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## The Outcome Of Implementing Structured SOFTES Model As A Post Simulation Debriefing Strategy Among Marine Trainees

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# Introduction

- Human error is widely acknowledged as the most significant contributing element to accidents by maritime stakeholders such as dangerous acts, failure to act, behaviors, and unsafe conditions.
- The simulator provides a free environment from risks for learning how to treat hard scenarios or dangerous scenarios, the shipping industry is careful about training the officers on simulators because it is safe.
- The new technologies can provide modern simulators that can perfectly reproduce real-world events.

# Literature Review

Bobryshev  
a et al.  
(2022)

aimed to examine the efficiency of training using engine room simulators. The results revealed that simulators are very useful teaching tools for students in the early stages of their education.

Luimila et  
al. (2020).

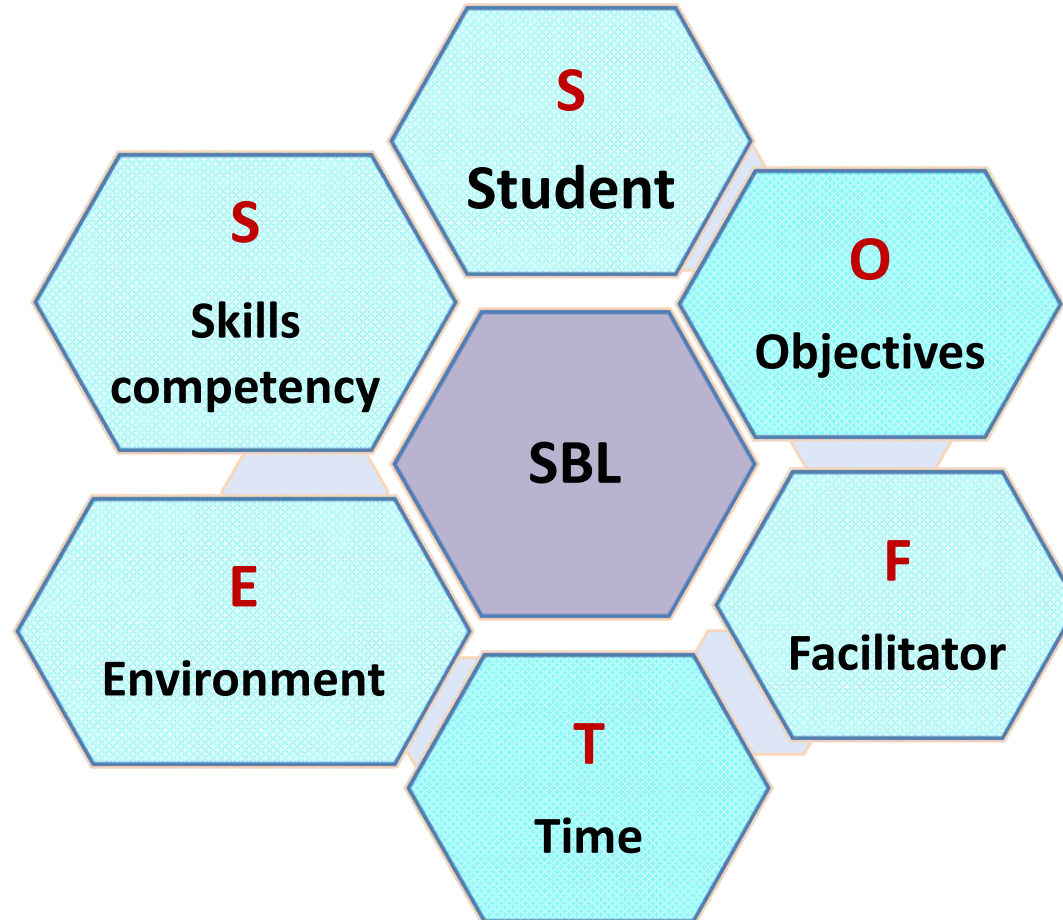
Aimed to compare virtual reality ship command bridge to maritime training simulator needs. The results demonstrated that our training application did not meet all simulators.

Shalaby  
and  
Hassan  
(2019)

examined the results of applying the SOFTES model to the debriefing process used by nursing students. The findings showed that using the SOFTES model with trainees improved their perception of their performance.



# SOFTES model of post-simulation debriefing



## SOFTES model of post-simulation debriefing

Elements	Description
<b>Student</b>	Student's interpersonal and intrapersonal characteristics which may effect his performance during simulation
<b>Objectives</b>	If the scenario's objectives were clear and achieved at the end of simulation
<b>Facilitator</b>	How far the facilitator/ instructor facilitated the scenario implementation
<b>Time</b>	Was the scenario duration sufficient or insufficient
<b>Environment</b>	If the scenario environment in the simulator mimic the reality or not
<b>Skills competency</b>	Student's competency level of all skills involved in the scenario

# Research Methodology

## Variable

## Description

Research Design

Quantitative .

Data Collection Tool

A self-administered questionnaire.

population

one hundred marine trainees were answered the questionnaire.

Sample

The sample was split into two groups, each group is fifty trainees.

Research Techniques

- ❖ validity and reliability.
- ❖ Descriptive statistics for variables.
- ❖ comparing means using the T-test.



# Questionnaire Statements

Variables	Statements	References
<b>Student</b>	<ol style="list-style-type: none"> <li>1. Encouraged me to consider my own ideas and emotions regarding a particular experience</li> <li>2. Being sensitive to my advantages and limitations.</li> <li>3. Being aware of my own emotions and sentiments so that I could deal with both myself and others.</li> <li>4. Helped me to increase my confidence.</li> </ol>	(Mahlanze and Sibiya, 2017)
<b>Objective</b>	<ol style="list-style-type: none"> <li>1. Helped me understand and advance my comprehension of learning objectives</li> <li>2. Increased my level of participation.</li> <li>3. Improved my skill of reflection and thinking</li> <li>4. Helped me develop my observational abilities</li> <li>5. encouraged me to seek out more information in order to be prepared for key experiences and events in the future</li> </ol>	(Mahlanze and Sibiya, 2017)
<b>Facilitator</b>	<ol style="list-style-type: none"> <li>1. I had the chance to practice at the simulation</li> <li>2. I had the chance to view high-fidelity simulators.</li> <li>3. I am pleased with the instructor's performance and level of expertise during the simulation.</li> <li>4. The instructor provided all facilities</li> </ol>	(Agha et al., 2015)

# Questionnaire Statements

Variables	Statements	References
<b>Timing</b>	<ol style="list-style-type: none"> <li>1. The time for each step is suitable</li> <li>2. There is some distribution wasted my time</li> <li>3. can continue work as planned if I'm interrupted</li> </ol>	(Agha et al., 2015)
<b>Environment</b>	<ol style="list-style-type: none"> <li>1. The simulated environment was comfortable</li> <li>2. I had a hard time treating the simulator as a real ship</li> <li>3. A good method of learning is the simulator</li> <li>4. A realistic experience was offered using the simulator</li> <li>5. The subject was more interesting thanks to the simulator</li> </ol>	(Agha et al., 2015)
<b>Skills competency</b>	<ol style="list-style-type: none"> <li>1. I can link theory to the actual experience</li> <li>2. Helped me increase my problem solving</li> <li>3. Helped me increase my ability to make proactive decisions</li> <li>4. I have the capacity to reinterpret situations and issues</li> <li>5. I can learn from my mistakes and avoid them in future</li> </ol>	(Mahlanze and Sibiya, 2017)

# Descriptive Analysis

- The mean of the group that takes SOFTES model in the facilitator variable is **4.0400** which is greater than the mean of the facilitator variables for the group without SOFTES. These results are ensured in a standard deviation for example in the skill competency variable, the standard deviation of the group that takes SOFTES is **0.59966** while the standard deviation of the group that doesn't takes SOFTES is **.47121**.

	Variable	N	Mean	Std. Deviation	Frequency				
					1	2	3	4	5
<b>With SOFTES</b>	<b>Student</b>	50	<b>4.5400</b>	.50346	0	0	0	23	27
	<b>Objective</b>	50	<b>3.8800</b>	.38545	0	0	7	42	1
	<b>Facilitator</b>	50	<b>4.0400</b>	.40204	0	0	3	42	5
	<b>Timing</b>	50	<b>3.7400</b>	.44309	0	0	13	37	0
	<b>Environment</b>	50	<b>3.7600</b>	.59109	1	0	10	38	1
	<b>Skill competency</b>	50	<b>3.7400</b>	<b>.59966</b>	1	0	11	38	1
<b>Without SOFTES</b>	<b>Student</b>	50	<b>1.8600</b>	.35051	7	43	0	0	0
	<b>Objective</b>	50	<b>1.7800</b>	.46467	12	37	1	0	0
	<b>Facilitator</b>	50	<b>1.8600</b>	.35051	7	43	0	0	0
	<b>Timing</b>	50	<b>1.6800</b>	.47121	16	34	0	0	0
	<b>Environment</b>	50	<b>1.5200</b>	.50467	24	26	0	0	0
	<b>Skill competency</b>	50	<b>1.6800</b>	<b>.47121</b>	16	34	0	0	0

# Validity And Reliability

All the statements are reliable because Cronbach's alpha are greater than 0.7 and valid as factor loading of the statements greater than 0.4

Variable	Statement	Factor loading	AVE	Cronbach's Alpha
Student	S1	0.871	89.429	0.960
	S2	0.895		
	S3	0.896		
	S4	0.916		
Objective	S1	0.867	86.064	0.959
	S2	0.825		
	S3	0.855		
	S4	0.876		
	S5	0.881		
Facilitator	S1	0.838	85.177	0.942
	S2	0.871		
	S3	0.847		
	S4	0.851		

# Validity And Reliability

All the statements are reliable because Cronbach's alpha are greater than 0.7 and valid as factor loading of the statements greater than 0.4

Variable	Statement	Factor loading	AVE	Cronbach's Alpha
Timing	S1	0.845	85.399	0.914
	S2	0.858		
	S3	0.859		
Environment	S1	0.844	85.846	0.959
	S2	0.857		
	S3	0.849		
	S4	0.871		
	S5	0.872		
Skill Competency	S1	0.840	85.126	0.956
	S2	0.819		
	S3	0.859		
	S4	0.869		
	S5	0.869		

# Comparing Two Means

The mean for the group that was trained with SOFTES is greater than the mean for the group that was trained without SOFTES in each variable. The mean of the group who takes SOFTES training in student variable is

**4.5400** which is greater than the other group without SOFTES as its mean is **1.6800**.

The P-VALUE is less than **0.001** and this means that there is a significant difference between the two groups.

Variable	SOFTES	N	Mean	Std. Deviation	Sig.
<b>Student</b>	With SOFTES	50	<b>4.5400</b>	.50346	<b>&lt; 0.001</b>
	Without SOFTES	50	1.8600	.35051	<b>&lt; 0.001</b>
<b>Objective</b>	With SOFTES	50	3.8800	.38545	<b>&lt; 0.001</b>
	Without SOFTES	50	1.7800	.46467	<b>&lt; 0.001</b>
<b>Facilitator</b>	With SOFTES	50	4.0400	.40204	<b>&lt; 0.001</b>
	Without SOFTES	50	1.8600	.35051	<b>&lt; 0.001</b>
<b>Timing</b>	With SOFTES	50	3.7400	.44309	<b>&lt; 0.001</b>
	Without SOFTES	50	1.6800	.47121	<b>&lt; 0.001</b>
<b>Environment</b>	With SOFTES	50	3.7600	.59109	<b>&lt; 0.001</b>
	Without SOFTES	50	1.5200	.50467	<b>&lt; 0.001</b>
<b>Skill competency</b>	With SOFTES	50	3.7400	.59966	<b>&lt; 0.001</b>
	Without SOFTES	50	<b>1.6800</b>	.47121	<b>&lt; 0.001</b>



## Research Discussion And Conclusion

- The result showed that SOFTES model helps in reducing the trainees' anxiety level, increases their ability to analyze themselves, and increases their self-confidence.
- This research suggested an initial hypothesis which is a new framework called SOFTES model used in training has a significant relationship with the trainees' behaviors.
- SOFTES model was associated with decreasing the anxiety of trainees and helped in increasing self-confidence.

# Research Recommendations

Implementing SOFTES model in every training in all sectors, because it helps in increasing self-confidence and reflects improving the performance and outcome of the organizations.

Facilitators should be trained on SOFTES MODEL to know its importance and to know how to train the student to gain more ability in self-analysis.

# Research Limitations

The rareness of the previous research that discussed the SOFTES model and its impact on self-analysis and self-evaluation

implementing SOFTES model and comparing the trainees' self-analysis and self-evaluation before implementing SOFTES model and after.

the SOFTES model over all the sectors because the result showed its impact on self-analysis and increasing self-confidence.



Thanks