

# Laboratory-Services Leading to Quality of Maritime Education and Training (MET) at Maritime University in Philippines

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**Abstract:** This study determined the level of satisfaction of the marine engineering students on the services rendered by the Laboratory Department of JBLFMU-Molo, Iloilo City, Philippines. The research design used in this study was quantitative. The participants of the study were 111 third year marine engineering students of the College of Maritime Education (CME), JBLFMU-Molo for School Year 2019-2020. The statistical tools used were frequency count, percentage, and rank. Results revealed that majority of the marine engineering students were “highly satisfied” with the services given by the Laboratory Department of JBLFMU-Molo, Iloilo City, Philippines. Services of the Laboratory Department of JBLFMU-Molo that were very favorable and satisfactory were: “rules and regulations in borrowing and retrieving of the tools and apparatuses” and “enough ventilation in the laboratory room.” Those which need attention in terms of services of the laboratory were: “catering to the needs of the clients during their laboratory activities” and “safety of the students during laboratory hours”.

**Key words:** laboratory-services, maritime education and training, maritime university, Philippines

## 1. Introduction

A study on satisfaction [1-4] mentioned that satisfaction of the customers is an essential element of success in any organization. Satisfaction refers to the quality of products and services that the institution cascades to rank and file employees of the institution. It was mentioned in this study that equipment and facilities can enhance optimum learning. Action plan contributes to the quality of service. Implementing programs and regulations of the school can also promote efficient services.

Several studies have mentioned about how laboratory spaces can contribute to teacher satisfaction and performance. In the study conducted by Say-Morte (2017) [5], Murphy (2014) [6], and Isaiah (2013) [7], they underscored that the laboratory spaces should be given attention because these are necessary for students to fit into the room. These can also

influence instruction and performance of teachers. Performance of teachers according to this study is influenced by technology as part of the laboratory and will in turn influence the satisfaction of the students on.

In the same manner, according to Nikolic, Ritz, Vial, Ros, & Stirling (2014) [8], Mason, Shuman, & Cook (2013) [9], teaching laboratories in engineering education can improve instructional quality and students’ satisfaction and laboratory play an important role in teaching well. Teaching laboratories are acknowledged as unique learning environments enabling inquiry-based learning. The students’ satisfaction is linked with their learning. Learning in this context, includes laboratory exercises and troubleshooting. Better learning takes place in a better environment. Laboratory therefore plays a critical role in students’ satisfaction and learning. The universities cannot be complacent towards students’ satisfaction with regards to the use of the laboratory.

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In another study conducted by Maristela et al. (2015) [10], it stated that students' satisfaction can be used to help institutions to consider their strengths and to identify some areas that need improvement. Majority of the universities discover that facilities of high standard are a very important factor in selecting the students' choice of school. Using the students' satisfaction, institutions can increase the overall quality of service rendered to its customers. Satisfaction of customers is the key to establish and maintain long relationship. This is considered as a key role in gaining sustainable competitive advantage.

The physical facilities of the universities are considered as major component in developing the proficiency of the students in their respective fields of specialization. Higher education (HE) students are considered as primary customers of colleges and universities. They are the major recipients of services offered by the schools which have the right in meeting and satisfying their needs [10-12].

## **2. Statement of the Problem**

The present study determined the satisfaction of marine engineering students on the laboratory services of JBLFMU-Molo. Specifically, the following questions were advanced:

(1) What is the level of satisfaction of the marine engineering students on the services rendered by the Laboratory Department of JBLFMU-Molo as an entire group and when grouped according to the different services?

(2) What is the most outstanding service rendered by Laboratory Department intended for marine engineering students for SY 2019-2020?

(3) What is the service of the Laboratory Department that marine engineering students are least satisfied with?

## **3. Method**

The research design employed in this study was quantitative. The participants of the study were the

one-hundred eleven (111) third year marine engineering students who were officially enrolled at the College of Maritime Education (CME), JBLFMU-Molo for SY 2019-2020. The sample size was sixty-nine percent (69%) of the total population of (160) among the third year marine engineering students of CME.

### *3.1 Research Instrument*

The research instrument was subjected to the experts in the different specialized fields for content review and face validation. Before the review, the instrument contained 20 items. After the evaluation of the experts, the final version consisted of fifteen (15) positively stated items. These were used as basis to determine the satisfaction of the marine engineering students on the services rendered by the Laboratory Department of JBLFMU-Molo, Philippines for School Year 2019-2020. Recommendations and suggestions of the experts were incorporated in the final version of the instrument. The responses of the participants were: Highly Not Satisfied (HNS), Not Satisfied (NS), Satisfied (S), Highly Satisfied (HS), and Very Highly Satisfied (VHS), which have rating scales of 1, 2, 3, 4, and 5 respectively. According to Saunders & Ruske (2014) [13], face validity is defined that findings are accepted based on their "face value" because they make sense and are believable. The final version of the instruments was administered last October 16, 2019 among the third year marine engineering students of JBLFMU-Molo, Iloilo City, Philippines.

### *3.2 Data-Analysis*

In order to analyze the collected data, the statistical tools used were frequency count, percentage, and rank.

## **4. Results and Discussion**

This part of study presents the results and discussion derived from the quantitative data responses of the respondents. The results and

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discussion are presented in the following sections of this study.

The results in Table 1 reveal that the over-all satisfaction level of the marine engineering students about the services of the Laboratory Department of JBLFMU-Molo, Iloilo City, Philippines is “high” with

the mean score of 3.82. Table 1 shows that the marine engineering students were highly satisfied” with the services rendered by the laboratory with the following mean scores of 3.94, 3.91, 3.87, 3.86, 3.85, 3.83, 3.81, 3.80, 3.74, 3.69, and 3.63 respectively.

**Table 1** Satisfaction towards laboratory services.

Laboratory Service	Mean	Description	Rank
Implementing the rules and regulations in borrowing and retrieving the tools/apparatus and equipment.	3.94	Highly Satisfied (HS)	1.5
Safety at the laboratory rooms is ensured during laboratory hours.	3.94	Highly Satisfied (HS)	1.5
Meeting the learning needs of the marine engineering students.	3.91	Highly Satisfied (HS)	3
Laboratory provides complete PPE when needed for an activity.	3.87	Highly Satisfied (HS)	4
Enough laboratory equipment/apparatus for every laboratory experiment.	3.86	Highly Satisfied (HS)	5.5
Cooperation of laboratory assistant and faculty members for an effective conduct of practical instruction.	3.86	Highly Satisfied (HS)	5.5
Satisfaction on the services rendered by the laboratory assistant during the activity.	3.85	Highly Satisfied (HS)	7
Other services of the laboratory department.	3.83	Highly Satisfied (HS)	8
Enough ventilation in the laboratory room is provided.	3.81	Highly Satisfied (HS)	9.5
Standard laboratory facilities to ensure students effective learning	3.81	Highly Satisfied (HS)	9.5
Cleanliness of 5’S in the laboratory is well maintained.	3.80	Highly Satisfied (HS)	11.5
Needed chemicals/tools/equipment are available for utilization in the laboratory for practical instruction.	3.80	Highly Satisfied (HS)	11.5
Catering to the requests and needs intended for the laboratory activity.	3.74	Highly Satisfied (HS)	13
Laboratory department accepts the comments and recommendations for the improvement of the area.	3.69	Highly Satisfied (HS)	14
Availability of first aid kits in the area.	3.63	Highly Satisfied (HS)	15
Over-all satisfaction level of laboratory services.	3.82	Highly Satisfied (HS)	
Legend:	<i>Scale</i>	<i>Description</i>	
	4.21-5.00	VHS (Very Highly Satisfied)	
	3.41-4.20	HS (Highly Satisfied)	
	2.61-3.40	S (Satisfied)	
	1.81-2.60	NS (Not Satisfied)	
	1.00-1.80	HNS (Highly Not Satisfied)	

#### 4.1 Most Outstanding Service rendered by Laboratory Department as evaluated by the Marine Engineering Students of JBLFMU-Molo for SY 2019-2020

The results reveal that marine engineering students were “most satisfied” with the services of the Laboratory Department of JBLFMU-Molo for the School Year 2019-2020. These were “implementing the rules and regulations in borrowing and retrieving

the tools/apparatus and equipment” with the mean score of 3.94. This result is anchored on the studies conducted by Nikolic, Ritz, Vial, Ros, & Stirling (2014), Mason, Shuman, & Cook (2013) [8] that satisfaction on laboratory services improves the quality of instruction, and teaching with laboratories are unique learning situations. The students’ satisfaction on laboratory services helps them to attain better learning. Institution could not deny the use of

the laboratory in the context of student achievement.

The “satisfaction on services of laboratory” is in coherence with the studies conducted by Say-Morte (2017) [5], Murphy (2014) [6], and Isaiah (2013) [7], which stated that “satisfaction on laboratory” should be given attention because these influence instruction and performance of teachers. Studies of Nikolic, Ritz, Vial, Ros, & Stirling (2014) [8], Mason, Shuman, & Cook (2013) [9] also support the results that “laboratories” can improve the quality and students’ performance and play an important role in teaching practices of the instructors. It was stated in this study that students’ satisfaction is linked with their learning. This includes laboratory exercises and troubleshooting. Better learning takes place in a better environment. These activities influenced students’ satisfaction and achievement. Therefore, the laboratory plays a critical role in students’ satisfaction and thus must be of the highest quality. The universities cannot be complacent towards students’ satisfaction with regards to the use of the laboratory.

Another study that conforms with this “result on satisfaction of laboratory services of JBLFMU-Molo” was Maristela et al. (2015) [10]. The study stressed that students’ satisfaction on laboratory services can help institutions to identify some areas that need improvement. It is on this premise, universities view that the facilities of high standard as a very important factor in the students’ choice of school. By using students’ satisfaction, institutions can increase the overall quality of service rendered to its customers. Satisfaction of students is the key to establish and maintain long relationship. This is considered as a key role in gaining sustainable competitive advantage.

The same views were given by Maristela et al. (2015) [10], Dotong (2014) [11], Bay, An, & Laguador (2014) [12] stating that the physical facilities of the universities are the major components in developing the proficiency of the students in their respective fields of specialization and students were considered as primary customers of colleges and

universities and which should be given attention and concern.

#### *4.2 Least Satisfied Service in the Laboratory Department of JBLFMU-Molo among the Marine Engineering Students*

The data show that the students are least satisfied with this service in the Laboratory Department of JBLFMU-Molo. This was the “availability of first aid kits in the area” with the mean score of 3.63. This particular service and other related concerns were reported to the administration of the school and proper action was already acted upon.

The services that the marine engineering students find least satisfied with were also reflected in Table 1 as indicated by the lowest mean scores.

### **5. Conclusions**

Based on the findings of this study, the following conclusions were drawn:

1) The satisfaction of the students on the services given by the Laboratory Department of JBLFMU-Molo, Iloilo City, Philippines indicates that as a maritime university, it is the core function of the university to deliver quality services as one of its functions towards quality maritime education and training (MET) translated into laboratory services.

2) The least satisfied service of the laboratory is included in the Development Plan of the Laboratory Department of JBLFMU-Molo. Areas that need to be addressed are integrated in the management review of the laboratory department to address the needs of the clients and stakeholders to maintain the status of the university as Level 4 Accredited Marine Engineering Program by PACUCOA and ISO accredited maritime university.

### **Recommendations**

In reference to the results and conclusions of the present study, the following recommendations were advanced:

(1) The most satisfied service should be sustained and maintained by the Laboratory Department of JBLFMU-Molo, Iloilo City as a premier maritime university in the country.

(2) However, least satisfied service shall be addressed by the head of the Laboratory Department of JBLFMU-Molo. Laboratory assistants concerned shall be oriented and reminded of their roles in achieving the objectives of the department towards providing quality service to different stakeholders. The laboratory assistants shall ensure that necessary first aid kits are available at the area during the laboratory activities.

(3) There should be a regular updating of equipment through periodic inventories based on the standards required by CHED and MARINA in order to comply the student-equipment ratio. To address the concern of safety and protection of the students in the laboratory, the department will provide appropriate PPE, and see to it that these will be cleaned and free from damage and will be properly monitored.

(4) In relation to problem on feedback, the department shall establish customers' feedback mechanism to serve as a channel for the development and improvement of the laboratory department.

(5) Parallel studies shall be conducted by interested individuals concerned to determine other parameters and factors that should be reviewed for the constructive development of the laboratory department.

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