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Enhancing safety culture through maritime education and training : the Maritime Academy of Asia and the Pacific model

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WORLD MARITIME UNIVERSITY
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ENHANCING SAFETY CULTURE THROUGH MARITIME EDUCATION AND TRAINING: THE MARITIME ACADEMY OF ASIA AND THE PACIFIC MODEL

By

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A dissertation submitted to the World Maritime University in partial fulfilment of the requirements for the award of the degree of

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Declaration

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

(Signature): ....

(Date): ....**10SEPT 2022**...

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Supervisor's affiliation: Professor, Head of Maritime Safety
                               and Environmental Administration

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Abstract

Title of Dissertation: ENHANCING SAFETY CULTURE THROUGH MARITIME
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Shipping plays a major role in moving 90% of world trade. The IMO has been campaigning for safety culture since the early 2000s, but accidents still happen and maritime casualties continue to be a looming concern for the maritime industry by-and-large.

This qualitative study, which was done through a series of interviews, aims to explore how the MAAP model of maritime education and training enhances the alumni seafarers' attitude towards safety and therefore contribute to the safety culture of their organization. Due to the high-risk environment seafarers encounter when at sea, data shows that a profession in seafaring is both physically and mentally demanding. Onboard ship, accidents and incidents are thought to be the result of human error, which is a result of factors including fatigue, under manning, and commercial pressure from the company that affects human performance. However, safety is compromised because of certain traits and attitude of the human element who hesitate to speak up and be assertive when it comes to safety.

According to the research, education and training can improve this want-to attitude toward safety by addressing soft skills in professionalism, knowledge and skills in competency, and English for communication, as to what the MAAP's education and training program has administered.

KEYWORDS: Safety culture, Philippines, Maritime education and training, Human element, psychological safety

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List of Abbreviations

AMOSUP   Associated Marine Officers and Seamen's Union of the Philippines

CBT   Computer Based Training

CHED   Commission on Higher Education

COC   Certificate of Competency

CR   Company Representative

DNV   Det Norske Veritas

EMSA   European Maritime Safety Agency

IAMU   International Association of Maritime Universities

IMEC   International Maritime Employers' Council

IMMAJ   International Mariners Management Association of Japan

IMO   International Maritime Organization

IOP   Indoctrination and Orientation Period

ISTP   Integrated Simulator Training Program

MAAP   Maritime Academy of Asia and the Pacific

MARINA   Maritime Industry Authority

MDS   Midshipman Development System

MET   Maritime Education and Training

METI   Maritime Education and Training Institution

MHEI   Maritime Higher Education Institutions

MLC   Maritime Labour Convention

OBT   On-Board Training

OOW   Officer Of the Watch

PEME   Pre-Employment Medical Exam

PSG   Policies, Standards, Guidelines

REC   Research Ethic Committee

RMI   Republic of Marshall Islands

S   Seafarer

SMCP   Standard Marine Communication Phrases

SMS	Safety Management System
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
STO	Shipboard Training Officer
UN	United Nations
WMU	World Maritime University

Chapter 1: Introduction

1.1 Background

Shipping plays a major role in moving 90% of world trade (IMO, 2015; OECD, n.d.; ICS, n.d.) which exemplifies its importance to the global economy, thus, safety in shipping is paramount. It is however a known fact that maritime casualties continue to be a looming concern for the maritime industry by-and-large. During the early 90s, the global fleet was losing more than 200 vessels per year. This has dropped to around 50 to 75 a year over the past four years, a statistic made more impressive by the fact that there are an estimated one and a half times more ships compared to thirty years ago. In 2021, the industry maintained its long-term favourable safety trend, with 54 reported losses as opposed to 65 the year before. Annual shipping losses have declined by more than fifty percent over the past decade, reflecting the increased focus on safety measures over time, such as regulations, improved ship design and technology, and risk management advances. While the number of total losses declined over the past year, the number of reported shipping casualties or incidents increased (AGCS, 2022). Republic of Marshall Islands (RMI) published a similar report showing like figures on their 2020 annual report presenting 726 casualties, incidents, and occurrences reported, 80 less than reported the previous year, and total reports of marine casualties that have shown a steady decline over the past five years. Despite the fluctuation of incidents over the same period, it was still evident in 2020 that there was a reduction of incidents. This downward trend in marine casualties is largely attributed to the reduction in severity of incidents occurring across their fleet. This is a result vessel crew members receiving better training and being more aware of safety issues, as well as the owners and managers of the RMI fleet's commitment to environmental conservation and safety. (RMI, 2020). The number showing the decrease of casualties and increase in reporting may be seen positively for the industry's

acceptance to a culture of safety that encourages a proactive approach to see accidents and incidents as opportunities for learning, and not to finger pointing.

But however positive it may seem, casualties and accidents are still an issue as it is, and needs to be addressed, and regardless of the numbers, as long as accidents happen, may it be 1 or 100, an accident is still an accident. And it affects the reputation of the shipping industry as a whole.

Arguably, the cause of these accidents is usually directed to the human element, which according to studies account to 80% of accidents and the remaining 20% percent to technical/mechanical errors. This 20% however, is still connected to human error because the human element and the sociotechnical system of modern ships are practically linked with each other. Other studies indicate that an average of 82% of various marine casualties such as tanker accidents, towing vessel groundings, collisions, allisions, and fire and explosions are attributed to human error (Apostoles-Mates, 2016; Rothblum, 2000). The study further presents that, "The maritime system is a people system, and human errors figure prominently in casualty situations". Thus, in an effort to reduce marine casualties, classifying the human error that caused it, should be focused on. These numbers are however argued, as the statistics and the related literatures in numerous studies prove otherwise. This is primarily because of the taxonomies being used for accident investigations when concluding, that it is indeed the human element as the root cause, and that the common attitude during investigations, in order to make a quick closure of investigations is to assume the blame to the human element (Wróbel, 2021).

It may be recalled that about two decades ago, the International Maritime Organization (IMO) marked the beginning of a campaign towards a safety culture (Veiga, 2002; IMO, 2003). During the 2002 world maritime day, then former Secretary General William O'Neill called to attention the significant decrease of maritime casualties resulting from enhanced standards, and more stringent regulatory mechanisms, ship design, construction, and operational characteristics, as well as the introduction of modern navigational systems that were the principal means of achieving this goal. It is however

highlighted that the protagonist of accidents at sea, the human element, must be given additional attention and was emphasized in the theme "Safer Shipping demands a Safety Culture". It is undoubtedly for the industry as a whole, to create a "want-to" attitude toward a safety culture, starting with the company, and senior management's dedication streamlined down to the shipborne operators. Safety culture has long been at the epicenter of discussions in the IMO up to date, and being at the forefront of addressing this issue as the specialized agency of the UN.

Over the years, studies have been conducted to really address this issue of safety, such as, applying novel technology at an unimaginable pace and adopting numerous IMO instruments to supplement the human element in the hopes that casualties, incidents and accidents will be prevented or mitigated. This altogether with the number of model courses that the IMO developed to address the human element in shipping.

Safety in general, has, and always will be, a common and widely used word in the industry. Therefore, the question is, why do accidents keep on happening? Can it be that the maturity of the shipping industry towards a culture of safety can be seen as a wall that needs to be hurdled and needs to be soon?

This research would like to discern that rather than developing additional trainings, strengthening and enhancing maritime education and training, and utilizing it, can make an impact for the maritime industry as a whole.

"A good education is a foundation for a better future."
-Elizabeth Warren

Education should be considered as a solid foundation for building a safety culture in the industry. It may be analogous to a child being taught to walk for the first time. By the same token, the human element in shipping must be properly guided and developed from a seafarers' time in school and is continuously followed through, to their career in maritime.

1.2 The Maritime Academy of Asia and the Pacific (MAAP)

1.2.1 History

Seafaring is a very lucrative profession and is very attractive to Filipinos because of the opportunity to travel the world, and most definitely because of the high salary that can benefit and alleviate the financial burdens of their family. Filipino Seafarers have been plying the international maritime fleet for decades, which advocated the Associated Marine Officers and Seamen's Union of the Philippines' (AMOSUP) late founder and Chairman, Capt. Gregorio S. Oca to upgrade the status of Filipino seafarers that during those times had more ratings than officers. He had the idea to establish a maritime college dedicated to producing quality maritime officers for the international maritime fleet. Hence, the establishment of the Maritime Academy of Asia and the Pacific (MAAP). It is the Philippines' leading institution for maritime education and training, founded in 1998. Is a non-stock, non-profit maritime higher education institution (MHEI), owned, developed, and operated by AMOSUP, the Academy being its training and education arm (Santos, 2022, Figure 1).

Figure 1

AMOSUP Training and Education Program
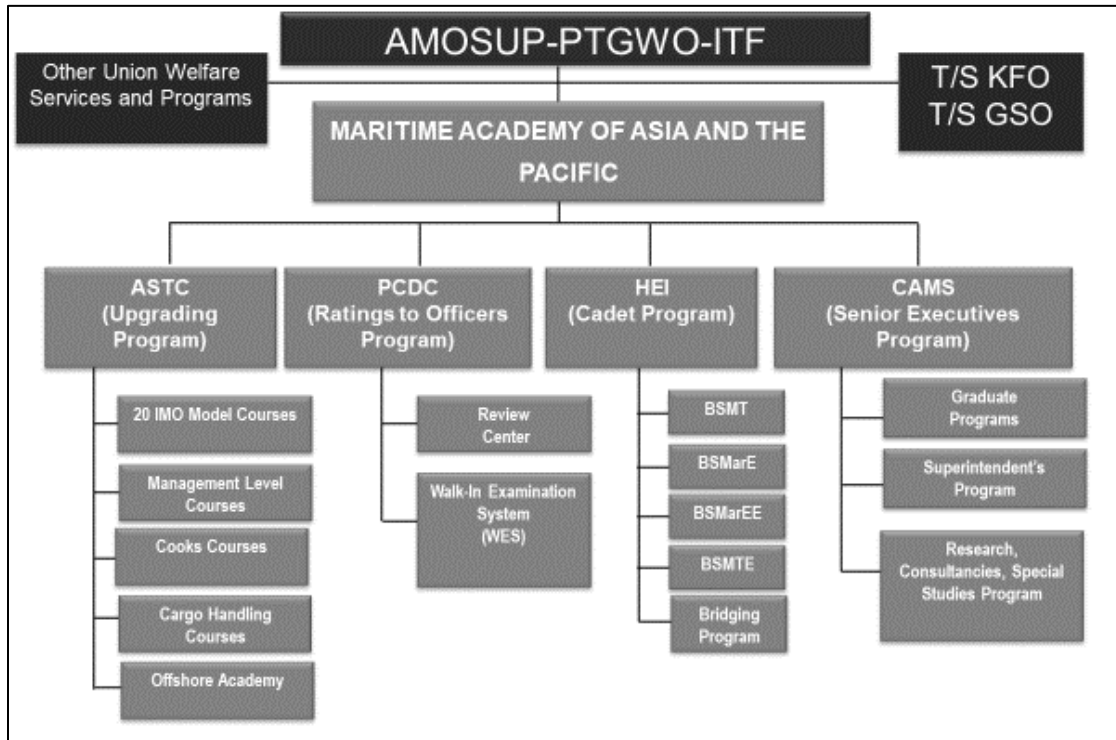
Note. Figure showing the organogram of AMOSUP, with MAAP as its training and education arm. From MAAP Institutional briefing by E.M.R. Santos, 2022 [Powerpoint Slide 5].

MAAP is a member of the International Association of Maritime Universities (IAMU) which is a prestigious community of the top maritime universities internationally that provides quality maritime education and training of seafarers for global shipping (IAMU, n.d.). In 2015, MAAP was awarded the top maritime university by finduniversities.com, based on the criteria of passing rate in licensure exams as compared with other maritime universities in the country. It also garnered 2nd place in the 1st Philippine Higher Education Internationalization Award held in 2021, these are among other awards and recognition received both locally and internationally. The Academy provides full

scholarship to qualified individuals, with free tuition, meals, and accommodation for students who undergo a semi-regimented training, designed to develop graduates who shall possess the necessary character, knowledge, and skills as seafarers, and is required to stay within the campus during the duration of their 4 years stay in the Academy undergoing training and given regular breaks.

1.2.2 Admission Process

MAAP has 54 testing centers across schools nationwide, in major locations within the archipelago to accommodate even the far-reaching areas to encourage, and give opportunities for those in less privileged areas to earn a scholarship. The admission process is divided into several parts. Starting with a battery of written tests on abstract and spatial reasoning, mechanical ability test, English, math (algebra, and trigonometry), psychological, and aptitude test. From this series of exams, the top 800 are selected to progress to the next step of the admission which is the panel interview. The number of applicants is further reduced to the next process which is the medical exam, similar to that of the Pre-employment Medical Exam (PEME) conducted to seafarers. Finally, the MAAP President coordinates directly with the shipping company or their representatives (i.e., IMEC, IMMA-J, etc.) to confirm the final number of how many cadets would they be taking for that particular school year, which is about the top 4% of the applicants. The selected cadets will then be instructed to report to MAAP for their Academic Ramp which is a 2-month refresher program for math and English, with the aim of levelling the playing field academically before the start of regular academic classes, altogether with the Indoctrination and Orientation Period (IOP) which is introducing the new cadets to Academy life.

Figure 2

Admissions statistics

Class	Applicants	Examined	Received for IOP	Selection Percentage
2007	5,010	2,307	154	3%
2008	5,300	2,552	157	3%
2009	5,700	2,729	147	2%
2010	6,200	3,752	221	3%
2011	7,014	4,016	252	3%
2012	7,870	4,698	263	3%
2013	8,611	6,198	497	6%
2014	10,000	9,547	523	5%
2015	10,283	9,888	503	5%
2016	12,000	11,283	492	4%
2017	12,938	12,441	423	3.4%
2018	10,432	10,044	389	3.9%
2019	9,288	8,646	465	5.4%
2020	4,473	3,218	446	13.9%
2021	3,633	2,259	415	18.37%
2022	10,963	10,671	446	4.17%
2023	13,310	13,310	490	3.68%
2024	12,386	12,386	432	3.48%

Note. Number of aspiring applicants in MAAP who took the entrance exam from the 54 testing centers nationwide. From MAAP Institutional briefing by E.M.R. Santos, 2022 [Powerpoint Slide 17].

1.2.3 Academic Program

MAAP offers a 4 year academic program for Bachelor of Science in Marine Transportation, Bachelor of Science in Marine Engineering, Bachelor of Science in Marine Engineering and Electrotechnology, and Bachelor of Science in Marine Transportation and Engineering (as per request of sponsor) aligned with the requirements of the Commission on Higher Education (CHED) under the Joint CHED-MARINA

Memorandum Circular 01 series of 2019 that sets the Policies, Standards and Guidelines (PSG) of the aforementioned maritime programs (MARINA, 2019). To be able to confer with a baccalaureate degree on any of the above programs, students are to accomplish 3 years of academics and 1 year dedicated onboard training (OBT) (as per section 22 of the said circular) with the ship assigned by their sponsor.

The MAAP program of education's peculiarity to satisfy its clientele's requirement, is its capability to deliver 2 different academic schemes, and that the number of units offered to students goes above the national standard, this is because of additional technical competences inserted with the curriculum. On the 2-1-1 Scheme, students undergo 2 years academics, 1-year OBT, and their last year back at the Academy. It is said to be the "gold standard" program as the school may reinforce the student's shortcomings during his sea phase, upon the cadets' return to the Academy. This is usually applied with IMEC sponsored cadets. While everyone else sponsored by other companies such as IMMA-J, Stolt-Nielsen, and DIS are on the 3-1 scheme, that is 3 years to complete their academic requirements, and their OBT to be conducted on the cadets' last year of enrollment. This was conceptualized because of the difficulty in bringing cadets home on time for the next school year's enrollment after their contract ends.

The 365-day shipboard training is to comply with the STCW requirement for the cadets to be eligible for the licensure exam which they take immediately after graduation. During either their second or third year in the academy, depending on which academic scheme they follow, cadets are to report with their respective sponsoring shipping company for their OBT. It is during this stage that the cadets will be able to apply what they have learned from the classroom to actual shipboard operations. Usually, cadets sign a contract for a period of 6-9 months on board ships. But some cadets extend their contract because of being unable to sign-off, or others who are sent home early due to the convenience of the port. With this regard, lacking shipboard training days are completed onboard the Academy's two training ship, the T/S Kapitan Felix Oca, and the T/S Kapitan Gregorio Oca. These dedicated training ships are not only used to complete their remaining OBT

requirements, but also for students on their first-year in the Academy to conduct familiarization training and on their second year goes for a, 1 to 2 weeks cruise across domestic waters to complement classroom instructions with a structured shipboard training program with shipboard training officers (STO) onboard with them.

1.2.4 Career Development

MAAP is a maritime officer producing school, hence, upon finishing in MAAP, all graduates that are required to take the licensure exam as required by national legislation as administered by the Maritime Industry Authority (MARINA), the Maritime Administration according to the STCW, as a requirement to be issued a Certificate of Competency (COC) for the capacity that an officer can serve on a sea-going vessel. The results from the licensure exam have been the basis for MAAP to be recognized as the top performing maritime school after garnering the highest results of passers in the MARINA licensure exam for both Officer-in-charge of Deck and Engine. During this time, graduates have reported to their respective sponsoring company for employment. Graduates have a 5-year service period to work as seafarers with their respective sponsoring company, this is because of the shipping company that funded for their education. After which, some graduates continue to pursue their career as seafarers, others opt employment with maritime administration, as shipping representatives ashore, ship superintendents, or others in the Academe.

1.3 Aims and Objectives

This research acknowledges the gap that exists in the embodiment of safety culture on board ships. This study aims to explore the MAAP model of training and education, and how it contributes to enhancing the safety culture of seafarers on board ships. It should be noted that shipping companies play an integral part in molding the mindset and culture

of seafarers through their organizations. This study hypothesizes that the early stages of training seafarers (in their cadet years), is taking a significant step to enhancing the safety culture of seafarers. In a figurative sense, it is like putting up the foundations and laying bricks to build a house.

To achieve the research aim, the study progresses according to the following objectives:

1. To explore the key elements that makes the MAAP model of training and education unique from other colleges or universities, with regards to enhancing safety culture on board vessels (to promote a "want-to" attitude towards a safety culture), and enhance the behavior-based safety aspects of its cadets and alumni in order to contribute to the safety culture of their organization; and

2. To explore the link between professionalism and competence as important factors embedded in the MAAP cadet program of maritime education and training that can enhance behavior-based safety, and contribute to a safety culture, until the time they become full pledged employees/seafarers of their respective shipping company.

To have further understanding of the above objectives, the study seeks to answer the following two research questions:

Q1 What aspects in the MAAP methodology of training and education does alumni seafarers achieve that help improve the safety culture of their company or organization?

Q2 What traits do MAAP cadets and graduates develop on their attitude towards a safety culture as compared to other seafarers in the region?

Chapter 2: Review of Literature

Seafarers will be at the epicentre of world trade being on the frontline of operating ships, making shipping as the lifeblood of the global economy (OECD, n.d.; ICS, n.d.) therefore the idea of lifelong learning will need to be adopted in order to prepare ship operators for the fast change that defines the twenty-first century. The international regulatory regime for the education and training of seafarers must adapt to the continuously changing conditions on shipping that demand increasing sustainability of efficient operations, safety, security, and speed. Needing it to be proactive, as well as dynamic and adaptive, in order to lead and/or act correctly in this situation. Therefore, the cruciality for everyone to give attention to issues that affect seafarer education and training, including how it is conducted, resourced, verified, and improved (Manuel & Baumler, 2020).

According to Anteza (1998), the new generation of youth entering the profession must receive essential maritime education and training so that students gain an awareness of safety and it must evolve as they take on more responsibility. The study of casualties and their causes, as well as understanding the risks associated with vessel operation, will enable an individual to develop their behaviours, values, and attitudes. Therefore, new officers will learn safety in terms of consciousness and awareness at an earlier stage of their career.

The human element in safety culture is key towards achieving its goal. Even though it is frequently discussed, the human element has been disregarded on a significant level. Training and discussions about the human element and its role in the entire maritime industry does not employ a comprehensive approach to behavioural sciences. Therefore, Maritime Education and Training (MET) plays a part in developing future seafarers. Seafarers will be able to recognize human conditions and take appropriate action when necessary if they are educated and can gain requisite abilities through training. If a situation seems unclear, having a questioning attitude would allow you to "challenge"

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your decisions or look for more information. A stringent and sensible strategy would also involve assessing the situation, in which case the elements of perception would be highlighted, as well as communication in all of its forms (Graham, 2008).

In order to ensure that future seafarers are as competent and responsible as their certificates present, education for necessary attitudes and essential behavioural adjustment has a place in the system. To maximize the knowledge and skills necessary for modern shipping, seafarers must possess the correct attitudes. In addition to those required by the STCW, emphasis on cognitive and psychomotor skills can be supplemented with psychological goals. The purpose of Maritime Education and Training Institutions (METI) is not only to educate students on the standards and skills required, but also help them appreciate the underlying challenges, and become committed to the underlying values of regulations (Manuel, 2005).

The Manila Amendments to the STCW requires mandatory leadership training for seafarers in both the management and operational level. According to Sanjeev Vakil (2019), it hardly provides any guidelines on how METIs should train seafarers to develop their teamwork and leadership skills. Most institutions use a variety of techniques, such as lectures, team sports, organized group activities, and roleplaying. Further, it is also clear that METIs can further improve the efficiency of leadership and teamwork training. Mori (2014) however, states that although leadership skills can be acquired through education and training, real time experience is needed to develop leadership, which has also been supported by other literature in his study. Furthermore, MET scholars believe that the present leadership development strategies fall short of fulfilling their stated objectives, and that it can vary from each region. Therefore, it is suggested that leadership training be customized for each region and setting, and should take long-term personal growth into account.

As a summary of this chapter, it can be said that the IMO through the STCW has included leadership and soft skills in its list of competences and that improving safety culture through maritime education and training may be achieved by emphasizing soft skills and

leadership development using a variety of academic strategies. The findings and comments on the following chapter of this qualitative method of research will be presented, and the study will then be concluded with the author's recommendations.

Chapter 3: Research Methodology

3.1 Introduction

This chapter details the research methodology and the data collection method that was used in the process. It is followed by the criteria for selecting participants and the procedure to reaching out to the participants. Further followed by the data collection instrument and the determination of the number of participants. The data processing and analysis is then explained, followed by the researcher's justification on the validity, and limitations of the study. The chapter ends with the ethical considerations with regards to this research.

Figure 3

Conceptual framework of the study
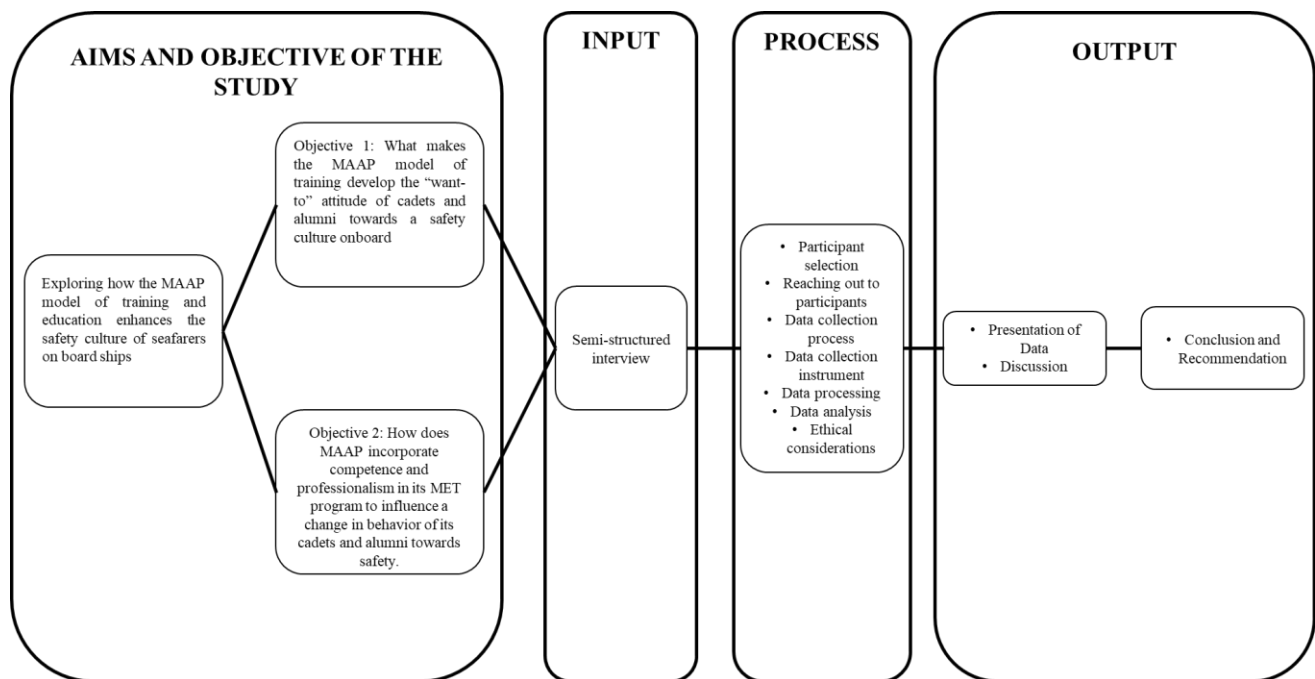
3.2 Research Method and its appropriateness

Qualitative research *"refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things"* (Lune & Berg, 2017). According to Sofaer (1999), qualitative research methods can be used to provide comprehensive descriptions of complicated systems, follow unique or unexpected events, highlight the perception and interpretation of events by individuals with highly diversified stakes and roles, offering voice to individuals who are previously overlooked, while undertaking early explorations to construct theories, generate and test hypotheses, and move toward answers. Hence for this research a qualitative method was chosen by the proponent given the investigative nature of the study.

3.3 Data collection method: Semi-structured interviews

The researcher conducted an in-depth semi-structured interview with key participants composed of 19 individuals selected for their first-hand knowledge about the MAAP education and training. A semi-structured interview is substantially organized to address particular aspects of the research question whilst allowing participants to contribute new perspectives on the study's topic (Galleta, 2013). Semi-structured interviewing techniques are planned in advance. In order for the researchers to gain a thorough understanding of the subject of interest, observation, informal interviews, and unstructured interviews are usually undertaken before it. Integrated open-ended questions offer an opportunity to uncover fresh perspectives on, and understandings, of the subject at hand. (Cohen & Crabtree, 2006). For this research the use of semi-structure interview was found most appropriate.

3.4 Participant selection

Participants selected for the research are composed of company representatives, active seafarers, and cadets (who have completed their 12 months onboard training, which is required by the STCW). All participants with the exception of the 6 cadets are Alumni of MAAP. Their first-hand experience of the education and training received in MAAP until the moment they climbed up the ladder to becoming full pledged seafarers and company representatives makes them ideal respondents for this research.

3.5 Reaching out to participants

Some of the respondents are personal contacts of the researcher who was able to communicate with them directly by email, and social media messaging applications. For other respondents, the researcher requested the assistance of the MAAP Alumni Office who then forwarded the email to about 50 graduates. After a succession of correspondence. The researcher was able to finalize and interview 19 participants. The number of participants interviewed in this research was found sufficient, and further collection of data was discontinued, as adequate information was already achieved to the point of "theoretical saturation" (Morse, 1995; Aldiabat & Le Navenec, 2018; Saunders et al., 2018; Hennink & Kaiser, 2021), and that during the procedure, participants' responses tended to repeat themselves and be similar.

3.6 Data collection process: Semi-structured interviews

All interviews conducted with the participants in this research are conducted via online, utilizing the Zoom platform for video conferencing. The interview process spanned for a period of 2 weeks. All participants are from the Philippines, so in order to avoid any inconvenience with the respondents, the researcher had to conduct interviews in the early

morning to adjust with local time in the Philippines. Interviews conducted are mostly in English, but in order for the participants to express their thoughts freely, the use of Tagalog, which is the Philippine local dialect is also used. Some interview questions that needed clarification and expounding were also translated in Tagalog for better comprehension. A summarized description of participants sociodemographic are presented on Chapter 4.2. The semi-structured interview questionnaire is divided into 3 sections. Section 1 pertains to the sociodemographic data of the participant. Section 2 covers general questions which is the same for all participants. Section 3.1 are questions intended for seafarers, and section 3.2 are for shipping company representatives. A sample of the semi-structured interview questionnaire is provided in Appendix 2.

3.7 Data collection instrument

Given that the interviews were conducted online using the Zoom platform. Audio and video recordings were done with the record feature of the program. All interview recordings are stored in the computer drive and backed up on an external storage disk as contingency if ever the main storage drive gets corrupted. Apart from this, audio recordings were also taken during the interview to back up the conversations in case of unforeseen circumstances that can happen during the interviews, as well as jotting of notes. Answers by participants during an interview are of high value hence, the initial idea that is expressed must be captured.

3.8 Data Processing

The processing of collected data was done manually and required a significant amount of effort (refer to Appendix 3). Recorded interviews were manually transcribed, some conversations need translation, as local dialect (Tagalog) was also used by participants to further express their views. By average, an interview runs at around 40 minutes which

requires about 4-8 hours for transcribing each interview. A total of 19 interviews were transcribed for this research.

3.9 Data Analysis

Data analysis in qualitative research is *"defined as the process of systematically searching and arranging the interview transcripts, manuscript, observation notes, or other non-textual materials that the researcher accumulates to increase the understanding of the phenomenon"* (Wong, 2008). Reading a substantial number of transcripts in search of patterns or distinctions, categorizing the results, and finally identifying and developing themes are all steps in the analysis of qualitative data. For this research, a labour-intensive manual coding process was utilized. The coding process was done repeatedly until significant patterns were revealed. The collected data from transcripts were subsequently cut and sorted to make themes, which are then analysed and discussed on Chapter 5 of this research.

3.10 Ethical considerations

Informed consent (Lune & Berg, 2017) was solicited from the participants prior to their agreement to participate in the study. Participants were informed of the nature of the study and sufficient background information was given in a timely manner. Further, the researcher made it clear that participation was voluntary, and that respondents could decide to end the interview at any time as deemed necessary.

The researcher reassured the participants that the interview was confidential and that the information collected is protected. The participants were also informed that all collected data will be deleted after the research and conferment of the academic degree. To prevent participants from suffering harm or other consequences, their identities are kept confidential. Therefore, it is appropriate that references to individuals or groups made by

participants throughout the interview be made anonymous, as well as the usage of pseudonyms to disguise participant identities.

Prior the start of the interview that requires the involvement of human participants as per World Maritime University guidelines, certain requirements need approval by the Research Ethic Committee (REC). The researcher submitted an application composed of (1) the research proposal, (2) WMU REC Protocol form, (3) a sample consent form, that includes information sheet, and (4) the semi-structured interview questionnaire. Data collection process only commenced upon confirmation of approval from the REC (refer to Appendix 4).

3.11 Limitations of the study

The researcher is an Alumni of MAAP and currently employed with the organization. To address any issue of confirmation bias, or the process of exploring and collecting evidence to support one's belief (Glick, 2017). The researcher made certain to avoid interfering or providing leading questions or hints to the participants. Questions towards the participants are directly read from the approved interview questionnaires, and follow up questions are derivative from respondents' initial answers.

Chapter 4: Presentation of Data

4.1 Introduction

This chapter is used to present the data gathered from the respondents, along with the sociodemographic information of the participants.

4.2 Sociodemographic data of the participants

4.3 Respondents' view on why incidents and accidents persist to happen onboard

4.4 Respondents' perception of a safety culture onboard

4.5 Respondents on means to address issue of safety culture

4.6 Respondents on the role of MET in enhancing safety culture onboard

4.7 Respondents' perception on Philippine MET

4.8 Respondents on the MAAP way of training and education

4.2 Sociodemographic data of participants

The nineteen (19) respondents are a composition of four (4) individuals who are working in different positions as company representatives and fifteen (15) working as seafarers serving on cargo vessels on the international trade. All respondents are serving their companies on various capacities.

All participants involved in this research are from the Philippines. Four (4) respondents currently working with shipping companies are former seafarers (1) Master, (1) 2nd Engr, and (2) 2nd/Officers who took a break in sailing and tried to venture with a job ashore.

The fifteen (15) seafarers who responded on this research are all active seafarers, whose sea service experience varies to an average of 7.3 years. The respondents come from a diversity of ranks, from deck and engine officers to deck and engine cadets.

Thirteen (13) of the respondents are alumni of MAAP, while the six (6) cadets have completed their 12 months STCW required on-board training and currently undergoing their last year of academic studies back in the academy to be eligible for graduation.

To keep anonymity of participants in the presentation of data, pseudonyms are used as follows:

CR – refers to respondent who is a Company Representative

S – refers to respondent who is a Seafarer

The detailed list of the participants is attached in Appendix 1.

4.3 Respondents' view on why incidents and accidents persist to happen onboard

Many of the respondents view human error as a cause of accidents and incidents on board ships, which is an effect of factors brought by fatigue that affects human performance because of lack of manning, and commercial pressure from the company. According to S7:

> *This happens during ship operations, but we cannot sometimes disagree because we are short of workforce […] for example in Singapore, I was awake and working for almost 48 hours because of continuous bunkering operations while receiving 4 months of provision with an ongoing inspection and there is an emergency maintenance in the main engine exhaust valve, all of the crew are occupied with work.*

This was similar to the sentiments shown towards the lack of personnel on board ships as shared by S9 who claims:

> *Fatigue is a common problem that can cause harm or hazard to the crew […] it is very hard to perform duties especially if you are shorthanded.*

S1 attests to such, saying, *"there are still times when we are pressured to complete a task, and because of this, the procedures are neglected"*.

Some respondents view technology as a contributory factor to accidents happening onboard. As what S5 laments, *"I believe what's contributing to accidents up to this day is the continuous improvement of technology on board ships, and in the maritime industry. And some of the crew are having trouble catching up and learning this new technology"*.

> *For new accidents that occur because of new technology [...] as long as we are advancing or improving with technology, which is good by the way, however accidents are deemed to happen...because that is something new for the seafarers to take time to learn. (S5)*

CR1 sees technology on a different perspective, perceiving that the combination of an individual's behaviour, coupled with technology being a distraction in the workplace, can pose serious risks. This is pertaining to reports in their company about watchkeepers browsing social media in their mobile phones while on watch, stating that:

> *One of the reasons why there are a lot who fail in safety cannot be blamed on lack of competence, but rather they do not have the correct behaviour in seafaring, that is what is mostly missed in the new generation of seafarers. There are a lot of distractions in technology that can compromise an individual in the workplace, such as social media and the likes. The worse is they do this on duty.*

Moreover, recognition of accidents may be caused by shortcomings of the human element and attributed to negligence of regulations and procedures, lack of experience, and

complacency resulting from their long tenure on board, where according to s2, *"a seafarer has been on board the ship for so many months of service, and he already gets tired of the routine, in those times they become complacent"*. S2 goes on to say *"there are times if it is not the individual, it is their colleagues or other people who cause it, and you are just collateral damage*".

On a similar note, S14 attests: *"I think accidents usually happen when the crew are almost on their way home. When they are near to finishing their contract, they become too relaxed and complacent"*.

Undeniably, fatigue, caused predominantly by rest deprivation and long hours of work on ships cannot be side-lined as it affects seafarers, hence, the development of the Maritime Labour Convention (MLC), 2006 which regulates the number of hours for work and rest of seafarers. But despite the good intention of the instrument to address the issue of fatigue, adjustment of work and rest hours are still persisting onboard. As CR1 stated:

"Apparently, it has become an attitude problem onboard. That instead of following regulations, they do it the easier way. They try to circumvent the regulations". Pertaining to shipboard personnel, CR1 goes on to say*, "so as an officer onboard ship we have different means to validate the records being submitted"*.

"we tell the crew not to hide anything. If a violation is presented on the rest hours, we are mandated to give compensatory rest. However, if it is a recurring case…the company would then send an extra hand onboard ship", according to CR1, expressing that their company is dead set on addressing the issue.

One respondent admits to this practice onboard ship, but cannot do anything but to submit to commercial pressure from the owners and charterers, and the regulatory bodies inspecting the ship:

You only have the basic minimum (referring to crew). In a span of 24 hours, you have like 5-7 holds to clean [...] it's almost an impossible job without violating the MLC. We know that the rest hours onboard are doctored. They are being revised. That's the sad reality. You can't fulfil the demand of the business if you don't overshoot the requirement of the MLC. (CR2)

Other respondents' statements are similar in thought, saying:

I felt like this is just for documentation, and like hypocrisy. Because as per experience, rest hour planning does not reflect what the crew really do [...] that is the sad reality and without the company's enforcement. (S4)

Everyone is aware of the MLC, however, if there is tremendous work, in order not to violate the convention, the crew adjusts the work and rest hours to make it look ok and carry over the hours to another day. Actually, it is the management that encourages this adjustment practices[...] for the crew they want the work hours to be reflected, because that will show overtime work, therefore they can receive overtime pay (S6)

4.4 Respondents' perception of a safety culture onboard

True enough that safety culture is a holistic approach and not focused on one factor alone. Safety culture works from top to bottom, from the top management of the company to the crew on ships, or to say, a commitment from the whole safety ecosystem.

Most of the respondents agree that certain company initiatives are developed for improving safety culture but is not enough to transition from a reactive safety culture to a proactive one.

CR1 attests of their company doing it continuously, stating that, *"Up to present, the company keeps on developing programs that addresses safety and promotes safety culture on board ships." -CR1*

Some of the respondents pointed out the company's commitment to a safety culture through their SMS which is implemented on the ship.

> *They have outlined policies, goals and plans for the future. This ensures the continued growth and success of safety culture. They also assess every crew onboard ship on their attitude toward safety and inform them their strength and weakness. (S9)*

> *Our company was very strict when it comes to safety […] The company also provides complete PPE, supplies for every job onboard, and they are not letting any crew start a job with lacking PPE as per Safety matrix. (S4)*

> *We have numerous meetings on board […] These are steps being taken to mitigate accidents on board ships. Unlike before on my first ship back in 2008, there was no such thing as these meetings. They only let us work and work, however you do it. (S6)*

CR2 admittingly states that the company needs to invest, because it requires costs to achieve a positive safety culture. "*When we talk about safety, it's not just a culture, it's a business. Safety is a very expensive business*".

Similarly, S2 claims that training provided by the company is included in the budget and paid for.

> *They conduct regular training to enhance safety culture on board their ships. what is good with it, all expenses are part of the budget […] so they are motivated to take part, unlike companies that have a tight budget.* (S2)

Most respondents said that their companies' SMS initiate programs onboard their ships to enhance safety culture such as safety meetings, toolbox talks, workplace risk assessments and computer-based trainings (CBT).

According to S2, *"Similar to all companies, we have this regular safety meetings, drills, then there is a constant reminder through circulars on incidents or accidents from other ships being discussed to us during the meetings"*. S2 also views such programs as the company's way to protect its business. *"Because it is required by the company to protect their business so they continuously educate us."*

> *We are required to take CBT's twice every month which reminds us the things we need to do in case of different emergencies.* (S7)

The company of S1 even initiated a feedback system from the crew anonymously to encourage reporting without fear of repercussion from senior officers who do not take action of reports.

> *We also have a whistle blower program […] when a crew, after reporting to the proper channels […] has not been heard, or his report not been acted upon, then he can escalate his report to the whistle blower system. He can send his report anonymously.* (S1)

4.5 Respondents' on means to address issue of safety culture

There are several ways to assess the safety culture on a ship, which includes the crew using appropriate PPE, upkeep of good housekeeping, placement of safety nets on gangways, and a long list of tasks done in ship operations. More importantly though, it can be gauged by the crew's involvement in safety and toolbox meetings. It may already be a sign of a weak safety culture on board the ship if the crew doesn't engage much or seems uninterested in such meetings.

According to CR1, the company tries its best to reach out to the crew in order to hurdle barriers to communication: *"On our company, we have a strict implementation of a "no blame culture". That is one of the advocacies of [name of the company]. That anyone can voice out, that anyone can state their opinion".*

CR1 continues to state, one element that restricts Filipino seafarers to speak up is because they fear humiliation because of the poor use of the English language. Pertaining to why Filipinos are submissive and in speaking up when it comes to safety.

> *Some Filipinos are not confident with their English-speaking skills; they are afraid to get embarrassed if they do not say the right thing that is on their mind.* (CR1)

For a positive culture to be effective on-board ships, allowing to speak up and a want-to-attitude coming from personnel involved should be evident. As S8 comments: *"Being assertive helps in contributing to the enhancement of the safety culture onboard".*

Furthermore, S8 added, *"There is no wrong in speaking up your views as long as it is the proper thing. Speaking for the truth without having that fear of suffering consequences has a very good impact on the company's safety culture"*.

When S13 was asked on safety culture on board their ship, he narrated his experience where despite it was his first time boarding the ship, he was immediately instructed to join the mooring operations which he finds risky, however he cannot complain. This shows a negative safety culture on-board. Sadly, even the officers seem to adapt a negative culture on the ship suggesting an absence of safety culture.

> *As per experience, for example, in mooring operations, safety is a priority […] just like you come onboard for your first time with little or no knowledge and you're instructed by the Chief Officer and tells you to join the operation. From that experience, my safety that time was compromised.* (S13)

According to one of the respondents, for an effective safety culture to work on the ship, a holistic involvement of the safety ecosystem should exist from the shipowner to the lowest rank on-board. As S4 comments, *"All personnel have to contribute to the over-all safety awareness onboard, or as they call it, "Inclusion"*.

4.6 Respondents on the role of MET in enhancing safety culture onboard

Most of the respondents consider assertiveness of the crew to be a prime component to enhancing a positive safety culture on board.

> *Being assertive helps in contributing to the enhancement of the safety culture onboard. (S8)*

There are many nice ways of telling the other person of his mistake. This can be developed through trainings on proper communication and assertiveness. Trainings will teach and help you to communicate effectively. (CR4)

CR3 gives emphasis that the availability of standard and suitable facilities to include training ships can develop a seafarers safety behaviour and therefore contribute to a safety culture onboard.

Facilities and availability of training ship with structured training program makes cadets exposed to seafaring at an early stage, and work onboard ships is not just left to the imagination. Therefore, they have higher awareness when it comes to safety and helps build their confidence. (CR3)

Accordingly, CR4 in a similar thought, states:

Having a training ship is an advantage. The environment on board is different from the environment on land. There are things on board that are not on land [...] You get used to the environment on board and that will help in the safety awareness of the cadets. (CR4)

4.7 Respondents' perception of Philippine MET

3 out of 4 respondents who are company representatives admittedly states that, despite the importance of MET into the enhancement of safety culture, challenges and shortcomings continue to face Philippine Maritime Education and Training Institutions (METIs).

METI is one of the stepping stones to becoming a seafarer. Especially that we are heading to the era of intelligent technology in the maritime industry. As early as possible, the upskilling of the new generation of seafarers should begin in schools, and the thing in Philippines […] this schools however cannot deliver uniformity to the standards of education, that is why we are being pressured by EMSA. (CR1)

Our problem is our maritime education can't match the fast-paced demands of shipping, and the skills required. (CR2)

Technology is a big change in the maritime industry, and it is very fast […] It is effective if used correctly, and this should happen in schools. Admittedly, I have been through other schools in the country […] the facilities are substandard in my observation. (CR3)

4.8 Respondents on the MAAP way of training and education

Most respondents perceive that the training and education program they received in MAAP, developed and prepared them for their career in seafaring. It developed self-discipline, that enriches their professionalism as an individual, to academics that targets their competence.

One respondent attested that the training program of education given by MAAP, which is above the national standards make it an ideal model for other institutions to emulate.

The training program itself, that is more than what is required by the national standard, makes MAAP graduates perform better than their counterparts, by being well trained and have the essential character that can enhance safety onboard. (CR1)

The facilities available and being used in MAAP like simulators and laboratories help the cadets change in attitude towards safety. Most learning happens when the instructors conduct debriefing after exercises [...] from there, they already embrace the value of safety, and realize that if they make the same mistake on real life, there will be bigger consequences. (S5)

One respondent observed that MAAP cadets assigned with their company are very knowledgeable of specific shipboard operations, although it needs little polishing, as compared to their counterparts from other schools. CR3 states that it is because of the Competency Management System of MAAP, that the specific job of a junior officer on board ship is identified and included in their education and training program.

They have also a Competence Management System that determines what junior officers should be very knowledgeable of and doing on the ship. So, once they are cadet on the ship, or officer, you can already see the difference, not like our cadets from [name of school]. (CR3)

*In my whole stay inside the academy, I was already indoctrinated on safety in everything that I do. Because repeatedly, instructors and training officerss tell us that it will be the life onboard ships. The instructors and management, some who are also former seafarers show it to us, they are like role models, so we try to follow those attitudes and behaviours until the time that we ourselves become officers. (*S6)

One respondent expressed a different view of a semi-regimented training such as that employed by MAAP and another institution. That because of the methods in training that promotes strict obedience, they forego safety before their actions. Moreover, their attitude of "seeking recognition" has a negative effect on their work attitude.

I have observed this especially with cadets from [name of METI]. Sometimes they act immediately without assessing the surrounding. And I have sailed with some who get easily frustrated if they have a mistake. So, I remind them its ok,learn from it, and they can improve the next time. (CR3)

Some respondent pointed out that their professionalism was developed through the progression of training that they have gained through the MAAP program of education.

In the academy, there are different stages. During your plebehood[1], you will just obey and obey. But when you become an upper class, you will develop your leadership, and your confidence, so there is balance. For me, through the holistic approach of the training, I am able to obey, and assess the situation then speak up, if necessary, because of the confidence I built when I was in the academy. (CR4)

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[1] Plebehood refers to a cadet's first year in the Academy. MAAP employs a class system where first years or Plebes are called 4th class, second year cadets are 3rd class, third year cadets are 2nd class, and fourth year cadets are called 1st class.

Chapter 5: Discussion

5.1 Introduction

The data gathered from the participants is discussed in this chapter. The discussion is intended to address the research questions based from answers derived from participants during the conduct of the semi-structured interview and supported by several literatures.

5.2 Identifying factors that contribute to accidents

Majority of the respondents perceived that accidents on board are foreseeable due to numerous factors that affect human performance, stating fatigue, the shortage of human resources on board, rapid development of technology, some of which are mostly directed towards commercial pressure originating from the company. This is regardless of numerous trainings, policies, and procedures set by companies, along with abundant conventions and instruments set forth by the IMO.

One such instrument vital to addressing the issue of fatigue is the MLC, 2006. Some respondents agree that if work and rest hours stipulated in the convention was religiously followed, it may contribute to prevention of accidents caused by fatigue. Admittedly however, majority of the respondents share the same view that work and rest hours records are continuously being adjusted onboard to satisfy numerous reasons, i.e. (1.) due to ship operations, (2.) financial compensation, and (3.) evading bad evaluation from shipboard management that can result to not being rehired for a succeeding contract. And all of these in exchange of personal safety.

In order to enhance safety culture, a culture of assertiveness, where anyone can speak their mind, may be of great contribution. Most respondents agree that being able to speak up, "inclusiveness", and having a "just culture" on board may bring a positive effect on the shipboard organization. And that work ethics, knowledge, proficiency, and interpersonal skills are factors that can be developed through education and training.

5.3 Maritime Education and Training's Role in developing a Safety Culture

To truly address safety culture onboard, maritime education and training plays an important part at the early stage of a seafarer's career, that which is paramount if an ideal safety culture wants to be achieved, one which the IMO has been aiming for decades to date.

The data gathered on this research explores how MAAP develops competence, professionalism, and communication, factors contributory to enhancing seafarer safety education (Figure 4).

Figure 4

Factors contributing to safety culture
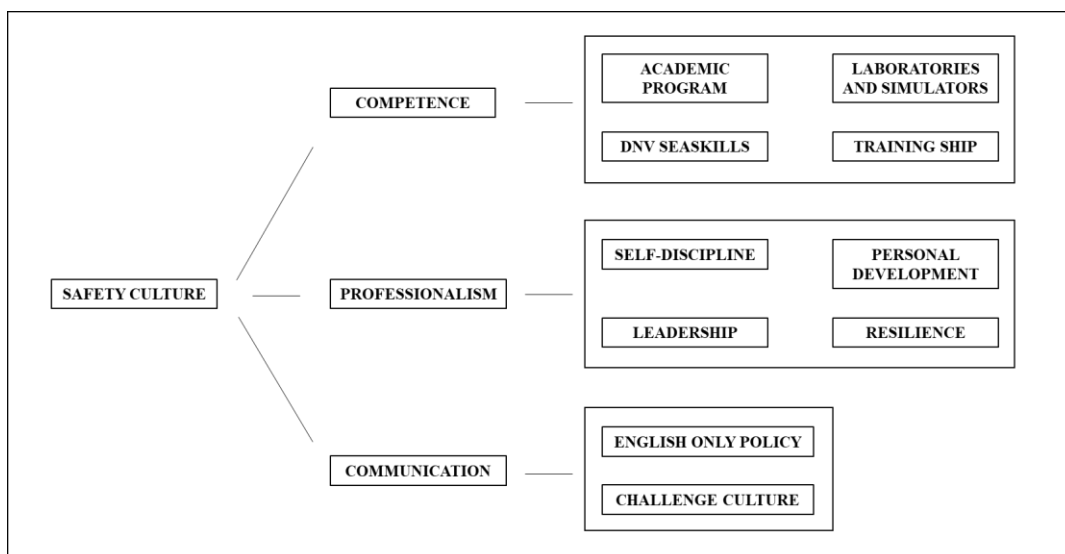
5.3.1 Competence

In order to further understand how the MAAP model of training enhances seafarer's competencies, the paper first defines competence and competency.

From a historical standpoint, the idea of competence is not unfamiliar. It is mentioned back in literatures dating from the time of Plato, the Code of Hammurabi, and 16th century Europe. Competence can be defined as *"the capability to perform and to use knowledge, skills and attitudes that are integrated in the professional repertoire of the individual"* (Mulder et al., 2009). According to Alainati et al. (2010), the term "competence or competences" is used to describe the qualifications that a person must possess in order to

accomplish a task necessary for a certain profession. It may also refer to a person's capacity to carry out a job-related need. On the other hand, "competency" are the traits and characteristics that someone must possess in order to succeed in their line of work that is a collection of, *"(1) personal resources, that includes knowledge, know-how, aptitude, emotional and physiological resources; and (2) Environmental resources, which includes technology, databases, books, relationships, and networks."*. Therefore, the terms competence and competency must not be misconstrued.

The Maritime Industry Authority (MARINA), the maritime administration and the Commission of Higher Education (CHED) of the Philippines shares the above comparative definitions and combines its interpretation of competence in its joint memorandum circular as:

> *The combination of knowledge, skills, experience and attitude that enables an individual to perform a certain function or task. It includes: 1) the cognitive competence involving the use of theory and concepts as well as informal tacit experiential knowledge; 2) functional competence, which involves knowledge, understanding and skills necessary for the proper performance of functions, tasks,*

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duties and responsibilities in a workplace; and 3) personal competence involving
ethical, personal and professional values.

In the Philippine setting, the specific competences for the Baccalaureate programs of Marine Transportation and Marine Engineering are provided in the STCW Code as its bases. The STCW defines Standards of Competence as "the level of proficiency to be achieved for the proper performance of functions on board ship in accordance with the internationally agreed criteria as set forth herein and incorporating prescribed standards or levels of knowledge, understanding and demonstrated skill. Seafarers are expected to accomplish competences detailed in part A of the STCW Code to be certified. Further, MARINA establishes the policies, standards, and guidelines for MHEIs in the Philippines, which includes the minimum curriculum standards for the abovementioned programs.

To achieve its mission and vision, MAAP commissioned DNV Seaskill to develop an IT aided Competency Management System (CMS), which offers certification of educational programs and assure adherence to the highest standards. The accreditation of learning programs ensures that courses are correctly planned out and includes specific goals for more productive outcomes (DNV, n.d., Saharuddin et al., 2011). With this certification, MAAP through DNV was able to make an analysis of certain skills and competencies required of officers from different stakeholder feedback, instruments, and standards (Figure 5)

Figure 5

IT aided Competence Management System
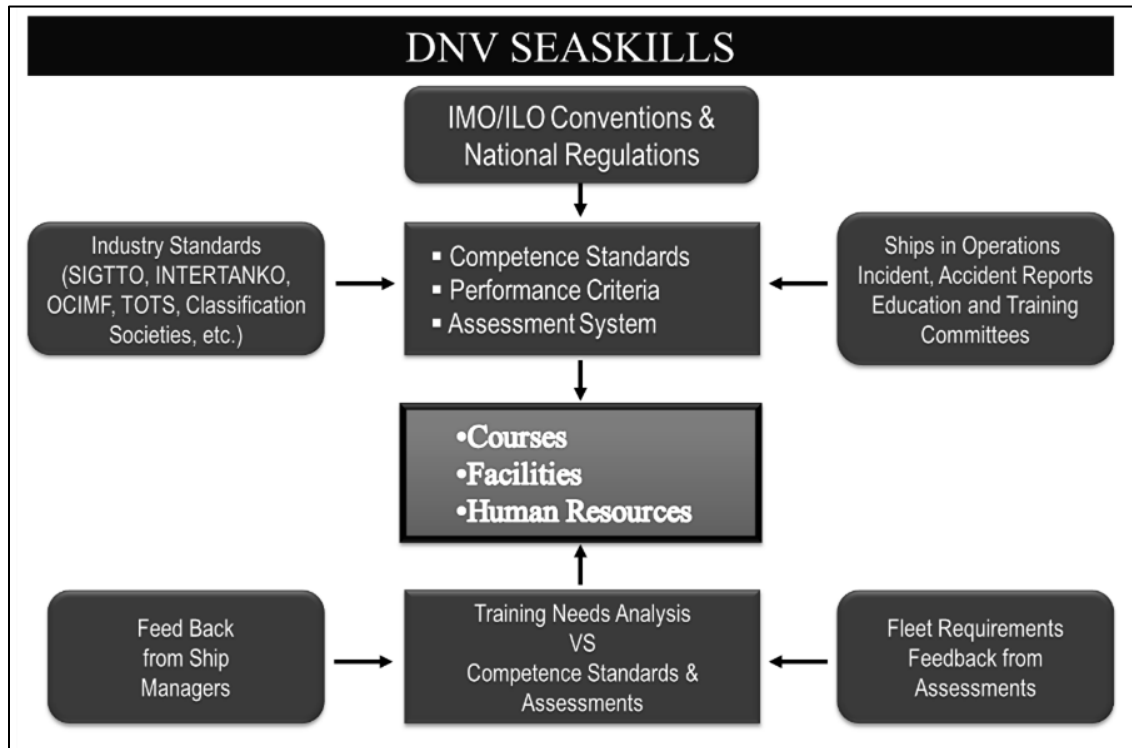
Note. Figure showing how the MAAP CMS by DNV Seaskills works in determining competency requirements from the maritime industry and incorporated in the courses, facilities, and human resources. From MAAP Institutional briefing by E.M.R. Santos, 2022 [Powerpoint Slide 19].

All the gathered data was then compiled and incorporated to the standard CHED curriculum resulting to the MAAP enhanced curriculum (Figure 6), which is outcomes-based education (Santos, 2022).

Figure 6

Outcomes-based education through Competence Management System
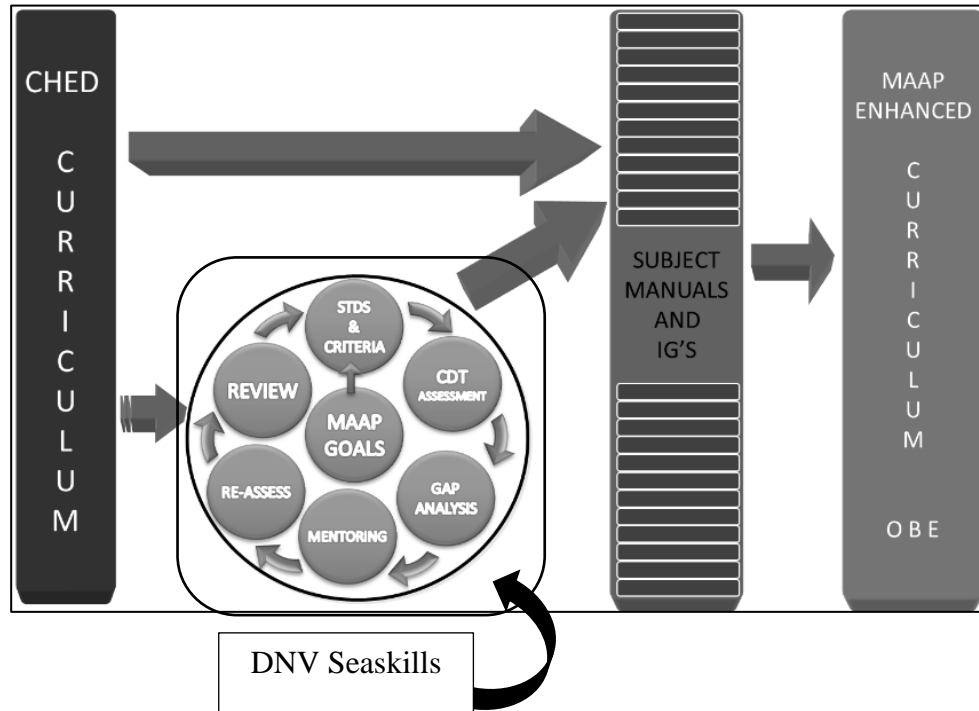
Note. Figure showing how MAAP CMS is merged into the CHED standard curriculum of CHED to enhance Outcomes-based Education. Adapted from MAAP Institutional briefing by E.M.R. Santos, 2022 [Powerpoint Slide 20].

The enhanced curriculum being offered to students enrolled in MAAP are highly supplemented with much needed facilities such as simulators and laboratories to necessitate transfer of knowledge. Predominately, MET in general is taught through a mix of theoretical, classroom-based instruction, followed by hands-on training through onboard training. Although this model is still in use, technological advances, and complex maritime simulators have made it possible for cadets to train and hone their skills prior to actually boarding a ship. Due to safety, economical, and ethical limitations of practical training exercises, simulator-based training is an effective and affordable alternative that

enables educators to generate a variety of realistic scenarios that they would not otherwise be able to train in. (Mallam et al., 2019).

Apart from the academic programs and facilities, MAAP students have the advantage of having hands on training through their training ships. Some respondents have shared a positive view of having a training ship emphasizing that such facility with a structured training program, exposes cadets to their job at sea prior their actual joining the ship. According to CR3, *"availability of training ship with structured training program makes cadets exposed to seafaring at an early stage, and work onboard ships is not just left to the imagination"*

Cadets may spend their "sea time" aboard a training vessel that is owned and operated by the institution they are enrolled in if seagoing vessels are unavailable. Naturally, such arrangements have both pros and cons. Training ship cadets may benefit more from computer-based training programs, lectures, and libraries. On the contrary, they may have less experience in cargo handling, miss learning latest seamanship techniques, and rather pick up outdated skills, given that some instructors are inactive seafarers (Sampson, 2004). This disadvantage was similar to the view of one of the respondents stating, "*the limitations on the training ship was not experiencing actual cargo operations. That is learned when you join the cargo vessels of your company. But it is already easy to adapt on that one"* -S2.

5.3.2 Professionalism

Britannica (n.d.) defines professionalism as, *"the skill, good judgment, and polite behaviour that is expected from a person who is trained to do a job well."*

Some respondents perceive that their training in MAAP developed their professionalism that rooted from personal development, self-discipline, leadership training, and resilience training.

To train cadets for personal development. they undergo the Midshipman Development System (MDS), which is a structured program in support of the MAAP mission aimed to develop an individual's capacity to show self-discipline and initiative, effective time management and efforts, perform well under pressure, think fast and react wisely, display excellent demeanour and appearance, and recognize the needs and perspectives of colleagues in a maritime organization. It provides cadets of different year levels to enhance leadership qualities which is done through application of principles and techniques by exposing them to situations in their everyday schedules, through interaction with other cadets, and through activities that enhances these leadership traits (MAAP, 2021).

This development is formed through habits, that become traits, and become an individual's character. According to Crossan et al. (2015), character is a core element of leadership and is fundamental on shaping how we engage our surrounding, advocacies, communication with people, what we choose to act on and decisions we make. Individuals with the right character strength reflected through their leadership skills can help an organization grow by honing their colleagues and organization to develop their character as well. Character is a quality developed subconsciously via repetitive behaviour which can be commended, by determining what is effective through experience, also known as habits. Habits however can turn both to good or bad. Hence in MAAP, personal development requires close attention and guidance through the cadets' years inside the Academy. Future maritime officers are expected to be leaders who possess positive character. According to Vakil (2019), leadership training for seafarers is seldomly mentioned in METIs despite the fact that the maritime industry is a high-risk industry that requires a specific leadership style suited for a variety of situations. Having no guidelines for seafarers to develop leadership skills, most of the METIs train their trainees in different ways which include lectures, sports activities, group events and roleplay making it evident that METIs can do more to make teamwork and leadership training more effective. In MAAP, in addition to the extra-curricular activities mentioned

above. The MDS also guide cadets to the idea of *"doing the right thing, even if no one is looking"*. With this kind of attitude, mentoring cadets of doing the right thing until they became seafarers can leave a positive note that they will be truthful to their duties and could possibly correct the tendency of adjusting records of work and rest hours and avoid doing shortcuts.

In Japan, the streets are clean despite that there are no trash bins along the main roads or streets. This was because of a terrorist attack that happened in 1995, since then, trash bins have been removed because they may be used to hide bombs or weapons. The reason why they can maintain the streets to be tidy is because in Japanese culture, children are taught from an early age to organize trash and take it home, this habit was with them until adulthood thus reflective of their character. Environmental education is given in Japanese schools in a more direct manner. More importantly, all the schools include proper trash sorting and everyday housekeeping as part of their regular school activities (Richarz, 2019; Ong, 2011). Similarly, if cadets are well educated and the level of maturity is reached that self-discipline is achieved, positive outcomes may be seen.

According to one respondent, MAAP employs a unique activity which is the Integrated Simulator Training Program (ISTP) which is a straight 48-hour weekend activity for cadets to conduct role playing using both the navigation and engine room simulator integrated to depict one ship on a voyage from one port to another. The 4th year cadets having completed their onboard training acts as masters, 2nd years are the OOW, and the 1st years as helmsman and lookouts. Similarly, they have counterparts in the engine room simulator as well. During this exercise, they can develop their leadership skills. This activity is supervised by an instructor who conducts the debriefing thus, necessitate the learning process. Such activity is an example of active learning which is defined as, *"The general term for teaching and learning methods which involve the participation of the student in active study unlike one-way lectures from a teacher."* According to Kunieda et al. (2017), *"when students learn actively, they are engaged cognitively, ethically, and socially with learning, culture, knowledge, and experience"*.

Active learning is a teaching and learning process through which the learner is required to engage actively and with goal. It is not a particular teaching methodology.

In this segment of the discussion, seafarer resilience can be attributed to the individual's behaviour and discipline. CR1 mentions that cases of attempted suicide in their company are tendency for young generation of seafarers to be easily depressed after being scolded by someone superior to them. *"That is where cases of depression start, attempts on suicide, etc. because these young generation of seafarers are not used to these kinds of situations. MAAP cadets on the other hand as I mentioned earlier are resilient. They can take being shouted at, and they can take failures, from there they learn and improve. I think that is what makes the training there unique"*. The MDS trains cadets to work well under pressure and to be able to maintain composure despite external distractions and challenges.

Cadets during their four-year enrolment are living and staying within MAAP, with scheduled vacations and shore leaves. This is part of their training for resilience. They are slowly being introduced to living away from society, almost replicating life at sea.

There are several well-known causes of seafarers' depression, which frequently results in suicide. Among them include isolation, being away from partners and families, stress, exhaustion, rarely having shore leave, work stability, cultural issues, abuse, criminality, and piracy. The figures on the percentage of seafarers who commit suicide show that their mental health is still quite poor, and there are calls to action to get those numbers down (Iversen, 2012). Because seafaring continues to be a hazardous and socially isolating profession, where work-related accidents are likely to occur and could be traumatic for crewmembers, it is essential to develop policies and programs for mental health education of seafarers and other principal maritime stakeholders. This may actually be done to supplement classroom instructions. Additionally, research on occupational stressors associated with seafaring is increasingly showing how these factors contribute to poor mental health findings. Ideally, mental health education will be taught to maritime

students and seafarers in the context of their profession, preparing them to manage not just their mental health but also their overall wellbeing (Abila & Acejo, 2021). Long tenures at sea, compartmentalization, and routine work, adds up to seafarers' fatigue which prompts them of doing shortcuts as stated by some respondents.

> *People still tend to do shortcuts and not follow proper procedure; this then leads to accidents or incidents. (*S1)

> *Lack of discipline [...] the tendency of which is to end up doing shortcuts, which leads to unsafe acts.* (CR1)

This is termed as the "Normalization of Deviance" which is the instinct of individuals to take safety shortcuts, or formally accept risks, especially when under pressure (Vaughan, 1996; Mullane, 2015). That if nothing happens after taking the risks, it is ok to be done again the next time, and this kind of behaviour becomes a norm that comes at a high risk. The difficulties that cadets are foreseen to be facing on their profession as seafarers, are already marinated into their system, therefore having them accept the reality of the seafaring profession and prepare them for the sacrifices they need for their profession at an early stage.

5.3.3 Communication

To achieve safety culture, another aspect is good communication within the organization. For a want-to-attitude towards safety, individuals must be able to express their thoughts without hesitation because of embarrassment, or the fear of retribution from superiors for misinterpreted statements. According to Demirel & Mehta (2009), near-miss or accident scenarios at sea can develop and occur as a result of inadequate English language skills.

English proficiency requirements for deck officers working in a global context have been set down by STCW.

Apart from the mandatory English subjects in the CHED curriculum which also includes Standard Marine Communication Phrases (SMCP). MAAP addressed this issue by employing the "English-Only-Policy". In order to be prepared for service on foreign ships where English is the predominant language used, students' communication skills are developed starting from their first day inside the Academy (Baylon et al., 2020). This is done through daily conversations, classroom instructions, and every correspondence. Students that are found to be violating the policy (i.e., speaking Tagalog) are issued demerit points that if accumulated can affect their conduct grade at the end of the school year. Although falling short of the fluency of native speakers, improvements in confidence and comprehension have been observed.

> *the students are always given a chance to present, or express themselves, even if explaining themselves on mistakes, they are encouraged to, more especially with the new generation of students. (*CR1)

Accident investigations have found that failure to speak up for a variety of reasons, which is referred to as power distance in studies, is a significant issue on board. Each seafarer bears the responsibility for having a safe ship, and is given the knowledge and confidence to speak out about difficulties attributable to the rich legacy of research, and best practices in team management, group dynamics, and leadership in the behavioural sciences. Despite the fact that the STCW has provisions for this training, studies contend that they fall short. While communication issues resulting from language, grammar, vocabulary, tone, pitch, etc. affect performance, it's also vital to note that miscommunication related to culture and the fact that cultural differences influence these issues are important. Providing seafarers access to this knowledge and educating them with the proper mindset

and technical expertise will go a long way toward enhancing maritime safety. (Graham, 2008).

Some respondents believe that for positive communication to happen, individuals should learn to assert their thoughts. That is, they can challenge those superior to them especially on matters pertaining to the safety of the ship or the crew. Students in MAAP, through the MDS are taught to challenge their seniors if they find that the orders are unlawful. Three categories for which orders are considered are unlawful are if, (1) if it is illegal, (2) if it is immoral, or (3) if it is a violation of safety standards (MAAP, 2021).

Within their stay inside the Academy, students learn to live in a multi-regional setting, given that students come from different parts of the archipelago. Making it easier for them to be trained in adapting to a multi-culture setting, similar to a shipboard organization.

# Chapter 6: Conclusions and Recommendations

6.1 Conclusions

Through this study, the author was able to discern the important role of education in enhancing safety culture on board. Seafaring as a career, is both physically and mentally demanding, due to the high-risk environment seafarers encounter during their time at sea. However, safety could be compromised by certain traits and attitude of the human element who are hesitating to speak up and be assertive when it comes to safety. But a want-to attitude towards safety can be enhanced through education and training, as what the education and training program of MAAP has delivered according to the participants. Conferring to the data gathered from 19 respondents, there are 3 main components for a safety culture to be effective on-board ships. That is, competence, professionalism, and communication. Responses gathered from participants states that the MAAP program of education and training were able to address these factors during their stay in the Academy. From review of related literatures, education and training regarding at the MET level, utilizing the behavioural sciences as set by the standards of the STCW, will result in the necessary cognitive and behavioural knowledge and skills to complement the technical competence and therefore circumvent accidents leading to a safety culture. (Graham, 2008, Figure 7).

> *"Watch your thoughts, they become your words; watch your words, they become your actions; watch your actions, they become your habits; watch your habits, they become your character; watch your character, it becomes your destiny."*
>
> *-Lao Tzu*

Figure 7

The key concepts and their interrelationship
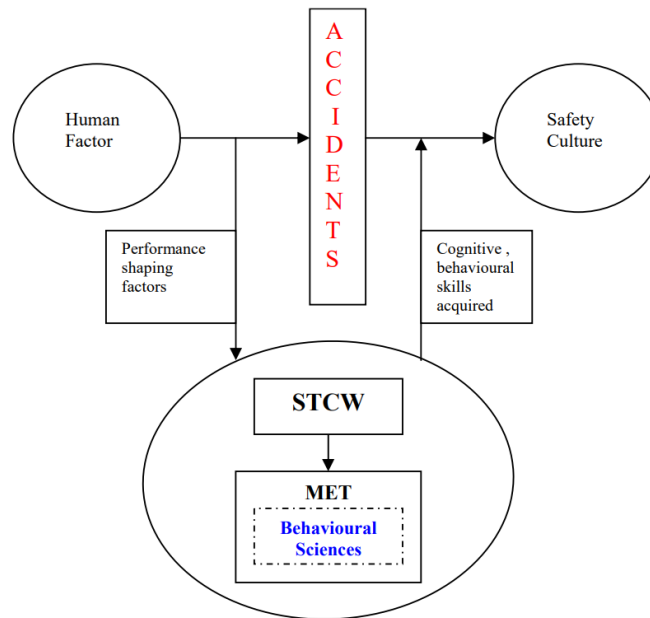
Note. From *The role of an education in the behavioural sciences towards contributing to the safety culture of the maritime industry* by Graham C.A.E, 2008 (https://commons.wmu.se/cgi/viewcontent.cgi?article=1340&context=all_dissert ation s)

Competences are already set by standards and introduced in the academic curriculums by CHED and MARINA according to the requirements of the STCW. In MAAP, the use of CMS by DNV Seaskills enabled them to identify the competencies of an officer onboard ship, as well as criteria and standards required by their shipping company. From there they enhanced their own curriculum which has additional focus on technical subjects. MAAP supplements its competency training with the utilization of their dedicated training ships with structured training program. The combination of both theoretical and

practical modality of learning develops the proficiency of future officers to their duties and responsibilities.

Professionalism is addressed through the MAAP Midshipman Development System which is a training evolution aimed at developing future officers for international seagoing vessels. Starting early by forming habits, that become their traits and eventually their personality. In the habit phase, a tremendous role of various actors, such as the faculty, training officers, and upperclassmen, mentor little by little, parts of a puzzle that build an ideal behaviour required of a seafarer. And as time passes these habits that were formed will become traits which are perceivable approaches done instinctively when considering and reacting to particular scenarios without much thought. These traits and values eventually build behaviour that defines what we think and do, which is reflected on our personality, lifestyle, and how we influence our surroundings (Meyer-Cuno, 2014). Aside from classroom sessions, extra-curricular activities and programs, team events, and organized sports, MAAP enhances leadership training and soft skills with the use of their facilities, such as simulators and laboratories. One such activity is their ISTP which is a non-graded, supervised, weekend activity where cadets role plays as officers on a ship on voyage. Resilience training is developed during their stay inside the Academy. having to live within MAAP who provides free board and lodging gives the students the feel of being away from their families, from urban areas, and feel the pressure of academics and limited use of gadgets already gives them a feel of an isolated life is onboard. Having our young seafarers accept and realize the reality of seafaring can develop in them the maturity and commitment to succeed in the profession. Last but not least, is the matter on speaking up and being assertive through communication is enhanced by and "English-only-policy" in MAAP. The extensive use of the English language which is the standard language used internationally makes the cadets comfortable and builds their confidence.

6.2 Recommendation

1. MHEIs in the Philippines can consider incorporating specialised programs through extracurricular activities and other organized programs to address and develop the soft-skills and personal development of their students including leadership, resilience, and self-discipline training suited with the culture of the region.

2. Close association of the shipping company and the MHEI, as what MAAP has been doing, where shipping companies have chosen cadets of their choice from the time that cadets are in school, can play a vital role for the student to be familiarized into the culture of the organization. Having the cadets start young with the policies of the company can already develop with them the attitude required of them, build rapport, and get to know the culture of the organization.

3. For addressing and communication. English as being the international language of the sea, if MHEIs can adapt an "English-only Policy", it may help develop cadets' confidence level to speaking up and expressing themselves.

4. MARINA can consider requiring MHEIs to have dedicated training ships to supplement classroom instructions and enhance students' learning by "seeing and doing". In this case, the maturity of cadets may develop and help them understand the high-risk environment of ships, therefore they can react accordingly and change their behaviour to that of what is necessary for a safe culture onboard.

5. MARINA and CHED can consider the integration and use of CMS to identify key duties and responsibilities of officers. The 4-year maritime program could be more focused on professional and technical subjects rather than general education such as (Filipino, and social sciences, etc.), this is to envelope the knowledge and skills stipulated in the STCW.

List of References

Abila, S. S., & Acejo, I. L. (2021). Mental health of Filipino seafarers and its implications for seafarers' education. *International maritime health*, *72*(3), 183-192.

AGCS (2022). Safety and Shipping Review 2022. Allianz Global Corporate & Specialty. https://www.agcs.allianz.com/news-and-insights/reports/shipping-safety.html.

Alainati, S., Alshawi, S., & Al-Karaghouli, W. (2010). The effect of education and training on competency.

Aldiabat, K. M., & Le Navenec, C. L. (2018). Data saturation: The mysterious step in grounded theory methodology. The qualitative report, 23(1), 245-261.

Anteza II, AC (1998). Maritime casualties and lessons to be learned: their application and use in the teaching and training process in the Philippine Merchant Marine Academy.

Apostol-Mates, R., & Barbu, A. (2016). Human error-the main factor in marine accidents. *Naval Academy Scientific Bulletin*, *19*(2), 451-454.

Baylon, A. M., Panaitescu, M., & Panaitescu, F. V. (2020). SUSTAINABLE DEVELOPMENT IN MET: THE MAAP PHILIPPINES AND CONSTANTA MARITIME UNIVERSITY ROMANIA BEST PRACTICES. *Journal of Marine Technology & Environment*, *2*.

Britannica. (n.d.). Professionalism. In The Britannica Dictionary. Retrieved August 19, 2022, from https://www.britannica.com/dictionary/professionalism

Cohen, D., & Crabtree, B. (2006). Qualitative research guidelines project.

Crossan, M., Seijts, G., & Gandz, J. (2015). *Developing leadership character*. Routledge.

Demirel, E., & Mehta, R. (2009, September). Developing an effective maritime education and training system-TUDEV experiment. In *International Maritime Lawyers Association Conference* (pp. 1-11).

Galletta, A. (2013). *Mastering the semi-structured interview and beyond: From research design to analysis and publication* (Vol. 18). NYU press.

Glick, M. (2017). Believing is seeing: confirmation bias. *The Journal of the American Dental Association*, *148*(3), 131-132.

Graham, C. A. E. (2008). The role of an education in the behavioural sciences towards contributing to the safety culture of the maritime industry.

Hennink, M., & Kaiser, B. N. (2021). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. Social Science & Medicine, 114523.

IAEA (2002). *Safety culture in nuclear installations: Guidance for use in the enhancement of safety culture.* IAEA. ISBN 92–0–119102–2. December 2002

ICS (n.d.). *Shipping and World Trade: World Seaborne Trade.* International Chamber of Shipping. https://www.ics-shipping.org/shipping-fact/shipping-and-world-trade-world-seaborne-trade/

IMO (2002). World Maritime Day 2002. IMO - SAFER SHIPPING DEMANDS A SAFETY CULTURE. A message from the Secretary-General of the International Maritime Organization, Mr. William A. O'Neil. J/8132.

IMO (2003). Role of the Human Element. Definition of Safety Culture. MSC 77/17. London: Author; Retrieved from https://docs.imo.org

IMO (2011). *STCW including 2010 Manila amendments: STCW Convention and STCW Code*. London: International Maritime Organization

IMO (2015). *"Shipping: indispensable to the world" selected as World Maritime Day theme for 2016.* International Maritime Organization. https://www.imo.org/en/MediaCentre/PressBriefings/Pages/47-WMD-theme-2016-.aspx

Iversen, R. T. (2012). The mental health of seafarers. *International maritime health*, *63*(2), 78-89.

Lune, H., & Berg, B. L. (2017). *Qualitative research methods for the social sciences*. Pearson.

MAAP (2021). *Midshipman Development System.* Department of Midshipmen Affairs. October 2021.

Mallam, S. C., Nazir, S., & Renganayagalu, S. K. (2019). Rethinking maritime education, training, and operations in the digital era: applications for emerging immersive technologies. *Journal of Marine Science and Engineering*, *7*(12), 428.

Manuel, M. E. (2005). Beyond rules, skills and knowledge: Maritime education and training for optimised behaviour.

Manuel, M. E., & Baumler, R. (2020). The Evolution of Seafarer Education and Training in International Law. In *Maritime Law in Motion* (pp. 471-494). Springer, Cham.

Meyer-Cuno, D. (2014). Leadership: Building Habits, Traits, Character. Forbes. https://www.forbes.com/sites/forbesmarketplace/2021/11/04/building-habits-traits-character/?sh=9d6a6825f80d

Mori, Y. (2014). An analysis of leadership education and training in maritime education and training institutions.Mulder, M., Gulikers, J., Biemans, H., & Wesselink, R. (2009). The concept of competence in the development of higher education. *Berufsbildung: Zeitschrift für Theorie und Praxis der berufichen Bildung und Erziehung* , *63* (116-117), 64-65.

Morse, J. M. (1995). The significance of saturation. Qualitative health research, 5(2), 147-149.

Mullane, M. (2015). Stopping Normalization of Deviance. Youtube. https://www.youtube.com/watch?v=tC0qkVf5SmE&t=18s

OECD (n.d.). The Ocean. Ocean Shipping and Shipbuilding. OECD. https://www.oecd.org/ocean/topics/ocean-shipping/

Ong, I. B. L., & Sovacool, B. K. (2012). A comparative study of littering and waste in Singapore and Japan. *Resources, Conservation and Recycling*, *61*, 35-42.

Richarz, A. (2019). Carefully, Japan Reconsiders the Trash Can. Bloomberg. May, 2019.

RMI (2020). ANNUAL REPORT ON MARINE SAFETY INVESTIGATIONS 2020. https://www.register-iri.com/wp-content/uploads/Republic-of-the-Marshall-Islands-Annual-Report-on-Marine-Safety-Investigations-2020.pdf.

Saharuddin, A. H., Sulaiman, O. O., Kader, A. S. A., & Nick, W. (2011). Marine Engineering as future career in Malaysia. *Business Management Dynamics*, *1*(2), 1-10.

Sampson, H. (2004). Romantic rhetoric, revisionist reality: the effectiveness of regulation in maritime education and training. *Journal of Vocational Education and Training*, *56*(2), 245-267.

Sanjeev Vakil, K. (2019). Approaches to teamwork and leadership training in maritime education and training institutions: A comparative analysis of the perspectives of seafarers towards teamwork and leadership across different regions.

Santos, E.M.R. (2022). MAAP Institutional Briefing. [Powerpoint slides]. Maritime Academy of Asia and the Pacific. www.maap.edu.ph

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., ... & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. Quality & quantity, 52(4), 1893-1907.

Sofaer, S. (1999). Qualitative methods: what are they and why use them?. *Health services research*, *34*(5 Pt 2), 1101.

Vaughan, D. (1996). *The Challenger launch decision: Risky technology, culture, and deviance at NASA*. University of Chicago press.

Veiga, J. L. (2002). Safety culture in shipping. WMU Journal of Maritime Affairs, 1(1), 17-31.

Wong, L. P. (2008). Data analysis in qualitative research: A brief guide to using NVivo. *Malaysian family physician: the official journal of the Academy of Family Physicians of Malaysia*, *3*(1), 14.

Wróbel, K. (2021). Searching for the origins of the myth: 80% human error impact on maritime safety. Reliability Engineering & System Safety, 216, 107942.

Appendices

Appendix 1: List of Respondents

No	Pseudonym	Status	Position	Rank	Years in service	Type of Ship	Type of Interview
1	CR1	Shore-based	Office	Marine Superintendent	16	--	Online
2	CR2	Shore-based	Office	Technical Superintendent	15	--	Online
3	CR3	Shore-based	Office	Crewing Manager	15	--	Online
4	CR4	Shore-based	Office	Recruitment Officer	8	--	Online
5	S1	Active	Seafarer	Ch/Off	15	Containership	Online
6	S2	Active	Seafarer	2nd/Off	6.5	Bulk Carrier	Online
7	S3	Active	Seafarer	3rd/Engr	16	Bulk Carrier	Online
8	S4	Active	Seafarer	3rd/Off	5	Containership	Online
9	S5	Active	Seafarer	4th/Engr	6.5	Bulk Carrier	Online
10	S6	Active	Seafarer	3rd/Engr	10	Crude Tanker	Online
11	S7	Active	Seafarer	4th/Engr	2	LPG Tanker	Online
12	S8	Active	Seafarer	3rd Asst/ Engr	4	Containership	Online
13	S9	Active	Seafarer	2nd/Engr	15	Crude Tanker	Online
14	S10	Active	Seafarer	D/Cdt	1	Crude Tanker	Online
15	S11	Active	Seafarer	D/Cdt	1	Product Tanker	Online
16	S12	Active	Seafarer	E/Cdt	1	Chemical Tanker	Online
17	S13	Active	Seafarer	D/Cdt	1	Bulk Carrier	Online

| 18 | S14 | Active | Seafarer | E/Cdt | 1 | Bulk Carrier | Online |
| 19 | S15 | Active | Seafarer | E/Cdt | 1 | Product Tanker | Online |

Appendix 2: Sample of Semi-structured Interview Questions

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Interview Questions for Shipping Company Representatives and Seafarers

Section 1: Sociodemographic data

1. What is your name?
2. How old are you?
3. What gender do you identify as?
4. What is your Nationality?
5. What is your professional background? (Seafarer or Company Representative)
6. Which company do you represent?
7. What is your position in your Company?
8. (For seafarer) What is your rank onboard ship?
9. (For seafarer) How long have you been sailing?
10. How long have you been working with your Company?

Section 2: General Questions

1. The IMO has been campaigning for a safety culture since the early 2000s but accidents still happen. What is your thought on this?
2. What changes in safety have you seen ever since you worked in maritime? What effect does it have to the maritime safety culture in general?
3. What policies or programs does your company employ to develop a safety culture? What limitations do you see in them? What benefits do you see in them?
4. In the Philippines, maritime academies often promote "strict obedience", what do you think about that?
5. Filipino seafarers do not usually question authority. What is your opinion on this? How this may impact safety?
6. Do you think that being able to "Speak up and express someone's views even when opposing others' opinion without fear of consequences" can contribute to the company's safety culture?

Section 3.1: Questions for Seafarers

1. How does the Maritime Academy of Asia and the Pacific (MAAP) education and training contribute to enhancing your attitude and behaviour towards safety? Do you think it could be better? And how?
2. What is your company doing to enhance safety culture? Please, provide examples.
3. Assertiveness[1] is considered an important factor for safety culture. What are your thoughts on this? *(The interviewer to expand with more relevant questions relating to psychological safety depending on the interviews' answers, such as What are the factors that positively contribute to "speaking up" when safety is compromised? What are the factors that contribute negatively that stops seafarers from "speaking up" when safety is compromised? Please provide examples.)*
4. Studies have shown adjustment of work/rest hours records on ships. What is your opinion on this? How much does this reflect on your experience? Do you think that training could contribute to address this type of issue and how?
5. When raising safety concerns and reports to your company, how does your company usually respond to it? How does your company usually address this?
6. Do you think that MAAP contribute to your safety behaviour and attitude? How did MAAP contribute to developing your safety behaviour and attitude? How do you reciprocate this to your company? Please, provide examples.
7. How did training in MAAP help you (or not) to develop the culture of "assertiveness "and speaking up, even towards a superior?

Section 3.2: Questions for Shipping Company Representatives

1. Do you think MAAP is providing good quality training of safety culture to cadets? Why and how?
2. What can you say about the character of MAAP graduates in terms of professionalism and competence in relation to safety?
3. In comparison to other cadets in the Philippines, what do you think makes the MAAP program of education and training unique?

---

[1] According to Khan (1990) psychological safety is being able to show and employ (assert) one's self without fear of negative consequences of self-image, status or career. This is the concept behind "Just culture" of the IMO.

4. Studies imply that the safety culture starts with proper education in Maritime Higher Education Institutions (MHEI). What is your thought on this?

5. What can Maritime Education and Training Institutions (METI) do with regards to enhancing the want-to attitude towards safety?

6. How can shipping companies enhance safety culture? What would be the priorities for shipping companies to enhancing safety culture?

7. Can you share your thoughts on how MAAP education and training can enhance the safety culture of your company?

Appendix 3: Sample of Manual Coding Process

3.1: Sample of Establishing Themes from Codes

RESPONDENTS PERCEPTION TO A SAFETY CULTURE ONBOARD	TECHNOLOGY ASSISTED SAFETY
	PERSPECTIVE OF SAFETY
	ACCIDENT CAUSATION
	COMPANY SHORTCOMING
	IMO SHORTCOMING
	HUMAN ERROR
	TECHNOLOGY DRIVEN ERRORS
	ADJUSTMENT OF WORK/REST HOURS
	SUBMISSIVENESS
	CHALLENGES TO SPEAKING UP
	CHALLENGES TO SAFETY EDUCATION
	OVERTRAINED

RESPONDENTS PERCEPTION ON AVAILABLE MEANS TO ADDRESS ISSUE ON SAFETY CULTURE	WANT-TO-ATTITUDE
	COMPANY INITIATIVES
	SPEAKING UP FOR SAFETY

RESPONDENTS ON THE ROLE OF MET IN ENHANCING SAFETY CULTURE ONBOARD	MET AS FOUNDATION
	NEGATIVE TRAINING ACADEMY
	STRICT OBEDIENCE TRAINING PERSPECTIVE

RESPONDENTS ON THE MAAP WAY OF TRAINING	MAAP WAY
	MIND SETTING
	CHARACTER DEVELOPMENT
	WORK ATTITUDE
	MAAP FACILITIES
	TECHNOLOGY IN EDUCATION
	COMMUNICATION
	DISCIPLINE
	LEADERSHIP
	RESILIENCE

3.2: Sample of Colour Coding from Transcripts

		Transcript excerpt
Technology driven (errors)	(magenta)	One of the reasons why there are a lot who fall in safety can not be blamed on lack of competence but rather they do not have the ... in ... -CR1
		Another ... technology ... and the new generation of seafarers who have different employment that they grow up ... the ... generation who are very much into technology that they are not too exposed to the manual labour of ... attitude ... I mentioned ... illness/emergencies when they get the second job on ships. It can cause problems also. -S3
Want-to-attitude	(red)	I b... m... ... something to accidents up to this day is the continuous improvement of technology on board ship and in ... quantity. A ... of the growth is ... drowned individuals using this new technology. -S5
		all crew are involved in safety. Aside from the appointed Safety Officer on board who is in charge of the safety area inspections, on a weekly interval, we have monthly safety committees where representatives meet to raise all concerns pertaining to safety. Aside from it, all crew during meetings are encouraged to speak, there is no wrong or right answer. They can voice out what they want to say. -S1
		no... even a Cadet has something to share and suggest for all the crew and management thru Safety meetings onboard the vessel. This was a great example of changes that has a great impact on safety culture in general, that all personnel have contribute to the over-all safety awareness onboard as they called it "inclusion". -S4
Submissiveness	(olive)	O... ... for Filipinos to be like the tramp to history, that after the Philippines being conquered for more than 3 centuries. When ... they see a white man, they tend to keep quiet [submissiveness] [speaking up for safety] Another factor is that some Filipino ... are ... confident with their English-speaking skills. They are afraid to get embarrassed if they do not say the right thing that is ... the ... mind. These factors are somewhat minimized -CR4
		Th... ... more you say no, the more red mark you have on your CV... They don't like that. They want continuous employment while they want to work at sea. -CR2

Appendix 4: Ethical Considerations

4.1 Sample of Consent Form

WMU ⚓ WORLD
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UNIVERSITY

Dear Participant,

Thank you for agreeing to participate in this research survey, which is carried out in connection with a Dissertation which will be written by the interviewer, in partial fulfilment of the requirements for the degree of Master of Science in Maritime Affairs at the World Maritime University in Malmö, Sweden.

The topic of the Dissertation is *"Enhancing Safety Culture Through Maritime Education and Training: The Maritime Academy of Asia and the Pacific Model"*

The information provided by you in this interview will be used for the purpose of this research and the results will form part of the study, which will be published online on WMU's digital repository (Maritime Commons) subject to final approval of the University, and made final to the public. Your personal information will not be published. And you may withdraw from the research at any time. Your personal data will be immediately deleted.

Anonymised research data will be archived on a secure virtual drive linked to a WMU email address. All the data will be deleted as soon as the degree is awarded.

Your participation in the interview is highly appreciated.

Student's name	: Art Jamel V Hipol
Specialization	: Maritime Safety and Environmental Administration
Email Address	: w1011708@wmu.se

x x x x x

I give consent to my personal data, as outlined above, being used for the purpose of this study. I understand that all personal data relating to participants is held and processed in the strictest confidence, and will be deleted at the end of the researcher's enrolment.

NAME : ....

SIGNATURE : ....

DATE : ....

4.2 Sample of Quotation Agreement

Date: ....

Quotation Agreement:

I also understand that my words may be quoted directly. With regard to being quoted, please initial next to any of the statements that you agree with:

	I wish to review the notes, transcripts, or other data collected during the research pertaining to my participation.
	I agree to be quoted directly.
	I agree to be quoted directly if my name is not published and a made-up name (pseudonym) is used.
	I agree that the researchers may publish documents that contain quotations by me.

By signing this form, I agree that:

- I am voluntarily taking part in this project. I understand that I don't have to take part, and I can stop the interview at any time;
- The transcribed interview or extracts from it may be used as described above;
- I have read the information sheet;
- I don't expect to receive any benefit or payment for my participation;
- I can request a copy of the transcript of my interview and may make edits;
- I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

Participant's name and signature: Date:

Contact Information:

This research has been reviewed and approved by the World Maritime University Research Ethics Committee. If you have any additional questions or concerns about this project, please contact:

Student's name: Art Jamel V Hipol

Specialization: Maritime Safety and Environmental Administration (MSEA)

E-mail: w1011708@wmu.se

You can also contact my research supervisor:

Supervisor's name: Capt./Dr. Raphael Baumler

Position: Professor, Head of MSEA

E-mail: rb@wmu.se

4.3 WMU REC Protocol

WMU WORLD MARITIME UNIVERSITY

WMU Research Ethics Committee Protocol

Name of principal researcher:	ART JAMEL V HIPOL
Name(s) of any co-researcher(s):	NONE
If applicable, for which degree is each researcher registered?	MSEA
Name of supervisor, if any:	RAPHAEL BAUMLER (supervisor) MARIA CARRERA ARCE (co-supervisor)
Title of project:	ENHANCING SAFETY CULTURE THROUGH MARITIME EDUCATION AND TRAINING: The MAAP Model
Is the research funded externally?	NO
If so, by which agency?	--
Where will the research be carried out?	RESEARCH WILL BE IN MALMO (WMU). THE SUBJECTS WILL BE IN PHILIPPINES
How will the participants be recruited?	SENDING THE PARTICPANTS AN EMAIL WHERE IT WILL BE STATED THAT THE PARTICIPATION WILL BE VOLUNTARY
How many participants will take part?	ABOUT 15 PARTICIPANTS 5 - SHIPPING COMPANY REPRESENTATIVES 8 – SEAFARERS 2/3 - CADETS
Will they be paid?	NO
If so, please supply details:	--
How will the research data be collected (by interview, by questionnaires, etc.)?	BY INTERVIEW THROUGH ZOOM PLATFORM
How will the research data be stored?	BY RESEARCHER'S COMPUTER STORAGE-WITH STRONG PASSWORD
How and when will the research data be disposed of?	AFTER COMPLETION OF THE RESEARCHER'S MASTER DEGREE (OCTOBER 2022)
Is a risk assessment necessary? If so, please attach	NO

Signature(s) of Researcher(s): .... Date: ...22-06-22..........

Signature of Supervisor: ....Date: 22-06-22