondents.

For this regression analysis, Simulator facilities, training course development, training delivery are assumed as independent variables and training effectiveness was assumed as dependent variables.

Table 2 Regression - Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Simulator facilities, Training course development, Training delivery ^b	.	Enter
a. Dependent Variable: Decision Making Styles			
b. All requested variables entered.			

All the requested independent variables to measure its impact on dependent variable training effectiveness were entered for the study. For regression analysis 'Enter' method was used to enter the independent variables one by one and study the influence level of each one of the independent variables on the dependent variable training effectiveness.

Table 3 Model Summary for Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.162 ^a	.261	.234	.07907	.026	8.992	3	996	.000

a. Predictors: (Constant), Simulator facilities, Training course development, Training delivery

The above table explains the regression model for the specified variables. It shows 0.026 of the adjusted R square value and explains 23 per cent the model is fit.

Table 4 ANOVA for Regression Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.169	3	.056	8.992	.000 ^b
	Residual	6.227	996	.006		
	Total	6.396	999			

a. Dependent Variable: Training effectiveness

b. Predictors: (Constant), Simulator facilities, Training course development, Training delivery

To examine the significant difference among the study variables in regression analysis, the ANOVA is computed and the result of ANOVA shows the significant p value .000 at 5% level of significance. There is a significant difference among the independent variables in determining the independent variable Training effectiveness among the respondents. The following is the table presenting the coefficient value of each independent variable on the dependent variable.

Table 5 Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.183	.198		16.043	.000
	Simulator facilities	.013	.008	.042	1.356	.175
	Training Course	.121	.027	.141	4.402	.000
	Training delivery	.111	.032	.112	3.473	.001

a. Dependent Variable: Training effectiveness

From the regression coefficient table it was clearly deliberated that, other than the independent variables specified for studying the dependent variable training effectiveness among the respondents, certain other variables are playing an inevitable role and influencing heavily the training effectiveness. From the coefficient value of the independent values used to expose the impact on the dependent variable training effectiveness, the following equation was prepared,

$$\text{Training Effectiveness (Y)} = 3.183 + .013 \text{ Simulator facilities} + .121 \text{ Training Course} + .111 \text{ Training Delivery}$$

It was further observed from the regression coefficient table that, the highest influencing factor of training effectiveness among the independent variables stands first, followed by Training course and training effectiveness. Simulator facilities influence the training effectiveness (.13), training course at (.121) and Training delivery (.011) level on training effectiveness among the respondents. Among the three independent variables, when studying the level of influence through regression coefficient Simulator facilities, training course and

training delivery explain the significant impact on training effectiveness among the respondents.

7. RECOMMENDATION

The simulators used in marine training are known to have great loyalty and authenticity. The same can be made utilization of while mission planning, and in addition evaluation of existing or new groups. Loads of challenging activities can be assessed, examined and upgraded securely in the test system by using these great highlights of the simulators. Mishaps, contextual analyses and occasions requiring consideration of the team might be reenacted and wellbeing and mindfulness training be bestowed using simulators. Representatives' activities showing less change is featured and particular training might be arranged accordingly. Behavioral issues may be managed by engaging the distinguished trainees using accessible strategies for training in the market.

8. CONCLUSION

Maritime organizations need to comply with regulations set out by the International Maritime Organization with regard to training and assessment of seafarers. Training and assessment may have a very high impact on safety performance in a maritime organization. The introduction of new technology and automation are developments that may affect safety performance on board ships. Billions of dollars have been invested in the development of advanced simulators that can realistically mimic real-world scenarios that take place on board ships. Training and assessment of seafarers have become ever more important to mitigate the risk of human error. Maritime training of non-technical skills may help reduce the risk of human error. Trained maritime personnel are more prepared to react in case of an emergency situation. Human Factors Skilled-Based Training Programmes in the Maritime Industry

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