

# Awareness of Nigerian Students towards the Student Outcomes and Program Educational Objectives of the BS Marine Engineering Program

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**Abstract** - The study aimed to assess the awareness of the newly-developed program educational objectives (PEO) and student outcomes (SO) for Bachelor of Science in Marine Engineering (BSMarE) in Lyceum International Maritime Academy (LIMA). The researchers used the descriptive method of research. The data were gathered through a survey questionnaire. The results revealed that the respondents are highly aware on the PEO and SO of BS MarE in LIMA. The researchers also proposed plan of action to increase the awareness in PEO and SO of BSMarE in LIMA. The researchers recommended that the incoming BSMARE Nigerian students be oriented at the start of the semester to ensure the awareness of the PEO and SO in LIMA and faculty handling major subjects in BSMarE program specifically with Nigerian students may be properly oriented about the PEO and SO in LIMA.

**Keywords:** PEO, SO, Awareness, Maritime Engineering, Nigerian Students

## INTRODUCTION

Higher Education Institutions uplifts the quality of education by engaging in curriculum development to improve the student's learning (Barcelona et al., 2015). Outcomes-Based Education provides another way in the similar perspective of assessing the performance of the university students (Camello, 2014). It is useful in terms of academics, attitude and instructions (Borsoto et al., 2014). Implementation of OBE is the main thrust of most Higher Education Institutions in the Philippines today to go along with the standards of foreign universities and colleges all over the world (Laguador & Dotong, 2014). In general, Nigerian students are aware of the implementation of OBE (Cabaces et al., 2014).

The Lyceum International Maritime Academy (LIMA) is a standard maritime institution of learning in the Lyceum of the Philippines University that offers the training and certification of cadets undertaking the bachelor's in Marine Transportation and Marine

Engineering courses here in the Philippines. It is the First maritime school to be ISO 9001:2008 certified and rated compliant with Standard of Training and Certification for Watchkeeping (STCW '95).

The marine engineering is a branch of engineering that focuses on the practical skills and theoretical skills of a marine engineer in three areas: offshore, marine based, and shore based. As a mariner, one must have the standard knowledge needed for the duties and responsibilities onboard ship. These would include maintenance of the ship's engine room, auxiliary machineries, automatic system and looking after the system such as fuel oil, refrigeration and fresh water. The Bachelor of Science in Marine Engineering (BSMARE) is focused on having Engine ratings and officers who are well-prepared for shipboard operations. This course is aimed at producing graduates with comprehensive knowledge of the theoretical principles of Marine Engineering. This, likewise, seeks to provide quality and productive

Marine Engineers for the developmental needs of ship and engine installations, ship building, ship repairs and maintenance, marine survey, and other related fields both in the domestic and international shipping industry. The employment opportunities are Chief Marine Engineer, 2nd Marine Engineer, 3rd Marine Engineer, 4th Marine Engineer, Crewing Officer, Deck Officer (3rd, 2nd & Chief Mate), Trainer, Technical Superintendent, and Yard Superintendent ([www.lpubatangas.edu.ph](http://www.lpubatangas.edu.ph)).

Awareness is the ability to perceive, to feel, or to be conscious of events, objects, thoughts, emotions, or sensory patterns. In this level of consciousness, sense data can be confirmed by an observer without necessarily implying understanding. More broadly, it is the state or quality of being aware of something. In biological psychology, awareness is defined as a human's or an animal's perception and cognitive reaction to a condition or event ("What is Awareness", 2014).

Outcome-Based Education instruction focuses on the measurement of student's performance through their outcomes (An, 2014). OBE involves student-centered learning that focuses on empirically measuring the students' performance or outcome (Reyes, 2013). Student learning outcomes statements clearly state the expected knowledge, skills, attitudes, competencies, and habits of mind that students are supposed to acquire at an institution of higher education. These outcomes are used to determine if graduates of this program have achieved the program educational objectives listed above.

The curriculum must be supported by activities that are in the forms of actual experiences outside the classroom that could provide better learning and understanding of the difference between principles and practice (Laguador & Chavez, 2013). Continuous growth and expansion of local and international industry linkages will provide more possibilities to acquire the universal knowledge, live the core values and apply the valuable skills of first world countries in the delivery of instruction inside the university through adapting the outcomes-based curriculum towards ASEAN integration (Laguador, Villas, Delgado, 2014).

The graduates of the Bachelor of Science program in Marine Engineering will have an ability to apply knowledge of mathematics, science, and engineering. The BS Marine Engineering program being a dynamic profession, its curriculum is organized, planned and periodically reviewed to comply with the latest industry standards to develop those skills and abilities that are necessary in pursuing a professional career at

sea and as global maritime practitioners. (<http://www.mcl.edu.ph/Programs/MarE/>)

The Marine Engineering program has adopted the following educational objectives. In about three to five years after graduation, the Marine Engineering alumni shall have advanced their practice or achievement in the field of Marine Engineering and/or other endeavours or advocacies supported by their acquired marine engineering education, strive to be globally competitive in living by the mission values, pursuing continuing education, and practicing continuous quality improvement in their personal lives and continuously scanning, adapting, and building on the best practices in their field.

After successfully completing the program, the student will have the ability to apply engineering principles and analytical techniques in Marine Engineering. They will have an understanding of the engineering design process at both the conceptual and detailed levels. Finally, the students will acquire a range of transferable skills including communication, use of information technology, teamwork, and project management. The maritime schools in the country today are faced with a challenge of quality and excellence in maritime education. The graduates of these institutions are expected to be globally competent and qualified to operate modern and fully automated international ships (Magramo, Javier & Lazaro, 2008).

The general purpose of this study is to assess the level of awareness of Nigerian Students in LIMA towards the Student Outcomes and Program Educational Objectives. In determining the level of awareness of the students, the institution would effectively implement educational objectives and find ways to help students to solve their problems in adapting this educational reform. Additionally, this study would lead to the development of the framework of OBE design that would greatly help this institution to generate globally competitive professionals.

## **OBJECTIVES OF THE STUDY**

This study aimed to find out the level of awareness of Nigerian Students towards the Student Outcome and Program Educational Objectives of the BSMarE program in LIMA. Specifically, the study aimed to assess the level of awareness of the Nigerian Students towards program educational objectives of BSMARE program; determine the level of awareness of the student's outcomes of BSMarE; and to propose an action to increase the level of awareness on student outcomes and program educational objective

## METHODS

### Research Design

The study used a descriptive method of research. It is used to describe characteristics of a population or phenomenon being studied. It includes the process of gathering, analyzing, classifying and tabulating data. Descriptive research is usually used in writing various types of researchers as it covers the widest area among any other methods of investigation. The design is considered the most appropriate to ascertain the level of awareness of Nigeria Students towards the Student Outcome and Program Educational Objectives.

### Instrument

In other to gather data, the researchers conducted a self-structured questionnaire. The researchers utilized different references to look into the information that served as the basis for designing the questionnaire.

The instrument is composed of 2 parts. Part 1 aimed to assess the awareness on Program Educational Objectives and Part 2 aimed to assess the awareness on Student Outcome. Each item consists of a corresponding set of choices answerable by putting a check mark on the items they found to be highly aware, aware, less aware and not aware. The questionnaire was organized by the researchers to support their study about the assessment on the degree of the awareness of PEO and SO of Marine Engineering as perceived by the students.

### Respondents

For this study, the researchers' respondents were all the BS Marine Engineering Nigerian students. The one hundred (100) Marine Engineering Nigerian students were selected using quota sampling. Quota sampling is a type of non-probability sampling in which the researcher selects people, according to some fixed quota. That is, units are selected into a sample on the basis of pre-specified characteristics so

that the total sample has the same distribution of characteristics assumed to exist in the population being studied (<http://sociology.about.com/od/Types-of-Samples/a/Quota-Sample.htm>).

### Procedure

Researchers formulated the objectives and rationale based on the title and had it validated. Then the researchers collated some related literature to support the topic through the use of books, journals, and some electronic references. The researchers also prepared questionnaires based on the formulated objectives. The questionnaires were distributed to the participants of the study.

### Data Analysis

In other to analyze the data gathered, statistical tools were used. The data were presented in tabular form and interpretation of the result, and descriptive statistics such as mean and rank order will be used. Weighted mean and rank order will be utilized to identify the different functions, to determine the level of awareness of Nigerian students towards the PEO and SO of the BS Marine Engineering program.

The given scale was used to interpret the result of the study: 3.50 – 4.00: Highly aware (HA); 2.50 – 3.49: Aware (A); 1.50 – 2.49: Less aware (LA); 1.00 – 1.49: Not aware (NA).

## RESULTS AND DISCUSSIONS

Table 1 presents the level of awareness of the PEO as rated by the respondents. It can be gleaned that the respondents were highly aware awareness on the PEO of Marine Engineering based on the 3.58 composite mean score.

The respondents are highly aware of the PEO number 1 that the graduates have been recognized as marine engineer officers and ratings in accordance with the IMO –STCW '78 standards as amended, other national and international laws and conventions as denoted by the weighted mean score of 3.67.

**Table 1. Awareness of Program Educational Objectives (N=100)**

| Program Educational Objectives  | WM          | VI        | Rank |
|---|-------------|-----------|------|
| 1. have been recognized as marine engine officers and ratings per the IMO –STCW '78 standards as amended, other national and international laws and conventions.  | 3.67        | HA        | 1    |
| 2. have been socially involved marine engineer officers and ratings who actively contribute to the community development and advancement of the local, national and global communities.                                 | 3.42        | A         | 3    |
| 3. have initiated and contributed to the advancement of the maritime profession and industry as marine engineer officers and ratings who actively engage in continuous professional development, training, and research | 3.66        | HA        | 2    |
| <b>Composite Mean</b>   | <b>3.58</b> | <b>HA</b> |      |

**Table 2. Awareness on Student Outcomes (N=100)**

| Student Outcomes  | WM          | VI        | Rank |
|---|-------------|-----------|------|
| 1. Maintain a safe engineering watch.   | 3.76        | HA        | 2    |
| 2. Operate ,maintain and repair electrical/electronic equipment                           | 3.57        | HA        | 8    |
| 3. Operate main and auxiliary machinery and associated control system                     | 3.61        | HA        | 6    |
| 4. Maintain and repair shipboard machinery and equipment.                                 | 3.67        | HA        | 4    |
| 5. Apply different techniques of technical drawing and letterings                         | 3.38        | A         | 9    |
| 6. Apply safety procedures in all areas.  | 3.65        | HA        | 5    |
| 7. Utilize different power and hand tools to shipboard operation, maintenance, and repair | 3.74        | HA        | 3    |
| 8. Implement emergency and damage control plans and handle emergency situations.          | 3.59        | HA        | 7    |
| 9. Comply with pollution prevention requirements  | 3.78        | HA        | 1    |
| <b>Composite Mean</b>   | <b>3.63</b> | <b>HA</b> |      |

The graduates have been socially involved marine engineer officers and ratings who actively contribute to the community development and advancement of the local, national and global communities ranked last with the weighted mean score of 3.42 and verbal interpretation of aware.

This implied that the Nigerian students studying BS Marine Engineering were highly aware of their PEO in the institution.

As pointed out in the study of Baylon and Santos (2011) seafarers shall be well-educated and trained, able to follow orders, manage risks, solve problems, and must be psychologically and emotionally happy to ensure safe, secure, clean and efficient operations for safety of life at sea. With this stakeholders joining hands so that Maritime Education and Training (MET) would be supplemented by more on-board training, more of practice-oriented and enhanced by current technologies and simulators with competency to be assessed against the industry's standards.

Table 2 presents the level of awareness of the SO as rated by the respondents. It can be observed that the students were highly aware of the student outcomes

based on the 3.63 composite mean score. Comply with pollution prevention requirements ranked first with a weighted mean of 3.78 and a verbal interpretation of highly aware. Apply different techniques of technical drawing and letterings ranked last with a weighted mean of 3.38 and a verbal interpretation of aware. This implies that the Nigerian students are very much aware of the SO of the institution. Ship handling and Maneuvering, as well as Marine Pollution, were also considered very relevant in job placement (Orence & Laguador, 2013), therefore it is very important for the students to learn the necessary skills in this area student outcomes.

As discussed from the study of Abidin and Saleh (2007) as far as outcome-based education (OBE) is concerned, students' learning outcomes need to be clearly defined and measurable. Based on those well-defined and measurable learning outcomes, the curriculum is then developed with the objective of achieving the so desired outcomes. The school must prepare their students adequately so that they can succeed academically.

**Table 3. Proposed Action Plan to Increase the Awareness on PEO and SO of BSMARE**

| Key Results Area   | Action Plan  | Persons In-Charge                                   |
|--|--|---|
| 1. Awareness on PEO #2 "has been socially involved marine engineer officers and ratings who actively contribute to the community development and advancement of the local, national and global communities." | Seminars regarding the Program Educational Objectives                  | Administration, faculty and students                |
| 2. Awareness on SO#E "Apply different techniques of technical drawing and letterings."   | Strengthen the importance of technical drawing and lettering to BSMarE | Professors  |
| 3. Awareness on SO#B "Operate ,maintain and repair electrical/electronic equipment."   | Accessibility to different simulation rooms for BSMarE                 | Professors, Laboratory Personnel and Administrators |

## CONCLUSIONS AND RECOMMENDATIONS

The respondents are highly aware of the Program Educational Objectives of the BSMarE program in LIMA. The respondents are highly aware on the Student Outcomes of the BSMarE program in LIMA. The researchers proposed appropriate actions to increase the level of awareness of the PEO and SO in LIMA. Laguador (2014) recommended that cooperative learning approach may provide a better opportunity for learners to grow and achieve the course objectives as well as the student outcomes to increase the level of awareness of the students through classroom activities. It can be of great help in making OBE a great success making students understand the effectiveness of OBE in improving their academic performance (Caguimbal, 2013). For the students to appreciate better the PEO and SO, they should be assessed if they have already attained a certain level of proficiency among the stated student outcomes of Marine Engineering. Student evaluation and assessment has become an integral process of any educational institution towards an improved and quality learning experience (Bay & Subido, 2014).

Nigerian students may be required to take an assessment examination to measure their learning skills and how effective OBE is to them. Maritime schools like Lyceum International Maritime Academy may provide an OBE program for all their students so as to enhance their skills in studying their courses (Cabaces et al., 2014). The administration of LIMA may invite all the BSMarE Nigerian students to a periodical start of semester orientation to ensure the awareness of the PEO and SO in LIMA. Faculty handling major subjects in BSMarE program specifically with Nigerian students may be properly oriented about the PEO and SO in LIMA. The proposed action plan may be considered to increase the awareness on PEO and SO of BSMarE. Future researchers may conduct an similar in-depth study of this research.

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