

Employers' Feedback on the Shipboard Training Performance of LPU-B Maritime Students

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Abstract – The primary objective of this research endeavor was to develop an improved shipboard training curriculum based on employer feedback that would improve maritime students' competence during their onboard training. This research utilized the descriptive method using retrospective study in order to obtain the information needed based from the Respondents Information Sheet and Deck Performance and Appraisal Report Form. The results revealed that for 2014, deck cadets demonstrated exceptional competence in contributing to the safety of workers and the ship, as well as very good competence in complying with pollution-prevention regulations and preventing, controlling, and fighting fires on board. On the other hand, for 2015, deck cadets only shown very good competency in contributing to the safety of troops and ship based on their shipboard training experience.

Keywords – Competency Deck Performance, Maritime, Shipboard Training.

INTRODUCTION

Maritime profession in the Philippines as a course entails a 1-year apprenticeship period aboard an actual ship in order to expose students to the real-life applications of the concepts and techniques that they learned in the classroom which is placed on the fourth year of the program. The Bachelor of Science in Marine Transportation (BSMT) is a four-year undergraduate degree program which leads to a professional career in the maritime industry, as a marine deck officer. Through this program, the students will be able to acquire the necessary skills and knowledge needed to accomplish their future duties and responsibilities as a marine officer and will be exposed to theories and practices in Seamanship, Navigation, Ship Business, Meteorology, and Marine Laws.

Based on the Commission on Higher Education (CHED) mandate, "All Maritime Higher Education Institutions shall comply with the minimum standards provided for under CMO No. 2, series of 2012 which is entitled "implementing Guidelines on the Shipboard Training requirement for the Bachelor of Science in Marine Transportation and Bachelor of Science in Marine Engineering Programs". The objectives of the said training are (1) to accelerate the development of a pool of qualified seafarers by providing assistance to maritime courses in obtaining apprenticeship training on board ship; (2) to undergo an approved seagoing service of not less than 12 months which includes onboard training that meets the requirements of Section

A-11/1 of the Standards of Training, Certification Watchkeeping (STCW) Code documented in an approved training record book (TRB), or otherwise an approved seagoing service of not less than 3s months; and (3) perform, during the required seagoing service, bridge watchkeeping duties under the supervision of the master or a qualified officer for a period of not less than six (6) months. Hence, the said shipboard training is a requirement for the completion of the baccalaureate degree and to ensure that ship owners/ ship operators of Philippine registered ships comply with the required apprenticeship/shipboard training programs to marine deck and engine cadets [1].

Shipboard training program provides all cadets with the opportunity to use a ship as a sea-going laboratory wherein they are required to complete their Training Record books. This record book will be evaluated and graded and will serve as a requirement for enrolment in the final stage of the course as fourth year cadet. Barlis, et al [2] emphasized that progress of shipboard training for cadets is for maritime schools to develop a planned training. On board ship training is concerned with performance rather than with subject manner; person learn to perform the task required on the job in the actual job setting under the guidance of the Chief Officer and assistance from other navigating officers".

From these aforementioned statements, there are manning agencies that offer apprenticeship thus makes it easier for them to recruit able, and enthusiastic young people to fill their skills gap. Maritime students look

for opportunities that combine their real on the job training with their approved qualification. The apprenticeship program offers them the security of a recognized training pathway, and career progression making it easier for them to recruit the most suitable people for the job. Thus, said manning agencies in rating their apprenticeship training programs help them allow their companies to keep up-to-date with the latest technology and working practices in their sector. This gives their company an advantage against the competition. Passing on existing expertise to their apprentices give them the knowledge and competence for their shipping business to keep growing.

As to the study conducted by Maritime Educational Foundation, 2010 result showed that over 80 percent of employers in other industries who take on apprentices agree that they make their work place more productive. The apprentices are immersed from the outset in company specific systems and training. In addition, some researchers noted that apprenticeship appears to present an appealing option for individuals' skills development as evidenced by high number of applicants for the most attractive Apprenticeship offerings [3-4] and high levels of interest overall [5]

The foregoing literature and studies emphasized that the study of employers' feedback as to deck and engine cadets' performances are indeed of great value in studying the training providers' needs on shipboard training. The only thing that the researchers observed about the foregoing studies is that there is a dearth of related researches conducted both by foreign and local scholars particularly pertaining to the appraisal of the shipboard training provided by maritime institutions to their respective students. There are few but they are different from the current study as to profile of the company and setting where the study was conducted as well with the profile variables studied and instrument utilized in order to obtain necessary data needed to present the results of the study.

Satisfaction with the program is also relatively high amongst apprentices themselves [6]. The foregoing statements spurred the interest of the researchers to conduct the present undertaking to keep themselves professionally abreast as to feedbacks of the employers on their apprentices' deck and engine performances during their apprenticeship. Results obtained from the study will be useful for the students for them to learn things through practical exercises by doing various jobs onboard ships and their exposure to the working environment will help them to realize and understand the job requirements onboard merchant

vessels. Likewise, findings will also have potential benefits to the maritime faculty members to professionally upgrade themselves through continuous education in order to equip their students the required skills, capabilities and knowledge needed for shipboard training.

Furthermore, results of the study can contribute a lot to school's administrators to continuously respond to the challenges of the maritime education by continuously providing their students state of the art facilities necessary in the conduct of shipboard training, like Kongberg Bridge, Engine Simulator, Station of Crane Handling Simulator and Liquid cargo Handling Simulator, Mini Bridge Simulator, Computers for "Tell Me More", Electrical training Module, Pneumatic Process Control Trainers or Simulator, among others in the fulfilment of its vision to become a recognized university in the Asia Pacific region.

Likewise, findings of this academic endeavor would be of great help to Maritime faculty members to equip their students with necessary knowledge and skills before the deck and engine cadets' graduate. Also, findings of the current study would be beneficial to maritime students to learn things through practical exercise by doing various jobs onboard ships and would help them to realize and understand the job requirements aboard merchant vessels. Lastly, output of this scholarly work would contribute a lot to the economic and social development of the country where maritime schools take their big leap in producing globally competent maritime professionals.

OBJECTIVES OF THE STUDY

The main thrust of this academic undertaking was to propose an enhanced shipboard training program that would develop maritime student's competence on their shipboard training based on employers' feedbacks. More specifically, it sought to describe the cadets' profile based on their shipboard training experience as to company's category (foreign or local), type of ship (cargo, tanker, container), and ownership (local/foreign); determined employers' feedbacks on students shipboard performance using the Deck Cadet Performance and Appraisal Report; and proposed a Shipboard Training Enhancement Program for the development of deck cadets necessary knowledge and skills in the maritime profession for them to become well-trained and competent reservoir of future officers in the maritime industry.

MATERIALS AND METHOD

Research Design

This research utilized the descriptive method using retrospective study in order to obtain the information needed. It is a kind of research design where the researchers study a phenomenon by looking back at events that have already happened and using existing data that have been recorded for reasons other than research. This research involved the identification, description and interpretation of employers' feedback as to competence and recommendation to their apprentices as appraised through their Deck and Engine Performance and Appraisal Report utilized by the Shipboard Training Office (STO) of the LIMA Department.

Participants of the Study

The participants of the study were BSMT students enrolled during academic years 2013 - 2014 and 2014-2015 respectively. From the number of BSMT students enrolled during these academic years, fifty-eight (58) deck cadets underwent Shipboard Training as part of their curriculum. From them, there were only twenty-one (21) with complete data records kept and compiled at the Shipboard Training Office of the LIMA Department for records purposes whose Performance and Appraisal Rating Reports were intact.

Data Gathering Instrument

Respondents Information Sheet. (RIS). This was the instrument used in obtaining shipping company's profile in terms of category (foreign or local), type (passenger, container or tanker) and ownership (foreign or local). This tool is in the form of checklist where students will simply check the item that corresponds to information needed.

Deck Performance and Appraisal Report Form. This was the instrument used in getting feedbacks from the employers' as to shipboard training of BSMT students. It is the evaluation tool used by the Shipboard Training Office (STO) of the LIMA Department divided into three parts. First part is an area for employers to appraise the competence of their apprentices which is composed of nineteen (19) statements. The scoring is performed on five-point scale, in which a response of 5 is verbally interpreted as excellent and 1 as unsatisfactorily. Second part is the area for employers' recommendation if apprentices can improve their

performance, continues their employment in the company and their comment about cadet's academic knowledge on their performance to improve the curriculum. Last is the Remarks part for employers to identify specific developments, qualities or performances that should be emphasized. Hence, in this study, only Part One was considered in order to get the desired data in appraising the competence of the students.

Data Gathering Procedure

The researchers started reading literatures and studies about maritime profession for them to conceptualize what title is to propose for acceptance and approval. When the working title of the researchers was approved, presented and capsule summary submitted, they wrote a series of letter to the administrative officials of LPU-Batangas to conduct the study and to have an access in obtaining existing data from the accomplished Deck and Engine Performance and Appraisal Report from employers of apprentices from academic years 2013 - 2014 and 2014 - 2015 respectively. Likewise, they also sought permission from the LIMA Dean and concurrent Shipboard Training Officer, Capt. Alexander A. Gonzalez in personally obtaining and handling the necessary data at the said office using the accomplished forms. With the assistance of the Office Custodian of the STO, each accomplished form was inspected by the researchers to check if all the items were answered by the employers. When all the retrieved data were obtained by the researchers, tallying of data was personally handled by them after which the data were statistically treated by one of the researchers since statistical tools utilized were simple in the form of descriptive statistics in the form of frequency, weighted mean and rank. After the computation of the quantitative data tabulation, presentation, interpretation, analysis and discussion followed.

Data Analysis and Ethical Consideration

The needed data were encoded, tallied, and interpreted using different statistical tools such as frequency count, mean, and ranking. Frequency was used in determining the number of times students responded with each statement and weighted mean was employed in measuring deck and engine cadets' performances in terms of their competence both academic years 2013 - 2014 and 2014-2015. Lastly, ranking was used to identify which among the

indicators in the instrument used got the highest and lowest values. These tools were used based on the objectives of the study. In addition, all data were treated using statistical software, Statistical package for Social Science (SPSS) to further analyze the results of the study.

The researchers as educators strictly abide to the ethical principles of the Code of Ethics on Research to protect and safeguard the personal identity of the subjects of the study. The ethical principles that writers adhered in this study was a letter addressed to the officials of the university as to the anonymity and confidentiality of the subjects. The subjects were Maritime students who underwent Shipboard Training as mandated in their curriculum. School officials were also assured that information provided to the researchers did not pose any risk and remained confidential. As such, the names of the subjects did not appear in the studies to protect their identities and codenames were used instead. Moreover, the instruments utilized in this study, were not attached in the full paper due to confidentiality because it is privately owned by Lyceum International Maritime Academy in appraising its deck performance after their Shipboard Training. Names of shipping agencies not mentioned for the purpose of confidentiality. All data that were collected were utilized for the purpose of the study only and it was handled with security to maintain the confidentiality of the data.

RESULTS AND DISCUSSION

Table 1 shows the Deck Cadets Shipping Company's Profile on their Shipboard Training. It can be seen on the table, majority of the shipping companies were foreign, whereas as to ship's type, majority were tankers, and, as to ships' ownership, mostly were foreign owned. These results suggest that majority of the shipping company's category and ownership is foreign and tanker vessels. This finding clearly signifies that deck cadets prefer foreign vessels and tanker ships because of good wages or much better remuneration as compared to those offered in dry ships and their career in shipping offers them the opportunity of Incredible global travel by visiting interesting and unusual places. Likewise, they prefer to board international ships for professional fulfillment of being on the international trade and the technological advancement of foreign ships which give them better learning opportunities.

Table 1
Frequency Distribution of Shipping Company's Profile

Shipping Company's Profile	Frequency	Percentage (%)
Shipping Company's Category		
Foreign	14	67%
Local	7	33%
Ship's Type		
Passenger	3	14%
Container	6	29%
Tanker	7	33%
Bulk/General Cargo	5	24%
Ship's Type of Ownership		
Foreign	14	67%
Local	7	33%

Most of the times a seafarer can choose the type of vessel he or she wants to work on. Each type of vessel has its own pros and cons when it comes to working on board. Based on the result of the study, majority of the respondents underwent their training in a tanker vessel for they knew that there are many benefits of working on a tanker that set them to this this line of work apart from dry cargo operations. One of the researchers whose husband is a former seafarer and was onboard tanker ship for thirteen years, attested that the most-frequently cited reason for choosing this type of vessel are better pay, higher safety standards, and fewer cargo operations. As such the university in response to international standards of maritime profession established tie-ups or linkages to international shipping agencies to rest assured that high quality education and training to its maritime students are provided. LIMA department headed by its Dean who is a successful seafarer with high caliber and well-experienced maritime professors are well-equipped with knowledge as to the vital function of STO to preserve the quality, practical skills and competence of qualified seafarers in keeping vessels safe, protecting the environment and keeping trade flowing from different parts of the world.

Table 2 presents deck cadets overall competence during academic years 2013-2014. Ranked one is the item pertaining to contributing to safety of personnel and ship. This result means that deck cadets have very good competence in contributing to the safety of the personnel and ship, in preventing and controlling fires on board and in ensuring compliance with pollution prevention requirements. Also, results suggest that deck cadets showed competence in performing their job as to safety of personnel and ship like maintaining the safety of life at sea (SOLAS) and equipment's on-board ships/vessels and performing general upkeep of the ship/vessel.

Table 2
Deck Cadets Shipboard Training Competence for Academic Year 2013-2014

Indicators	Over-all		
	WM	VI	R
1. Plan and conduct a passage and determine position	4.02	VG	8
2. Maintain a safe navigational watch	4.18	VG	4
3. Use of RADAR and ARPA for safety of navigation	3.84	VG	12
4. Use of ECDIS to maintain safety of navigation	3.72	VG	16
5. Respond to emergencies	4.14	VG	5
6. Respond to a distress signal at sea	3.90	VG	10
7. Use the IMO SMCP and use English	3.80	VG	15
8. Transmit and receive information using visual signaling	3.82	VG	13
9. Maneuver the ship	3.87	VG	11
10. Monitor the loading, stowage, securing and care during the voyage and unloading of cargoes	3.61	VG	18
11. Inspect and reports defects and damage to cargo spaces, hatch covers and ballast tanks	3.59	VG	19
12. Ensure compliance with pollution-prevention requirements	4.25	VG	3
13. Maintain seaworthiness of the ship	4.08	VG	6
14. Prevents, control and fights fires on board	4.28	VG	2
15. Operate life-saving appliances	4.08	VG	7
16. Apply medical first aid on board ship	4.00	VG	9
17. Monitor compliance with legislative requirements	3.71	VG	17
18. Application of leadership and team working skills	3.80	VG	14
19. Contribute to safety of personnel and ship	4.45	VG	1
	3.95	VG	

Legend: 4.50 - 5.00 = Excellent; 3.50 - 4.49 = Very Good; 2.50 - 3.49 = Good; 1.50 - 2.49 = Fair; 1.00 - 1.40 = Poor

Clearly, deck cadets of LPU-B adhered to SOLAS in maintaining safety standards in the construction, equipment and operation of merchant ships. In addition, findings of the current study are partly in consonance with the purpose of shipboard training education cited by Nam [7] that deck cadets undergo shipboard training in preparing them for danger all the time and encouraging them as to their responsibilities based on continuous attention and precaution for safe navigation. In addition, findings are related with the articles that pertains to Safety of Life at Sea (SOLAS) in noting that one of the most important concerns of maritime industry is safety of personnel for a smooth cargo transportation and marine operation at high sea.

Results of the current undertaking also clearly suggest that deck cadet's performance in maintaining a safe navigational watch, compliance with pollution-prevention and requirements, and control and fights fires on board are all very good. Further, data obtained showed that maritime students have competence in performing their duty and responsibility in maintaining a safe navigational watch for they do know that navigation is perhaps the most important aspect of being a cadet and from the guidance and supervision of a certified officer like Chief Mate, they were able to learn the science and art of navigation. Results are in connection with the article circulated in the net about

job responsibilities of a deck cadet pertaining to navigation where deck cadet is expected to assist the Navigation Officer to make sure that ship carries up to date and adequate charts and appropriate nautical publications. Along with this, deck cadets also help in preparation of voyage report, vessel's passage plan, daily position reports and the info sheet of pilot. They also maintain the bridge emergency signals and communications.

In addition, this result represents deck cadets' compliance with pollution prevention and requirements. As such, this finding denotes that deck cadets displayed very good competence in their compliance in preventing pollution for they are aware that one of the most important concerns of maritime industry is pollution-prevention for safeguarding human life and marine environment from all kinds of pollutions. Thus, according to this agency, if not properly managed, the effect on the environment could be devastating, as ships often carry large volumes of hazardous cargo and produce a significant number of pollutants throughout their life cycles

Overall, findings obviously indicates that LPU-LIMA maritime students are knowledgeable about the basic of life at sea and in navigating the ship. This result is in consonance with STCW'78 as amended since cadets who are qualified for shipboard training

should undergo education, training and certification requirements of the prescribed minimum standards. Hence, the competence of seafarers is the most critical factor in the safe and efficient operation of ships. Monitoring of cadet's performance onboard is a must to ensure that the highest standards of competence are maintained.

These findings show that deck cadets have very good competence in inspecting and reporting defects and damage to cargo spaces, hatch covers and ballast tanks, monitoring the loading, stowage, and care during the voyage and unloading of cargoes and in monitoring compliance with legislative requirements. These results denote that deck cadets have knowledge on the effect of cargo, including heavy lifts, on the seaworthiness and stability of the ship as well as knowledge in safely handling, stowage and securing of cargoes including dangerous, hazardous and harmful cargoes, and their effect on the safety of life and of the ship. Likewise, maritime cadets also have abilities to establish and maintain effective communications during loading and unloading. In the same manner, they also possess

knowledge and ability to explain where to look for damage and defects most commonly encountered by them due to loading and unloading operations of the ship, corrosion as well as severe weather conditions.

Overall, this result connotes that LPU maritime cadets showed competence in performing their duties and responsibilities in maintaining a safe navigational watch for they do know that navigation is perhaps the most important aspect of being a cadet and from the guidance and supervision of a certified officer like Chief Mate, they were able to learn the science and art of navigation. Results are in connection with the article circulated in the net about job responsibilities of a deck cadet pertaining to navigation where deck cadet is expected to assist the Navigation Officer to make sure that ship carries up to date and adequate charts and appropriate nautical publications. Along with this, deck cadets also help in preparation of voyage report, vessel's passage plan, daily position reports and the info sheet of pilot. They also maintain the bridge emergency signals and communications.

Table 3
Deck Cadet Performance in Terms of Competence for Academic Year 2014-2015

Indicators	2014 - 2015		
	WM	VI	R
1. Plan and conduct a passage and determine position	3.79	VG	13.5
2. Maintain a safe navigational watch	4.00	VG	7
3. Use of RADAR and ARPA for safety of navigation	3.79	VG	13.5
4. Use of ECDIS to maintain safety of navigation	3.74	VG	15
5. Respond to emergencies	4.03	VG	6
6. respond to a distress signal at sea	3.89	VG	10.5
7. Use the IMO SMCP and use English	3.95	VG	8.5
8. Transmit and receive information using visual signaling	3.95	VG	8.5
9. Maneuvers the ship	3.89	VG	10.5
10. Monitor the loading, stowage, securing and care during the voyage and unloading of cargoes	3.71	VG	16
11. Inspect and reports defects and damage to cargo spaces, hatch covers and ballast tanks	3.68	VG	17
12. Ensure compliance with pollution-prevention requirements	4.16	VG	3
13. Maintain seaworthiness of the ship	4.11	VG	4
14. Prevents, control and fights fires on board	4.21	VG	2
15. Operate life-saving appliances	4.05	VG	5
16. Apply medical first aid on board ship	3.84	VG	12
17. Monitor compliance with legislative requirements	3.58	VG	19
18. Application of leadership and team working skills	3.61	VG	18
19. Contribute to safety of personnel and ship	4.39	VG	1
	3.91	VG	

Legend: 4.50 - 5.00 = Excellent; 3.50 - 4.49 = Very Good; 2.50 - 3.49 = Good; 1.50 - 2.49 = Fair; 1.00 - 1.40 = Poor

Table 3 presents deck cadets performance in shipboard training in terms of their competence for academic year 2014-2015. As seen from the table, items pertaining to safety of personnel and ship, prevents, control and fights fires on board, ensure

compliance with pollution-prevention requirements, maintain seaworthiness of the ship and operate life-saving appliances got the highest ranks with mean values of 4.39, 4.21, 4.16, 4.11 and 4.85 respectively where deck cadets show very good performance in

terms of their competence. From these it can be inferred that findings simply imply that cadets who have served on-board were able to know the areas within the ship designated to them for maintenance and upkeep. Clearly, this finding proves that LIMA cadets who are given opportunity to board foreign tanker vessels are more than aware of pollution prevention and its requirements where tanker vessels are more subjected to oil pollution compared with other type of vessels. As such, this finding denotes that deck cadets displayed very good competence in their compliance in preventing pollution for they are aware that one of the most important concerns of maritime industry is pollution-prevention for safeguarding human life and marine environment from all kinds of pollutions.

In addition, this result further supports an article by Bhattacharjee [8] about duties and role perform by deck cadet on board ships/vessels published January 3, 2017 which stated that deck cadets should maintain safety equipment on-board ships/vessels and performing general upkeep of the ship/vessel such as deck and cargo equipment maintenance

The table also indicates the five statements lowest in rank pertaining to monitor compliance with legislative requirements with mean value of 3.58 followed by application of leadership and team working skills. Next in rank is statement on Inspect and reports defects and damage to cargo spaces, hatch covers and ballast tanks afterwards is item on monitor the loading, stowage, securing and care during the voyage and unloading of cargoes as to its mean 3.71 and lastly, is the statement concerning use of Electronic Chart Display and Information System (ECDIS) to maintain safety of navigation with weighted mean of 3.74. These research outcomes even if they ranked last among the statements, still they were rated by the maritime students' employers as very good. From this, it can be deduced that from the lowest ranked items pertaining to compliance with legislative requirements and ECDIS, students equipped themselves with technical skills on computer-based navigation system such as sailing directions that complies with the International Maritime Organization (IMO) regulations.

Table 4
Engine Cadet Performance in terms of Their Competence for Academic Year 2013-2014

Indicators	2013 - 2014		
	WM	VI	R
1. Maintain a safe engineering watch	4.09	VG	6
2. Use English in oral and written form	3.09	G	14
3. Use internal communication system	3.73	VG	7
4. Operate main and auxiliary machinery and associated control system	3.18	G	11.5
5. Operate fuel, lubrication, ballast and pumping system and other associated control systems	3.18	G	11.5
6. Operate, electrical, electronic and control system	2.82	G	15
7. Maintenance and repair of electronic and electrical equipment	3.20	G	10
8. Appropriate use of hand tools, machine tools and measuring instruments for lubrication and repair onboard	4.27	VG	4
9. Maintenance and repair of shipboard machinery and equipment.	3.18	G	11.5
10. Ensure compliance with pollution prevention requirements	4.45	VG	1.5
11. Maintain seaworthiness of the ship	4.36	VG	3
12. Prevent control and fight fires onboard	3.27	G	9
13. Operate life-saving appliances	4.18	VG	5
14. Apply medical first aid on board ship	3.36	G	8
15. Monitor compliance with legislative requirements	2.64	G	16.5
16. Application of leadership and team working skills	2.64	G	16.5
17. Contribute to safety of personnel and ship	4.45	VG	1.5
	3.56	VG	

Legend: 4.50 - 5.00 = Excellent; 3.50 - 4.49 = Very Good; 2.50 - 3.49 = Good; 1.50 - 2.49 = Fair; 1.00 - 1.40 = Poor

Table 4 shows engine cadets' performance on shipboard training in terms of their competence for Academic Year 2013-2014. It can be seen from the table that ensuring compliance with pollution requirements and contribute to safety of personnel and

ship both ranked 1.5 as reflected by their mean values of 4.45 followed by maintaining seaworthiness of the ship as to its weighted mean 4.36 signifying very good rating. This result is in relation with the excerpts published by European Maritime Safety Agency

(EMSA) entitled “Preventing Pollution from Ships” in citing that “shipping is fundamental to peoples’ well-being, with around 90% of European Union external trade going by sea and more than 3.7 billion tons of freight a year being loaded and unloaded in EU ports.” Thus, according to this agency, if not properly managed, the effect on the environment could be devastating, as ships often carry large volumes of hazardous cargo and produce a significant number of pollutants throughout their life cycles. More so, this means that cadets are knowledgeable and well-oriented before joining the shipboard training and as judged by their employers, their apprenticeship competence is on their awareness of maintaining seaworthiness of the ship ranked third based on its computed mean value of on the weighted mean which got 4.36. This implies that they are familiar on the different machineries used for propulsion to maintain the safe operation of the ship.

Presented on the table, engine cadets operating electrical, electronic and control system ranked number 15 which signifies that they need to be competent in analyzing and troubleshooting of electrical and electronic control system while last on ranked are items 15 and 16 with mean values of 2.64 which denote that maritime students were not yet accustomed to applying leadership and management toward working skills, and monitoring compliance with legislative requirements.

Overall, the competence of engine cadets among the items indicated in the instrument is good as to ratings given by their employed. As such, from these results, the marine engineering professors need to enhance skills of their maritime students by providing them more group and team building activities related leadership skill development and actual drills in relation to electrical troubleshooting onboard ship.

Table 5
Engine Cadets Performance in terms of Their Competence for Academic Year 2014-2015

Indicators	2014 - 2015		
	WM	VI	R
1. Maintain a safe engineering watch	4.13	VG	5.5
2. Use English in oral and written form	3.88	VG	10
3. Use internal communication system	3.88	VG	10
4. Operate main and auxiliary machinery and associated control system	3.75	VG	12
5. Operate fuel, lubrication, ballast and pumping system and other associated control systems	4.13	VG	5.5
6. Operate, electrical, electronic and control system	3.56	VG	14
7. Maintenance and repair of electronic and electrical equipment	3.44	G	16
8. Appropriate use of hand tools, machine tools and measuring instruments for lubrication and repair onboard	3.88	VG	10
9. Maintenance and repair of shipboard machinery and equipment.	3.50	VG	15
10. Ensure compliance with pollution prevention requirements	4.38	VG	2.5
11. Maintain seaworthiness of the ship	4.00	VG	8
12. Prevent control and fight fires onboard	4.38	VG	2.5
13. Operate life-saving appliances	4.06	VG	7
14. Monitor compliance with legislative requirements	3.69	VG	13
15. Application of leadership and team working skills	4.31	VG	1
16. Contribute to safety of personnel and ship	4.19	VG	4
	3.95	VG	

Legend: 4.50 - 5.00 = Excellent; 3.50 – 4.49 = Very Good; 2.50 – 3.49 = Good; 1.50 – 2.49 = Fair; 1.00 – 1.40 = Poor

Table 5 presents engine cadets’ performance on shipboard training in terms of their competence for Academic Year 2014-2015. Cadets were applying the leadership and teamwork skills as manifested in the table with a weighted mean of 4.31 and ranked first. It can be shown that they honed their skills from the completion of PERS MAN (Leadership and Teamwork) on their undergraduate course. It also shows that ensuring compliance with pollution prevention requirement and prevention control and fight fires on board gain a weighted mean of 4.38, respectively. Putting the item to rank second, these can be attributed to Basic Training which involves fire prevention and firefighting and different approaches to

the different classes of fire while ensuring compliance with pollution prevention requirements from their training in Marine Pollution.

Initiatives aiming to overcome the barriers faced by employers in engaging with the Apprenticeship programme have been introduced or piloted in recent years, including the Apprenticeship Vacancies System [5], the ATA/GTA Pilots [9] and the AGE programme for employers [10]. The evaluations of such initiatives have shown some positive outcomes. In the case of the Apprenticeship Vacancies System, whilst at the time of the evaluation the effects on employers were found to be relatively minor (the system was found to have promoted much higher levels

of learner engagement than employer engagement), there is potential for this system to have much greater benefits for employers and the evaluation sets out a number of recommendations on how these can be realized. The alternative approaches to employer engagement represented by the ATA/GTA pilots have been found to be well-received by employers and training providers and have encouraged higher levels of participation by employers.

It can be assumed from the table that maintenance and repair of electronic and electrical equipment, operate electrical, electronic and control system got a weighted mean of 3.44 and 3.56 respectively, due to the fact that cadets are not familiar with the operation of different electrical and electronic system considering that within that time frame, lack of electrical laboratory equipment and training module were not given to them. Also shown is the item which ranked the lowest and in which the cadets performed the least, that is, maintenance and repair of shipboard machinery equipment which can be attributed to the cadet's lack of experience in utilizing hand tools and

measuring instruments that are pre-requisite on the repair and maintenance of shipboard equipment.

Recent research has also explored the barriers to engagement often reported by employers. Lack of demand is the main factor which discourages employers from taking on apprentices and employers often report that they do not require the level of skills provided through Apprenticeships [11]. It has been found that companies with higher quality product market strategies are more likely to offer Apprenticeship training. Stimulating product market strategies which require intermediate level skills then would help to increase employers' take up of Apprenticeships.

Some studies have also found that the costs of providing Apprenticeships discourage employers from doing so. The costs considered by employers include administrative burden, apprentices' time away from the workplace and time spent by other employees on supervising apprentices in the workplace. Cost factors have been found to be a reason for not participating more commonly reported by smaller employers than larger ones [12].

Table 7
Proposed Shipboard Training Enhancement Program for Deck and Engine Cadets

Areas for Improvement	Objectives	Strategies	Key persons Involved	Success Indicators
Compliance with legislation requirements	Comply with the maritime standards as per IMO.	Incorporate the applicable legislative requirements like STCW on other professional courses in addition to Maritime Laws	LIMA Dean STO Officer LIMA Faculty Deck Cadet	100% mastery of the local and international legislation in compliance with the IMO standards and STCW requirements.
Competence on loading, stowage, securing and care during the voyage and unloading of cargoes.	Maintain the safe operation of the ship.	1. Apply the knowledge gained in monitoring the loading operation from the use of simulators. 2.Utilize basic information on ventilation of cargo hold. Make use of the formulas in computation of cargo for loading and stowage.	LIMA Faculty Deck Cadet	100 % passing in the licensure examination
Inspection and reporting of defects and damages of cargo spaces, hatch covers and ballast tanks.	Develop the writing and reporting skills of cadets.	Strengthen the writing and reporting skills through Maritime English courses like purposive communication and technical writing.	CEAS Faculty Deck Cadet	Zero grade point average of not lower than 1.75 in GEC- Purposive Communication

Table 7 presents the proposed Shipboard Enhancement program for Deck Cadets of the Lyceum International Maritime Academy. Table shows that based on the results of the study, items which ranked the least pertaining to competence of deck cadets are

given special considerations as key areas for improvements. These are compliance with legislation requirements, competence on loading, stowage, securing and care during the voyage and unloading of cargoes as well as the inspection and reports of defects

and damages of cargo spaces, hatch covers and ballast tanks. Considering all the areas for improvement together with the objectives and strategies proposed by the researchers, it is expected that deck cadets will have 100% mastery of the local and international legislation in compliance with the IMO standards and STCW requirements and 100 % passing of the licensure examination upon the implementation of the proposed training enhancements.

CONCLUSION AND RECOMMENDATION

Majority of the shipping company's category and ownership is foreign whereas type of ship where maritime students had their shipboard training is on a tanker vessel. Deck cadets showed excellent competence in contributing to the safety of personnel and ship while very good competence as to their compliance with pollution-prevention requirements and in the prevention, control and fights of fires on board for academic year 2013 and 2014. For academic year 2014-2015, deck cadets only showed very good competence as to their shipboard training experience in contributing to the safety of personnel and ship, complying with pollution prevention and controlling and fighting fires on board. A Shipboard Training Enhancement Program was proposed to provide cadets a description of their performance onboard ships, help cadets to assimilate more quickly into the organization and give the cadets a sense of satisfaction in performing the new job.

Maritime students of the university may be encouraged to undergo Shipboard Training after finishing their three academic years for them to be able to show their capabilities, gain confidence, realize and understand the job requirements onboard ships and job security in the future. The University Officials headed by the Dean and Department Chairman of the BSMT and BSMarE programs may continuously revise the Maritime curriculum by adopting the sandwich type program offered by other maritime Schools in the country by placing Shipboard Training on the third year of the course. The university upon the revision of the curriculum may schedule a conference with student's parents' as to the implementation of the new curriculum, additional fees and benefits of the training on board. Future researchers may conduct a continuous study for as to employers' feedback on the shipboard training of the maritime students from SY 2016 onwards using quantitative descriptive method in testing significant differences and correlation between variables being studied. The proposed Shipboard

Training Enhancement Program may be evaluated for further review before its implementation.

REFERENCES

- [1] 3rd Draft MARINA CIRCULAR, Series of 2015. Available at <https://marina.gov.ph/wp-content/uploads/2018/07/MC-2015-08.pdf>
- [2] Barlis Jr. J.M, Fajardo III, J.D., Dimog, K, Mendoza, M.B., Barlis, M.M., (2015). The Attitude and Performance of the Cadets of Maritime Institution during Ship Board Training: An Assessment. *The Asian Conference on Education 2015 Official Conference Proceedings*
- [3] The Guardian (2010) 'BT receives 24,000 applications for 220 Apprenticeships', <http://www.guardian.co.uk/business/2010/aug/16/bt-apprenticeships-record-applications>.
- [4] Wolf, A. (2011) "Review of Vocational Education - the Wolf Report," London: Department for Education.
- [5] Diamond, A., A. Jones, And P. Casey (2010) "Evaluation of the Apprenticeship Vacancies System," Leicester: CFE. 69.
- [6] Tu, T., C. Lambert, B. Lever Taylor, C. Lister And A. Klein (2011) "National Learner Satisfaction Survey: Apprentices Report," BIS Research Paper Number 19. London: Department for Business, Innovation and Skills
- [7] Nam, J. D. (1995). A study on the efficient improvement in the shipboard training. *Journal of the Korean Society of Marine Environment & Safety*, 1(2), 95-95.
- [8] Bhattacharjee, S., (2020) 10 Important Jobs Deck Cadets Have to Perform On board Ships. *Marine Careers*. <https://www.marineinsight.com/careers-2/10-important-jobs-deck-cadets-have-to-perform-on-board-ships/>
- [9] Turner, R. (2011) "National Apprenticeship Service - Evaluation of the ATA/GTA Pilots," Leeds: York Consulting/NAS.
- [10] Wiseman, J., Roe, P., & Parry, E. (2011). An evaluation of the Apprentice Grant for Employers (AGE) programme. *Birmingham: BMG Research*. <http://www.Apprenticeships.org.uk/About-Us/~media/Documents/NAS-AGEEvaluationFinal-May2011.ashx>.
- [11] Elston, A., James, L., & Incomes Data Services (IDS). (2011). Apprentice Pay and Conditions: A Research Report for TUC/Unionlearn. *Incomes Data Services/Thomson Reuters*. <http://www.unionlearn.org.uk/files/publications/documents/216.pdf>.
- [12] Davies, B., Gore, K., Shury, J., Vivian, D., Winterbotham, M., & Constable, S. (2012). UK Commission's Employer Skills Survey 2011: England Results.