Effects of General Education Courses to the Cadetship Selection of Maritime Students

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Abstract - *The study aimed to determine the effects of general education courses to the maritime students' cadetship. Specifically, it sought to determine the effects of GE courses to the employment of maritime cadets; to test the significant difference of the responses when grouped according to profile variables and lastly, to propose a plan of action based on the result of the study. Survey questionnaire was used as the main data gathering instrument while frequency distribution and weighted mean were utilized as statistical tools. Based on the results, majority of the respondents were enrolled in Bachelor of Science in Marine Transportation, with an average grade of 1.51-2.00 in Math and English while 2.01-2.50 in Science. General education courses were found to have an effect on the cadetship selection of maritime students, specifically in Mathematics. Hence, a plan of action was proposed to address the effect of GE courses to the cadetship selection of maritime students. The researchers also recommend that LIMA may organize seminars and symposiums concerning the improvement of students in different subjects by collaborating with professors in the concerned courses. Furthermore, the University may identify new GE Faculty as resident Faculty of the academy. The University may modify the curriculum wherein maritime situations may be integrated in studying General Education courses. The Shipboard Training Office, through the faculty members may conduct refresher courses to review students on previous lessons regarding GE courses.*

Keywords*: General Education Courses, Cadetship Selection*

INTRODUCTION

The international demand for seafarers is about 1.5 million with approximately 790,500 officers and 754,500 ratings, but the supply of seafarers is about 1.6 million having 774,000 officers and 873,500 ratings according to the International Chamber of Shipping (2017). As one of the largest providers of seafarers, Philippines has supplied 380,000 seafarers where majority of which are ratings (Kritz, 2017). This only shows that Filipino seafarers are globally in demand because of their exceptional qualities. Among these qualities are initiative, competent, trustworthy, compassionate and loyal towards the organization.

Maritime Cadetship in the Philippines demands a lot of requirements that need to be complied in order to be hired. An applicant has to undergo different trainings, series of interviews and examinations. The qualifying examinations consist of Technical and General Education courses. The Technical courses include Navigation, Seamanship and Collision Regulations where as General Education courses include Math, Physics and English. Atienza et al. (2017) noted that the result of the academic performance of the college students is one of the measures of their capacity to carry out tasks effectively and efficiently.

Cadetship of most shipping companies follows series of steps in their recruitment that includes the qualifying exam, interviews and medical examination. Qualifying exam includes basic knowledge on Mathematics, Science, English and Technical courses. Principles in these GE courses would also be applied in understanding Technical courses. The results of the qualifying exam would determine if a candidate for cadetship would proceed to the next step or not.

The selection process includes the grade requirement, physical condition, qualifying exams and series of interviews. Only a few number of students made it to the top while some students passed the qualifying examination and the interviews but did not pass the medical requirement. On the other hand, some have passed the qualifying examination but failed in the interview. Majority of students cannot make it to the interview for they have failed in the qualifying examination for the reason that they only focused on the technical courses aside from the general education courses.

According to Shipboard Training Office (2017), a number of students often fail in the general education courses because they lack knowledge in those fields of studies. Though these general education courses were being taken since freshmen as part of the curriculum, still it is not well incorporated to the technical courses. Considering, general education courses must consistently associate terms, examples and problems in their instruction.

In addition, the researchers wanted to determine the effects of General Education courses and their possible causes in order to assist LIMA in complying with the selection process of different companies. The researchers believe that through this study, they would be able to create appropriate measures and relate general education courses to technical courses to meet the requirements for the selection process.

OBJECTIVES OF THE STUDY

The study aimed to determine the effects of General Education courses to the maritime students' cadetship. Specifically, it sought to attain the following objectives: (1) to describe the profile of respondents in terms of program and grade; (2) to determine the effects of GE Courses to the Cadetship Selection of Maritime Cadets; (3) to test the significant difference on responses when grouped according to profile variables and lastly, to propose a plan of action based on the result of the study.

METHODS

Research Design

This study used the descriptive type of research. Descriptive research is typically used to describe characteristics of a population being studied. It does not answer how/when/why the characteristics come about. Preferably, it addresses the "what" question. The characteristics used to describe the situation or population is usually some kind of categorical scheme also known as descriptive categories as stated by Rangarjan and Shields (2013). The researchers used the descriptive method to measure the effects of general education courses in cadetship selection in LIMA.

Participants of the Study

The respondents in this study were maritime students who already have taken cadetship selection examination from a shipping company composed of 47 Senior III of BSMT; nine (9) Senior II of BSMT and twenty-six (26) Senior III of BSMarE.

Table 1. Distribution of the Respondents' Program

Program	f	%
BS Marine Transportation	53	67.10
BS Marine Engineering	26	32.90

As shown in Table 1, 53 or 67.10 percent of the respondents are taking up Bachelor of Science in Marine Transportation and 26 or 32.90 of the respondents are currently enrolled in Bachelor of Science in Marine Engineering. This only implies that there are more BS Marine Transportation students who are qualified to take cadetship selection given by different crewing agencies and shipping companies.

Instruments

The data required in this study were obtained through a questionnaire made by the researchers. The first part of the questionnaire is the respondent's demographic profile such as academic program, gender and grade. The second part of the questionnaire covers the effects of General Education Courses.

The researchers adapted various questions and revised them according to the purpose of the study and was validated by the experts. The given scale was used to interpret the result of the survey: 3.50 – 4.00: Strongly Agree (SA); 2.50 – 3.49: Agree (A); 1.50 – 2.49: Disagree (D); 1.00 – 1.49: Strongly Disagree (SD).

Procedures

The questionnaires were personally distributed to a number of maritime students. The contents of the questionnaire were explained first to the respondents before answering. They were informed regarding the purpose of the study and ensured that their responses will be treated with strict confidentiality and will solely be used for the purpose of this study. The accomplished questionnaires were collected and tallied within a week.

Data Analysis

The collected data were interpreted using different statistical tools such as percentage, ranking, weighted mean and analysis of variance (ANOVA). These tools were used based on the objectives of the study. In addition, all data were treated and computed using a statistical software, PASW version 18 to further analyze the result of the study.

Ethical Considerations

To observe the highly confidential nature of the interviews, no particular names were mentioned in the

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report. The identities of the respondent were not revealed in the study. No personal opinion was given by the researcher, only information and result based on the data gathered.

RESULTS AND DISCUSSION

Table 2. Distribution of the Respondents' Performance on General Education Courses

Courses	f	%
Math		
1.00 – 1.50	7	8.90
1.51 – 2.00	39	49.40
2.01 – 2.50	31	39.20
2.51 – 3.00	2	2.50
English		
1.00 – 1.50	10	12.70
1.51 – 2.00	46	58.20
2.01 – 2.50	21	26.60
2.51 – 3.00	2	2.50
Science		
1.00 – 1.50	5	6.30
1.51 – 2.00	31	39.20
2.01 – 2.50	40	50.60
2.51 – 3.00	3	3.80

As shown in Table 2, 39 or 49.40 percent of the respondents obtained a grade of 1.51 – 2.00 while 2 or 2.50 percent of the respondents got 2.51 – 3.00 in Math. On the other hand, 46 or 58.20 percent of the respondents got 1.51 – 2.00 while 2 or 2.50 percent of the respondents obtained a grade of 2.51 – 3.00 in English. Meanwhile, 40 or 50.60 percent of the respondents obtained a grade of 2.01 – 2.50 while of 3 or 3.80 percent of the respondents has a grade of 2.51 – 3.00 in Science.

This implies that majority of the respondents got high grades in these General Education courses for it is a requirement in order to take a qualifying examination for the cadetship selection of maritime students. These grade requirements are set by companies in conducting qualifying examination in LIMA through the Shipboard Training Office.

As seen from Table 3, all items were rated agree as revealed by the composite mean of 3.27. Among the items cited, "understand different Marine communication phrases used on board" was the most observable effects of studying English since it obtained the highest weighted mean score of 3.41. According to Demirel and Ziarati (2010), it is important to be familiarized with these words or phrases for it is commonly used by seafarers on board ships. Acquiring this knowledge is very helpful to future seafarers for it is very useful onboard ships and it helps the crew to understand one another despite coming from different nationalities. It was followed by the item "understand and follow instructions diligently" (3.34) and "read aloud texts effortlessly and accurate without hesitation and with proper expression" (3.32). These skills were acquired because students have been taking the English subject since elementary. Apparently, the essential skills acquired in English subject includes reading different types of texts and the use of thinking skills in analyzing different texts or instructions (Literacy Link South Central, 2017).

Table 3. Effects of GE Courses (English) to the Cadetship Selection of Maritime Students

Indicators	WM	VI	Rank
1. I can express ideas effectively in formal and informal compositions.	3.29	Agree	6
2. I can communicate effectively in oral and written forms using correct grammatical structure of English.	3.13	Agree	12
3. I can read aloud texts effortlessly and accurate without hesitation and with proper expression.	3.32	Agree	3
4. I can acquire study and use English vocabulary words appropriately in relevant contexts.	3.19	Agree	10
5. I can understand and follow instructions diligently.	3.34	Agree	2
6. I can write an effective essay.	3.29	Agree	6
7. I can summarize and paraphrase what I have heard and read.	3.29	Agree	6
8. I can easily write my own essays of my own suggested topic.	3.27	Agree	8.5
9. I can create a sample of memo for a maritime situation.	3.16	Agree	11
10. I can create an effective email.	3.30	Agree	4
11. I can respond to sample interview.	3.27	Agree	8.5
12. I can understand different Marine communication phrases used on board.	3.41	Agree	1
Composite Mean	**3.27**	**Agree**	

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On the other hand, the items such as "acquire study and use English vocabulary words appropriately in relevant contexts", "create a sample of memo for a maritime situation and communicate effectively in oral and written forms""using correct grammatical structure of English" were rated the least by the respondents and got the lowest mean value of 3.19, 3.16 and 3.13 respectively. Students in the Philippines are poor in the use and understanding of some English vocabulary words and they lack the proper knowledge in constructing grammatically correct sentence since English is not the primary language used in the country. What matters most is that as a person is able to convey or deliver his/her message despite using inappropriate words and grammatically poor constructed sentence. As discussed by Senobio (2015), Filipino students are still poor in English language and in constructing sentences that are grammatically correct and with the proper use of words because English language is not the superior language in the Philippines.

As shown in Table 4, all items were rated agree with the composite mean of 3.17. Among the items cited, "manifest skills in performing operations on algebraic expressions with ease" was the most evident effects of studying Mathematics since it obtained the highest weighted mean score of 3.29. It was followed by the items, "perform various operations of a real number system easily" and "demonstrate skills in finding the answer using different operations" with a mean score of 3.23. Followed by "plot coordinates x and y axis" and "illustrate and perform order of operation correctly" are the third highest weighted mean score both having 3.22. These indicators got the highest mean scores because concepts in this GE subject are being used and applied in learning professional courses. Elenbaas (2011) noted that having enough knowledge in Algebra, as a branch of Mathematics would be useful to students in their professional courses. Junttila (2011) emphasized that Math is very helpful to students in learning skills that can be used in navigation and other professional courses.

Moreover, the item" the use of trigonometric functions" got the lowest mean score with 3.08 because although it is needed in some professional courses, students find it hard in understanding concepts pertaining to this topic. According to Kagenyi (2016), students find it hard to understand trigonometric functions because of lack of instructional resources like calculators. Also they find difficulty in absorbing the concepts in this topic. Moreover, the items "solve quadratic equations without difficulty"; "illustrate the different kinds of angles accurately" and "proficient in reading angle measurement" and "familiar in solving different kinds of triangle problems" got the second lowest ranking with a mean score of 3.11. Apparently, these effects are only those relevant to BS Marine Transportation students. As explained by Junttila, Adamick and Elenbaas (2011), knowledge in Mathematics are very useful in professional courses like Navigation being taken by BSMT students.

Table 4. Effects of GE Courses (Math) to the Cadetship Selection of Maritime Students

Indicators	WM	VI	Rank
1. I can perform various operations of a real number system easily and I can demonstrate skills in finding the answer using different operations.	3.23	Agree	2
2. I can illustrate and perform order of operation correctly.	3.22	Agree	3.5
3. I can describe algebraic expression effortlessly.	3.19	Agree	6
4. I can manifest skills in performing operations on algebraic expressions with ease.	3.29	Agree	1
5. I can solve quadratic equations without difficulty.	3.11	Agree	10
6. I can illustrate the different kinds of angles accurately and I am proficient in reading angle measurement.	3.11	Agree	10
7. I can use trigonometric functions.	3.08	Agree	12
8. I know how to translate verbal mathematics into algebraic expressions.	3.14	Agree	8
9. I know how plot coordinates x and y axis.	3.22	Agree	3.5
10. I am familiar in solving different kinds of triangle problems.	3.11	Agree	10
11. I know how to derive formulas in mathematics.	3.18	Agree	7
12. I know how to use ruler, compasses, and protractor.	3.20	Agree	5
Composite Mean	**3.17**	**Agree**	

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Table 5. Effects of GE Courses (Science) to the Cadetship Selection of Maritime Students

Indicators	WM	VI	Rank
1. I can apply basic principles to problems without difficulty.	3.29	Agree	4
2. I can apply scientific methods in solving a problem.	3.15	Agree	8
3. I can convert quantities of different units.	3.13	Agree	10
4. I know the safety precautions in performing different activities.	3.19	Agree	6
5. I know the importance in the changes in substances.	3.11	Agree	11
6. I can differentiate and distinguish different kinds of forces.	3.15	Agree	8
7. I know the effects of different substances to the environment.	3.15	Agree	8
8. I know how to use different equations in solving a problem.	3.10	Agree	12
9. I can relate different principles in sciences in real life situation.	3.38	Agree	2
10. I know how I can use different physics principles in marine related courses.	3.27	Agree	5
11. I know how to derive formulas.	3.32	Agree	3
12. I can effectively use laboratory apparatus and I can properly perform laboratory activities based on the module.	3.58	Strongly Agree	1
Composite Mean	**3.24**	**Agree**	

It can be gleaned from that only one item in Table 5 that there is only one item rated strongly agree and the rest were rated agree which obtained the composite mean of 3.24. The respondents strongly agreed that they can effectively use the laboratory apparatus and they can properly performing laboratory activities based on the module(3.58) which basically is the most observable effect of studying Science. Students must be familiar with the proper use of laboratory apparatus because some of these were also found onboard and would be a great factor in acquiring favorable results (Watson, 2017). "Relating different principles in sciences in real life situation" was ranked second with a mean score of 3.38 because it is important and helpful to relate scientific concepts and principles to real life. According to Farooq (2013), knowledge and principles in this subject can have huge impact on real life such as in decision making. On the other hand, the item, "know how to derive formulas" got a mean score of 3.32. It is also important for students to solve scientific equations because according to Punglia, Dobra, Kisseleva-Eggleton, Hayes, Pecota and Browne (n.d.), students should have enough knowledge in solving vectors, magnitude and other equations in Physics.

On the other hand, they still agreed though with the least mean score that they know how to use of different equations in solving a problem (3.10) because students find it hard in analysing what equations to be used. Respondents also agreed that they know the importance in the changes in substances (3.11) and they know how to convert quantities of different units (3.13). These indicators were rated with the lowest means in the studying Science because some students might not be familiar in the chemical and physical properties of substances since they do not memorize conversion factors thus, finding it difficult to convert different quantities. According to Mekonnen (2014), the reason why students find it hard to use equations is because of lack of skills, practice and poor understanding of concepts in the subject matter.

Table 6. Summary Table on the Effects of GE Courses to the Cadetship Selection of Maritime Students

Indicators	WM	VI	Rank
English	3.27	Agree	1
Math	3.17	Agree	3
Science	3.24	Agree	2
Composite Mean	**3.23**	**Agree**	

It can be gleaned from Table 6 that the three General Education Courses were all rated agree by the respondents with a composite mean of 3.23. Apparently, these GE Subject can really have an effect on the cadetship selection of maritime students and are useful in understanding broader topics which may be tackled in technical courses. Commission on Higher Education (CHED) mandated that these courses should be part of every curriculum that serve as the foundation towards becoming a professionally competent, compassionate and ethical person. Furthermore, these courses prepare students for the demands of the 21st century life and enable students to locate her/him-self in the community and the world and engage to it meaningfully.

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Table 7. Relationship Between the Performance on GE Courses and the Its Effects to the Employment of Maritime Students

Courses	χ^2_c	p – value	Interpretation
English	1.012	0.798	Not Significant
Math	17.168	0.046	Significant
Science	8.974	0.175	Not Significant

Legend: Significant at p-value < 0.05

Based on the result, there is a significant relationship on the respondents' performance in Mathematics and its effects to their employment as maritime cadets. This was observed since the obtained p-value of 0.046 is less than 0.05 alpha level, thus the null hypothesis is rejected. This only means that the better the performance in Mathematics, the more positive effect it has to their employment. Math is important in the employability of an individual because most of the employers seek for an applicant who has enough knowledge in problem solving, analytical and logical thinking.

Arellano et al. emphasized that students with low academic performance really feel the need to develop their confidence in expressing ideas, making wise decisions and taking responsibility as part of personal and social development to reach their full potential as future marine professionals and leaders of their own communities. However, completing the curriculum with academic performance as measure sometimes would not be enough to check the competence of the learners (Agena et al., 2017, Laguador et al., 2013).

This knowledge is very useful in any job like computer-related professions, medical field, software, meteorology, statistics, accounting and many more (Institute of Mathematics and its applications,2017). Math appears to have significant effect on the cadetship selection of Maritime students because concepts and principles in this subject are useful in major courses like Navigation, Seamanship, Thermodynamics and other technical courses. Junttila, Adamick and Elenbaas (2011) said that having enough knowledge in Mathematics principles and concepts will be helpful in understanding the technical courses such as Navigation.

Table 8. Proposed Action Plan

Key Results Area	Strategy/Projects
A. Mathematics Application of knowledge on Algebraic operations	• Correlation of mathematical problem sets to maritime cases
Importance of X and Y axis in plotting	• Formulate exercises that will further improve the students' skills in plotting
Basic principles in Mathematics (Derivation of Formulas, Conversion of Units and Fractions and Percentage)	• Constant answering of activities to practice the use of these basic math principles.
B. Science Proper handling and usage of Laboratory Apparatuses and commendable performance in laboratory activities	• Have on-hand activities with the use of laboratory apparatus on laboratory room • Formulate exercises that involve the use of equipment onboard such as Barometer, Psychrometer and Hydrometer.
Relativity of scientific principles to real life situation	• Have an in-depth familiarization as regards to scientific principles such as simulation • Have regular/ actual activities that involve concepts in Meteorology and Oceanography
Derivation of Scientific formulae	• Include formula derivation on the course syllabus of BSMT and BSMarE
C. English Understanding Maritime terminologies	• Constant use of Standard Marine Communication Phrases (SMCP) on English courses • Continuous teaching of Maritime English to Maritime Students
Immediate response to instructions or instructional materials given	• Conducting Seminars about shipboard training instructions.
Grammar and Language Competency	• Compliance to Just English Please Policy (JEP) of LPU-B. • Include a mock-job interview that will focus on grammar development of incoming cadets.

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CONCLUSIONS AND RECOMMENDATIONS

Majority of the respondents were enrolled in Bachelor of Science in Marine Transportation, with an average grade of satisfactory in Math and English while fair in Science. The respondents agreed that General Education courses have an effect on the cadetship selection of maritime students in LIMA. There is a significant difference on the effect of Mathematics to the cadetship selection of maritime students when grouped according to profile variables. English and Science turned out to be insignificant. A plan of action was proposed to address the effects of GE courses to the cadetship selection of maritime students.

It is recommended that the Academy may organize seminars and symposiums concerning the improvement of students' academic performance in different courses by collaborating with GE professors. The University may identify new GE Professors as resident faculty of the academy. The University may modify the existing curriculum to integrate maritime situations in some GE courses. The Shipboard Training Office, through the faculty members may conduct remedial courses to improve students' performance on various GE courses. Future researchers may consider this study as a reference and source of information for a more in-depth approach. Future researchers may explore a similar study using different variables on the effects of GE courses to the cadetship selection of maritime students.

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