Awareness of Maritime Students on Safety Measures and Problems Encountered Onboard Vessel

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Abstract – *This study aims to determine the awareness of maritime students on the safety measures and the problems encountered by the seafarers during onboard. It also sought to test the significance difference of the level of awareness of maritime students on safety measures to the profile of the maritime students. The study used descriptive type of research method and was utilized to 287 maritime students. Result shows that the maritime students are highly aware on the safety measures implemented in the vessels. They are also aware on the problems encountered by the seafarers during onboard. It shows that the program took by the students either BSMT or BSMARE has a significant difference between the safety measures implemented on the vessels and to the problems encountered during onboard. Through this result, the researchers recommend to an action plan to enhance the enhance the awareness of maritime students on this issue.*

Keywords – *awareness, maritime, safety measures, problems encountered*

INTRODUCTION

Thousands of lives have been lost at sea in horrific catastrophes that may have been avoided or averted. According to studies, the majority of contact incidents and collisions that result in ships sinking to the sea floor are caused by human error. Humans have a significant influence on the marine safety system because they must always be aware of their actions and be able to spot risks in order to make better judgments. In order to prevent accidents that may happen onboard, every seafarer must be aware of the safety measures that are regulated and implemented. Safety measures refers to the practices used to avoid accidents and to protect against or minimize the possibility of injury, risk, or threat [1]. These are safety prescript and regulations that must be observed and followed by every seafarer onboard a vessel to prevent any accident that may occur by not following the rules with regards to safety.

Meanwhile, seafaring is a difficult vocation characterized by long hours and exhaustion, which often cause crew issues. Lack of exercise facilities, poor diet, isolation, and smoking and drinking may all be detrimental to on-board health. Additionally, depression is a component that may impair a seafarer's health as a result of other working issues such as harassment, discrimination, homesickness, and on board relationships. The problems that seafarers often encounter onboard affect their performance and health that sometimes lead to errors that can cause accidents which is one of the main concern of the maritime industry. With adequate awareness on these problems normally occurring onboard ship, seafarers can prepare and condition themselves to such challenges. Awareness on the safety measures onboard and the problems that are encountered when working onboard a ship are key factors to minimize and eliminate maritime accidents [2].

At present day where a pandemic has struck the whole world, it became a challenge for every student to cope up with the new mode of learning through online platforms. Due to online classes, the actual learnings through face to face are sacrificed. The main issue in the implementation of online learning is that there is a gap between those people who have the actual experiences of using the facilities and equipment that are used onboard and those who lacked and have no actual experience in using them personally due to online mode of learning. The actual use of equipment and facilities are deemed necessary to give the first year maritime students a clear glance on real maritime life and be aware of the safety measures and problems that occur onboard in real life situations.

Lyceum International Maritime Academy (LIMA) being one of the best maritime academies in the Philippines is affected by the implementation of the new mode of learning which is the online mode of delivery caused by the pandemic. It is a challenge for the first year maritime students of LIMA to adapt to the new set up and develop their level of awareness about the safety measures and problems encountered onboard a vessel, thus makes the study very beneficial for the respondents to know and assess their level of awareness about these things to be able to improve their knowledge and awareness about it despite the new mode of learning through this pandemic.

A seafarer's work is one of the most dangerous in the world. Some seafarers choose to be a part of the maritime industry because of the salary, wherein this profession gives without properly knowing the problems they may encounter onboard which is caused by lack of awareness to the profession. That's why the students must have sufficient awareness on the safety measures and problems they may face once they go onboard a vessel.

This study sought to establish solutions and ways necessary for further improvements of the programs that will help maritime students develop their awareness on safety measures and problems encountered onboard a vessel that seafarers often face. In addition, it will also help future researchers as a source of information to their study in the future. The result of the study will also assist LIMA in improving laboratory equipment's simulation for the students. The purpose of the study is to assess the awareness of maritime students on the safety measures and problems encountered onboard vessel and give necessary information and action plan that would help the students be more aware and prepared for the profession they're taking.

OBJECTIVES OF THE STUDY

The study would determine the awareness of maritime students on the safety measures and problems encountered onboard vessel. Specifically, the researcher sought to present the profile of the respondents in terms of SHS strand taken and Program currently taking. It also aims to determine the awareness of maritime students on the safety measures and problems encountered onboard the vessel. Lastly, test the significant difference on the responses when respondents are grouped according to profile variables; and propose a plan of action based on the results of the study.

MATERIALS AND METHODS

Research Design

This study used the descriptive analysis of research. Descriptive research is normally used to describe characteristics of a population being study. In preference, to analyze one or more variables, a descriptive research design may employ a range of research techniques. The descriptive method of analysis is a fact-finding study that includes appropriate and reliable interpretation of findings, as is generally agreed. The descriptive approach is used to assess the awareness about safety measures and problems encountered on board among maritime students.

Participants of the Study

The respondents in this study were first year LIMA students, a total of 287 respondents; two hundred twenty-five (225) BSMT and sixty-two (62) BSMarE enrolled this second semester of AY 2020-2021. All participants are regular students and asked about their program and senior high strand.

Data Gathering Instruments

The study utilized a survey questionnaire from study of Akindehin, et al [3] titled Effectiveness of Seafarers' Safety Measures Onboard Vessel. The questionnaire was divided into 3 parts. Part I is about the respondent's profile such as program and senior high school strand, part II is all about safety measures on board and part III is all about problems encountered on board.

The researchers adapted various questions and revised them according with the study's intent and was validated by the expert.

Data Gathering Procedures

The questionnaires, in the form of Google document, were distributed to the first-year maritime cadets of LIMA through online platforms such as Facebook and messenger. Within two weeks, the completed questionnaires were collected and tallied.

Data Analysis

The data collected were interpreted using different statistical tools such as percentage, ranking, weighted mean and analysis of variance (ANOVA). These tools were used based on the objectives of the study. In addition, all data were treated and computed using

statistical software, PASW version 18 to further analyze the result of the study.

Ethical Considerations

To perceive an interview with a profound classified nature, the report did not indicate specific names. There is no specification on the respondents that are revealed but an exception that they are a first-year college students on Lyceum International Maritime Academy. The researchers did not indicate their point of view but only the data and results on the information assembled.

RESULTS AND DISCUSSION

Table 1
Characteristics of the Respondents Profile

	Frequency	Percentage (%)
Program		
BSMT	225	78.4
BSMarE	62	21.6
Strand		
GAS	56	19.5
ABM	21	7.3
STEM	130	45.3
ARTS	1	.3
MARITIME	79	27.5

Table 1 shows the percentage distribution of the respondents' profile such as program and strand. Results shows that majority of the respondents are under the Bachelor of Science in Marine Transportation (BSMT) program (78.4%) and most of them are graduated senior high school under STEM strand (45.3). This implies that most of the respondents in first year level are maritime students are under the BSMT program. Students pursuing a Bachelor of Science in Marine Transportation are exposed to the rigors of academic difficulties via courses that equip and test the boundaries of their knowledge and abilities, both in theory and practical applications that they may utilize as officers aboard ships. Whichever route a student takes, it all comes down to time, performance, and school [4].

The result also indicates that there is no required strand needed to be taken before a student can enroll under any of the BSMT and BSMarE programs. Many of the respondents have taken the STEM and Maritime strand as they are recommended senior high school strands for students who are planning to pursue a maritime course. Students who are planning to take up BS Marine Transportation can select Science, Technology, Engineering and Mathematics (STEM) as their Senior High School (SHS) strand for there are three specialized subjects included in the curriculum that are maritime-related. Pre-baccalaureate Maritime Specialization is a customized STEM strand curriculum that includes maritime-related disciplines. The Pre-baccalaureate Maritime Specialization is designed to entice graduates of SHS to pursue maritime-related higher education [4].

Table 2 shown the safety measures implemented when onboard. It shows that students are highly aware about the emergency escape and evacuation routes plan (3.69) of the vessel. They are also highly aware that there is a standard list of the procedures for training, drills and exercise associated with the ship safety plan (3.65) and there is a monitoring of deck, engine areas and areas surrounding the vessel (3.64). This implies that maritime students are highly aware on safety measures that are commonly known jobs of officers and even passengers of the ship. This safety measures are used to avoid accidents and to protect against or minimize the possibility of injury, risk, or threat. A workplace emergency response planning committee with representation from all divisions and departments, as well as major community emergency response agencies should be created. A documented plan should include the processes to take in the event of a catastrophe or emergency. A documented strategy is critical since reaction will differ depending on the nature of the disaster. For instance, fires necessitate immediate evacuation of all personnel. Human accidents or death, as well as the dependability of industrial properties, are the most common causes of failure due to a safety problem [1].

On the other hand, the students are also highly aware that there is a capacity to implement the entire machinery maintenance plan and emergency response plan onboard vessel (3.57) and high level of supervision of the ship personnel, passengers, visitors, vendors, repairs technicians, and dock workers (3.54). This indicates that as part of safety precautions during onboard, the crew conducted preventive maintenance to the machinery of the vessel with the supervision of their officers. This can decrease the incidents of the employee and it makes the employees to work quicker and improve their production output.

The primary safety concerns in the cruise ship business are the risk of an external/internal assault on passengers and crew, the risk of on-water technical failures, accidents, and fires, and the danger of medical/health difficulties among passengers and crew [5].

Table 2
Safety Measures on Board

Indicators	WM	VI	Rank
1. Monitoring of deck, engine areas and areas surrounding the vessel.	3.64	Highly aware	3
2. Emergency and standby equipment are available to maintain essential services.	3.62	Highly aware	7
3. Emergency escape and evacuation routes must clear, accessible and muster station symbols are visible.	3.69	Highly aware	1
4. There is a standard list of the procedures for training, drills and exercise associated with the ship safety plan.	3.65	Highly aware	2
5. There is an automatic intrusion detection device to alert the ship personnel of unauthorized access.	3.48	Aware	10
6. There is the capacity to implement all the machinery maintenance plan and emergency response plan on board vessel.	3.57	Highly aware	8
7. Watch- keeping duties, numbers of ship Personnel particularly with implications on crew fatigue, alertness and performance are clearly established.	3.63	Highly aware	5
8. Proper cargo handling procedures, particularly dangerous goods or hazardous substance should be strictly monitored.	3.63	Highly aware	4
9. Adequate training of safety familiarization has been provided to shipboard personnel, as appropriate.	3.62	Highly aware	6
10. High level of supervision of the ship personnel, passengers, visitors, vendors, repairs technicians, and dock workers.	3.54	Highly aware	9
Composite Mean	**3.61**	**Highly aware**	

Legend: 3.50 – 4.00 = Highly Aware; 2.50 – 3.49 = Aware; 1.50 – 2.49 = Less Aware; 1.00 – 1.49 = Not Aware

Similarly, the students are aware that there is an automatic intrusion detection device to alert the ship personnel of unauthorized access (3.48). This means that the students are mindful about automatic intrusion which used to secure border areas, battlefields, and sea surface areas from trespassing by unauthorized marine vessels. According to Akindehin et. al [6], the entire posture of the active ship intrusion detection system is examined through the exhaustive survey. Because security concerns have grown, the study and survey of ship intrusion detection systems has received a lot of attention.

Table 3 shown the problem encountered by the seafarer when onboard. Results shows that the students are highly aware the seafarers face homesickness and boredom (3.68); feel tired and exhausted after long work (3.62) and there is inability to access and use service equipment such as telephone (3.44). This meant that homesickness, boredom, inability to access service equipment, as well as tiredness and exhaustion are the top common. This can also be indicates that the maritime students are open minded to the various difficulties attached on their future profession as seafarer. That this jobs makes them realize that this work is not for the weak hearted, to those who get homesick easily, or to those who find difficult to work in a harsh environment. A similar research conducted by the World Maritime University [7] yielded a similar result which says "fatigue is the most common cause of maritime accidents as well as the seafarer's emotional well-being". An article published called 'Occupational Issues and Expectations of Turkish Deck Cadets (2016)' indicated that seafarers can suffer from "alienation from their family and social life, hence implies that restrictions on certain instances to use service equipment and/or communication lines are limited. In a related study conducted by Petrola and Isidro [8], an exploration on the idea of exhaustion and boredom via interviews made on actual seafarers led to their conclusion that these are also commonly exhibited.

On the opposite side, maritime students are aware that seafarer are unable to ask questions related to work for professional advancement (3.09); that seafarers feel underrated and have low self-esteem (2.99)." and lastly the seafarers often have poor relationships in workplace (2.86).

Table 3
Problems Encountered When Onboard

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Seafarers face homesickness and boredom.	3.68	Highly Aware	1
2. Seafarers feel underrated and have low self-esteem.	2.99	Aware	9
3. Seafarers encounter job securities.	3.30	Aware	5
4. Seafarers lack the ability to concentrate on the job due to disturbance.	3.18	Aware	6
5. There is inability to access and use service equipment such as telephone, computer system or the internet.	3.52	Highly Aware	3
6. Seafarers often face discrimination	3.15	Aware	7
7. Seafarers often face family issues	3.33	Aware	4
8. Seafarers feel tired and exhausted after long work	3.62	Highly Aware	2
9. Seafarers are unable to ask questions related to work for professional advancement	3.09	Aware	8
10. Seafarers often have poor relationships in workplace	2.86	Aware	10
Composite Mean	**3.26**	**Aware**	

Legend: 3.50 – 4.00 = Highly Aware; 2.50 – 3.49 = Aware; 1.50 – 2.49 = Less Aware; 1.00 – 1.49 = Not Aware

This result means having poor relationships in the workplace, self-esteem issues and lack of inquisitiveness are the least common ones.

In contrast, with the actual experience of seafarers by Manalo et.al [9] indicated that poor relationships are directly proportional to the workload, hence, higher productivity meant lesser social interactions. In terms of asking work-related questions for professional advancement, the result concluded that being a problem often for seafarers. Self-esteem was purported to signify that self-esteem is directly proportional to the quality of life.

Table 4
Difference of Responses on Safety Measures on Board
And Problems Encountered on Board When Grouped According to Profile

Program	F-value	p-value	Interpretation
Safety Measures on Board	2.295	0.022	Significant
Problems Encountered on Board	2.176	0.030	Significant
Strand			
Safety Measures on Board	1.267	0.283	Not Significant
Problems Encountered on Board	1.128	0.343	Not Significant

Legend: Significant at p-value < 0.05

Table 4 displays the responses on safety measures on board and problems encountered onboard when grouped according to profile. It was observed that there was a significant difference on safety measures onboard and problems encountered on board when grouped according to program since the obtained p-value of 0.022 and 0.030 was less than the alpha level of 0.05. This means that there was a significant difference observed and based from the test conducted, BSMT students have greater assessment on safety measures on board and problems encountered on board. This means that 1st year BSMT courses have contributed to enhance maritime students' awareness on safety measures and problems encountered on board vessel. According to Ching [10], the BSMT-respondents' overall performance is excellent. The experience and understanding of BSMT respondents in Operational Use of Radar/ARPA, Oceanography, and Meteorology, as well as Deck Watch keeping, is exemplary. Bridge equipment contributes to have a safe navigation during voyage and to prevent collision. Cabas and Tancinco [10] said on shipboard exercise, BSMT cadets are more conscious of themselves than BSMarE cadets. To perform tasks effectively while on shipboard training, BSMarE cadets require direct supervision and detailed orders from their ship officers.

While on shipboard training, BSMT and BSMarE cadets have good self-management, strong social knowledge, and positive behaviour that led to a positive work and social environment on board, while BSMT cadets are more cooperative in performing tasks together with superiors, subordinates, and fellow workers than BSMarE cadets.

Table 5
Proposed Plan of Action to Enhance the Engagement of Maritime Students to Online Learning

Key Results Area	Activity/Strategy	Persons Involved
Engagement in online communication	Give basic details and emphasize the intent of the upcoming conversation. Have an interesting and course-related topic for students to talk about.	LIMA Faculty
	Improve social and language skills. Have the courage to be involved in on-screen conversations.	Students
Scrutinization of noted information before the class to guarantee knowing the course material	Augment the merit of the students who actively participate in class.	LIMA Faculty
	Make reviewing notes before joining online discussion a habit.	Students
Reading learning materials	Provide accurate, creative, and interactive reading materials. Give limits for how long reading must take. Impart queries to assist reading.	LIMA Faculty
	Keep yourself up by applying active study practices.	Students
Acquaintance of students with each other	Activities that support peer discussions.	LIMA Faculty
	Participate in group discussions. Connect with the other students through social media platforms.	Students
Enjoyment in online learning experience of students with their peers and professors	Gamify the online learning involvement. Create various learning alternatives.	LIMA Faculty
	Actively connect with other students and instructors to be more engaged.	Students

CONCLUSION AND RECOMMENDATION

Based on the result, majority of the respondents are from BSMT and taken STEM strand. Most of them are highly aware in terms of safety measures onboard vessel and aware in terms of problems encountered onboard vessel. Program of the students had shown to affect the awareness of maritime students on the safety measures and problems encountered onboard. A plan of action was proposed to enhance the awareness of maritime students on safety measures and problems encountered onboard.

It was recommended that there must be an implementation of activities by the LIMA department which focus on developing the awareness of maritime students on safety measures and problems encountered onboard through events or programs. There should be a continuous improvement and innovation of LIMA's online simulators by their IT staff to further develop the awareness of maritime students with regards to safety

onboard vessel. The Maritime Department must provide seminars, webinars, or lectures about real life experiences of maritime professionals which talk about the problems those seafarers mostly encountered onboard vessel to develop the awareness of the maritime students to such problems. Lastly, the researchers would like to recommend further studies regarding this matter specifically the awareness of maritime students on safety measures and problems encountered onboard vessel for the future.

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