EJSIT
European Journal of Science, Innovation and Technology
ISSN: 2786-4936
www.ejsit-journal.com
Volume 5 | Number 5 | 2025

The University of Cebu Maritime Education Programs Quality Management System: Its Compliance to CHED-MARINA Requirements

Rey Carlito Q. Aranzado
University of Cebu, Cebu City, Philippines
ORCID ID: 0000-0002-6729-3579

ABSTRACT

In the Philippines, Quality Management System (QMS) enables Maritime Higher Education Institution to protect its reputation, accelerate change, meet customer needs, and assist in complying regulatory requirements. This study determined the extent: a) to which the role of QMS of the Maritime Education is manifested leading towards the compliance to regulatory requirements, b) the implementation of the QMS as a tool for compliance, and the efficiency of the QMS as a tool for compliance. Data from the findings are utilized in the formulation of a quality management system strategic plan.

This study applied the descriptive-correlational research method, utilizing a researcher-made survey questionnaire as the primary tool for data gathering. The research was conducted at the University of Cebu's two Maritime Education campuses. Eighty personnel composed of heads and staffs with at least two (2) years of working experience participated in the survey. The instrument used to collect the data was researched and developed based on ISO 9001:2015 manual, content validated and pilot tested to confirm its functionality and reliability. The data were statistically treated and analyzed using frequency and simple percentage, weighted mean, Chi-square test of independence, and Single Factor (ANOVA).

The results of the study revealed that all areas pertaining to the extent to which the quality management system of UC maritime education is practiced for the compliance of CHED-MARINA requirements was perceived as demonstrated with great extent. For the extent to which the quality management system is implemented for the compliance of the CHED-MARINA requirements, the results indicated that all areas of concerns were interpreted as highly implemented. Moreover, the investigation divulged that the efficiency of the implementation of the quality management system for the compliance to CHED-MARINA requirements was translated as highly efficient. Statistically, no significant relationships were established between the profile of the respondents and the extent of practice, how it is implemented, and the efficiency of the implementation of the quality management system.

In conclusion, the quality management system standards of UC Maritime Education are practiced with great extent, the implementation of its processes is highly implemented, and the efficiency of its implementation in the aspect of attaining its objectives and strategic plan is highly efficient. However, there are some specific areas that require actions from the management to ensure continual improvement. Thus, a QMS strategic plan was formulated to serve as guide to address the identified areas from improvement.

Keywords: extent of implementation of the quality management system, extent of manifestation of the role of the quality management system, efficiency of the implementation of the quality management system, propose QMS strategic plan

INTRODUCTION

The quality management system (QMS) integrates the various internal processes within the organization and intends to provide a process approach for project execution. A process based QMS enables the organizations to identify, measure, control, and improve the various core business processes that will ultimately lead to improved business performance (The 9000 Store, 2024).

This system defines how a company will achieve the creation and delivery of the products and services they provide to their customers. When implemented in your company, the QMS needs to be specific for the product or service you provide, so it is important to tailor it to your needs. However, in order to help ensure that you do not miss elements of a good system, some general guidelines exist in the form of ISO 9001:2015 (Quality Management System – Requirements) by ISO 9001 International Standard, which are intended to help standardize how a QMS is designed (Hammar, 2024).

Maritime Education and Training (MET) has developed through the decades. The development has since incorporated emerging technologies, definition of competences and most important standards of quality that are to be met in training a seafarer. With the prevailing competition in providing labor to the maritime industry especially for onboard deployment, Maritime Education and Training Institutions are compelled to be concerned with quality. Quality management has defined processes and products in many industries including the education sector. As such quality management has played a critical role in education.

There is a strict standard in MET and most maritime education and training institutions have established quality management system complying with STCW Convention. However, Das Sarma (2013) reported that MET institutions are facing the challenges of providing cost effective education with acceptable quality standards.

In the study of Erquiza (2021), he stated that the current ISO 9001:2015, an international standard that outlines standards for QMS, is the typical standard series used by the METIs in the Philippines. While some people use the term "quality management system" to refer to the ISO 9001 standard or a group of documents that define the QMS, it relates to the entire system (Excellence, n.d.).

Quality in MET may be defined as educational operations meant to help students accomplish their goals, meet society demands, and contribute to national progress. The Philippine MET is committed to quality education, both local and international. Furthermore, the Philippines recognize the importance of producing and protecting high-quality MET for the global maritime sector (Joint MARINA and PCG, n.d.).

With the above-mentioned premises, the researcher identified the following gaps that became the basis of the study: there is a limited study on what a Maritime Higher Education Institution’s QMS actually does in compliance to regulatory requirements; how does the QMS being implemented for compliance; and what the QMS needs to improve to meet all the statutory and regulatory requirements. To address the gaps, the quality management system of the University of Cebu maritime education needs an evaluation to verify the involved personnel’s awareness of its role in the planning, implementation and monitoring of the operational processes needed for the compliance of the regulatory requirements. Moreover, there is a need to appraise the way how the QMS is implemented by the maritime personnel to assist the control of the program design and development, examination and assessment, provision of resources, and onboard training deployment. Lastly, there is a need to assess the effectiveness of the implementation of the maritime education’s QMS in relation to documented information, nonconformity reduction, correction and corrective action, and the attainment of the program outcomes.

The evaluation will allow the UC management to determine specific areas of concerns that may become the cause for deviation from the objectives of the quality management system and ultimately may result to diminish quality. As one of the top maritime schools of the Philippines, it is essential that its compliance to the CHED-MARINA requirements will not be hampered due to issues and concerns from its quality management system.

A lack of awareness of the idea of quality control (QC) allows for procedures that are more dominated by ideology, faith and belief than by information, assessments, and empirical investigations of the principles necessary for a more accurate picture and understanding of such a culture to develop. Thus, the point of this study is to foster a sound understanding of how to make logic of the notion of QC and its connection to the fundamental processes of Maritime Education Training (MET) by means of quality management systems (QMS) (Erquiza, 2021).

With these established importance and benefits of utilizing quality management system in an organization, the researcher will study its usefulness and effectiveness in relation to the University of Cebu Maritime Education's compliance to the CHED-MARINA requirements. As stated in Article Xl, Section 36 of the Joint CHED-MARINA Memorandum Circular 01 Series of 2023: Consistent with the provision of STCW Regulation 1/8, a documented QSS shall define the Maritime Education and Training (MET) standards that the Maritime Higher Education Institution (MHEI) intends to establish, implement, monitor, and ensure the attainment of the STCW competence standards. MHEIs shall ensure that all the elements under the circular are adopted in their QSS. In the actual implementation like the regular monitoring or audit, CHED-MARINA allows the MHEIs to use quality management system (QMS) instead of the specific quality standard system (QSS) as the primary tool for the compliance of the provision. Among the major requirements of the JCMMC 01 Series of 2023 to attain the required STCW competence of the students is the standardization of the a) program design and development; b) examination and assessment; c) provision of education and training resources, and d) onboard training deployment of the students. Hence this study aims to evaluate the effectiveness of the implementation of the UC maritime education's QMS in relation to the compliance of the CHED-MARINA requirements.

The results of the study will be used to determine if the expected role of the QMS is suitable and adequate for its purpose, the implementation attained its expected output, and what are the areas to be improved.

BACKGROUND NARRATIVE

The study is anchored on the Theory of Management by Deming (1982), and complemented by Juran's Theory of Quality Management or Quality Trilogy (1986), and Administrative Management Theory of Fayol (1900) as described by MBA Note.

The Theory of Management by Deming (1982) is a system-based management philosophy framework that represents a holistic approach to leadership and management. Deming outlined what he found to be the managerial changes necessary to improve quality. These changes are illustrated through four main areas as well as a list of 14 principles intended to guide improvement in organizational structure and behavior. In short, when executed, the framework creates continuous improvement in people and organizations. It gives leaders a roadmap for how to work with teams and organizations as systems, rather than focusing on problems with or actions of the individual people working within silos. Deming's theory is explained via four main parts and 14 principles called the 14 points for total quality management (Testing Change, 2020).

The W. Edward Deming Institute (2024) explains that to help improve the effectiveness of a business or organization significantly, Deming (1986) offered 14 key principles for management to follow. First, create constancy of purpose toward improvement of product

and service. Second, adopt the new philosophy. Third, cease dependence on inspection to achieve quality. Fourth, end the practice of awarding business on the basis of price tag. Instead, minimize total cost. Fifth, improve constantly and forever the system of production and service Sixth, institute training on the job. Seventh, institute leadership, the aim of supervision should be to help people and machines and gadgets to do a better job. Eight, drive out fear so that everyone may work effectively for the company. Ninth, break down barriers between departments. Tenth, eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Eleventh, eliminate work standards (quotas) on the factory floor. Twelfth, remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.

This study is further supported by Juran's Theory of Quality Management (1986) or known as the Quality Trilogy, which is a way to manage a quality improvement cycle aimed at reducing the cost of poor-quality products/services by planning quality into the whole process. Juran sets out a process to enable you to focus on quality management and best practices to produce the best possible results for your customer. The core focus is quality, when creating or producing products/services it is critical to ensure they are fit for the purpose they are created for. Juran based everything around the three core processes. The Juran Trilogy is an approach that emphasizes people rather than systems when looking to boost quality. Companies can apply the methodology to drive continuous improvement that reduces errors and, consequently, costs (Checkify, 2024). The Juran Trilogy, also called Quality Management Trilogy, was presented as a means to manage for quality. The traditional approach to quality at that time was based on quality control, but today, the Trilogy has become the basis for most quality management best practices around the world. In essence, the Juran Trilogy is a universal way of thinking about managing for quality leadership - it fits all functions, all levels, and all product and service lines. The underlying concept is that organizations must use three universal processes: a) quality planning; b) quality control; and c) quality improvement (DeFeo, 2019).

The Administrative Management Theory of Fayol (1900) adopts a top-down approach, emphasizing efficient top-level management as a foundation for overall productivity. Fayol, known as the father of modern management, emphasized planning, organizing, commanding, coordinating, and controlling as the five essential functions of managers. Fayol's 14 principles, including division of labor, authority and responsibility, unity of command, and more, provided essential guidelines for effective organizational management. His theory evolved from the need to improve efficiency and effectiveness in the workplace (MBANote, 2024).

These Fayol's management functions provide a practical guide for managers to navigate the complexities of running a business. They provide a practical framework for managers to achieve organizational success through strategic planning, efficient organization, strong leadership, effective coordination, and continuous evaluation (MBANote, 2024). Fayol's management principles are important because they teach managers how to handle situation in an organization as they arise. In addition, these principles are important because they reveal the continuity of management as a process and show how concepts involving people can be maximized for productivity (Study.com, n.d.).

According to Quiambao and Alvaro (2023), quality management system (QMS) is an emerging management philosophy that takes its course amid today's competitive and dynamic global markets where quality becomes a critical factor of business excellence. It can be defined as a collection of business processes that focus on meeting customer requirements on a consistent basis. Its purpose is to ensure that, every time a process is

performed, the same information, methods, skills and controls are used and applied in a consistent manner (Pavlovic, 2019).

Qualio (2024) stated that regulatory risk, compliance, and certification are critically important objectives for implementing a QMS. However, they are not the only outcomes that are expected when adopting the right quality system. The five key benefits of a QMS are operational consistency: Inconsistent operations are the enemy of total quality management. Without standardized operations, the organization cannot consistently ensure the quality of its products or improve efficiency; b) continuous improvement is among the core principles of ISO 9001 and other quality management systems. ISO writes that "continual improvement should be a permanent objective of the organization;" c) employee communications and on-boarding: ISO 9001 addresses the importance of internal communication, specifying that top management shall ensure that appropriate communication processes are established within the organization and that communication takes place regarding the effectiveness of the quality management system; d) evidenced-based decision making: The concept of evidence-based decision making involves the use of data gathered through monitoring and measurement methods; e) increased profits: Research has established that many organizations achieve a direct financial return on QMS implementation.

The ISO 9001:2015 International Standards recommend that organization shall analyze and evaluate appropriate data and information arising monitoring and measurement. The results of analysis shall be used to evaluate: a) conformity of products and services to requirements; b) the degree of customer satisfaction; c) the performance and the effectiveness of the quality management system; d) if planning had been implemented effectively; e) the effectiveness of the actions taken to address risks and opportunities; f) the performance of the external providers; and g) the need for improvement (ISO 9001, 2015). The analysis of different opinions about the evaluation of QMS of enterprise indicates that every theory can assess the effectiveness of the evaluation of QMS only in part. Thus, the conclusion can be made that it is essential to develop an integrated system of evaluation of QMS of enterprise. The evaluation of performance of enterprise can also be understood as a constituent part of management which helps to make managerial decisions. Enterprises that carry out integrated evaluation of performance work more effectively than those that do no evaluate their performance. Performance evaluation helps to implement the strategy, to follow the development of an enterprise, to integrate short-term and long-term goals and opportunities of an enterprise and evaluate an organization as a single entity (Ruževičius et al., 2004; Gitlow et al., 2005; Kaziliūnas, 2006).

The relevance of quality management and quality in higher education continues to be a constant source of concern for field researchers. With ongoing social and economic developments and greater demands of educational systems, the quality of education is becoming increasingly tied to societal needs. This focus on the requirements and expectations of diverse stakeholders necessitates compliance with particular quality standards (Osoian et al., 2010). In Maritime Education and Training (MET), quality is critical. It has always been crucial for contributors in the educational and training process, despite being recurrently taken for granted. Altered situations, increasing involvement, broader access, demand on people and physical resources, assessment, audit, and evaluation have all enhanced the profile of quality in higher education (Harvey & Green, 1993).

The Joint CHED MARINA Memorandum Circular 01 Series of 2022, Article Vll, Section 19 states that the policies and procedures for examination and assessment system shall form part of the quality standards system to ensure their suitability for the specified training objectives and shall include valid and explicit performance and assessment criteria to enable objective, uniform and reliable measurement and evaluation of the achievement of the competence standards.

Sections A-I/6 and A-I/8 of the STCW Code Part A set forth the mandatory training and assessment requirements and quality standards (IMO 2017d). The non-binding guidance in the STCW Code Part B Sections B-I/6 and B-I/8 lays down the effective suggestions for member states on how to comply with the specified requirements. In line with the Regulation, I/8, training and assessment have to be continuously monitored through a quality standards system, while Section A-I/8 specifies that the training objectives and associated standards of competence shall be clearly defined by each Party. Their administrations decide which model to apply and incorporate quality policy, quality management, quality system coverage, quality control, quality assurance processes and periodic external quality assessment (Section B-I/8). The quality standard system requirements shall apply to all stakeholders involved in the implementation and activities of the STCW Convention, including MET institutions, administrations, ship operators, assessment of competencies, certification, endorsement or revalidation of certificates (Etman, 2020). In accordance with the principle of autonomy, each higher education institution can choose a quality assurance system suitable to its needs (Tuljak-Suban, 2013).

While Juran and Defeo (2010) lends the general definition of quality to the educational process, it is important to note that the quality of education and its services need to be specific and agile to the demands of the external environment. This highlights the subjective characterization of quality in educational service. This idea further points to the dependence of the definition of quality in educational services through the prism of the consumer of the educational product (Michalska, 2009). As a result, Michalska (2009) alludes that "quality should be estimated both through results from the offered services, and through the process itself which leads to the given result".

METHODOLOGY

This study utilized a descriptive-quantitative research design to determine the profile and assessed the extent to which the quality management system of University of Cebu Maritime Education leads to the compliance of the Joint CHED-MARINA Memorandum Circulars. The descriptive method was deemed appropriate because it enabled the researcher to describe, interpret, and analyze the current implementation of the QMS as observed and experienced by the office personnel. At the same time, the quantitative approach allowed the use of numerical data, statistical tools, and objective analysis in determining patterns and trends in personnel's' responses. This dual approach provided a more comprehensive view of how the quality management system processes were being implemented.

This study was conducted in the University of Cebu's two maritime education campuses. The first campus is located at Barangay Mambaling, Cebu City. The other maritime education campus can be found in Barangay Looc, Mandaue City near the entrance of the old bridge connecting Mandaue City to Lapulapu City. Both campuses are certified under ISO 9001:2015 QMS.

The respondents of this study were the Department Heads and staffs of the University of Cebu- METC and Lapu-lapu and Mandaue Campuses. The researcher utilized the non-probability sampling in choosing the respondents. Non-probability was used because only those office Heads and staffs with two (2) years or more experience with the QMS were included as respondents.

The study used a researcher's-made survey questionnaire to gather the needed data. The survey questionnaire contained four (4) parts. The first part was about the profile of the respondents in terms of position, office classification, and campus. The second part was the survey questions to determine the extent of the manifestation role of the QMS in organizational structure, provision of resources, and operation. The third part focused on how the QMS is implemented in relation to program design and development, examination and

assessment, provision of education and training resources, and then the onboard training deployment. The last part contained the questions about how efficient is the implementation of the QMS in accordance to documented information, reduction of the risk of nonconformity, correction and corrective actions, and attainment of the program outcomes.

Before the actual data gathering, the researcher secured formal permission from the university administration to conduct the study. Upon securing approval, the researcher explained the objectives of the study to the potential participants, ensuring that they clearly understood the purpose and scope of the research. Only those who voluntarily agreed to participate were included, and these respondents were asked to sign an informed consent form to formally document their willingness.

The study also adhered strictly to ethical considerations. Participation was completely voluntary. Confidentiality was assured by anonymizing the responses and ensuring that no identifying information was disclosed in any part of the analysis or reporting. The principle of beneficence was upheld by ensuring that the study posed no harm to the participants and by highlighting potential benefits such as improved implementation of the quality management system and processes of the Maritime Education.

The distribution and collection of the research instrument were conducted personally by the researcher through face-to-face interaction. After data collection, the responses were carefully collated, tallied, and tabulated to ensure completeness and accuracy.

For the analysis, the study used frequency counts, simple percentage, and weighted mean, as statistical tools. Frequency and percentage were utilized to describe the profile of the respondents in terms of position, office classification, and campus. Weighted mean was used to analyze the data about the extent to which the role of quality management system of the Maritime Education of the University of Cebu is manifested towards the compliance of the CHED - MARINA requirements.

The quantitative results were then interpreted descriptively, allowing the researcher to connect statistical outcomes with the broader objectives of the study. This approach also provided a way to highlight both strengths and areas for improvement in the implementation of the quality management system and processes.

ANALYSIS AND DISCUSSION

This segment of the study presents, analyzes, and interprets the data gathered by the researchers about the University of Cebu Maritime Education Programs quality management system and its compliance to CHED – MARINA requirements.

This segment is divided into five components: the profile of the respondents, the role of the quality management system as manifested leading towards compliance, the implementation of the quality management as a tool for the compliance of the requirements, the extent of the efficiency of the quality management system as a tool for compliance, and the correlations between the variables.

Table 1. Profile of the Respondents (n=80)

Indicators	Frequency	Percentage (%)
Position		
• Head	34	42.50
• Staff	46	57.50
Office Classification		
• Academic	34	42.50
• Support	46	57.50
Campus		
• UC METC	40	50.00
• UCLM	40	50.00

There were forty-six (46), 57.50% of the respondents were currently working as office staff, while thirty-four (34), 42.50% were department heads.

In terms of office classification, forty-six (46), 57.50% of the respondents were belong to the academic, while thirty-four (34), 42.50% were support.

Forty (40), 50% were currently employed in the University of Cebu Maritime Education Training Center [UCMETC], while another forty (40), 50% were in University of Cebu Lapulapu and Mandaue (UCLM).

The Extent to Which the Role of Quality Management System is manifested Leading Towards CHED - MARINA Compliance

Table 2. Extent to Which Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Organizational Structure as to Leadership and Commitment

Indicators	Mean	Description
1. Take accountability for the effectiveness of the quality management system.	3.75	Great Extent
2. Ensure that the quality policy and quality objectives are established.	3.81	Great Extent
3. Promote the use of the process approach and risk-based thinking.	3.66	Great Extent
4. Communicate the importance of the effective quality management.	3.76	Great Extent
5. Engage in directing and supporting personnel to contribute to the effectiveness of the quality management system.	3.61	Great Extent
Aggregate Mean	**3.72**	**Great Extent**

The aggregate mean of 3.72 discloses that the respondents assessed that the quality management system of the maritime education programs was practiced to a *great extent* in compliance with the CHED-MARINA requirements in the area of organizational structure as to leadership and commitment.

This result is aligned with MBANote (2024), Fayol's management functions: planning, organizing, staffing, directing, and controlling, provide a practical guide for managers to navigate the complexities of running a business. They provide a practical framework for managers to achieve organizational success through strategic planning, efficient organization, strong leadership, effective coordination, and continuous evaluation.

Although the performance indicator: engage in directing and supporting personnel to contribute to the effectiveness of the quality management system was still perceived by the respondents as practiced with great extent, yet it got the lowest rating of 3.61. This finding may be interpreted that not all UC maritime education managers are performing their leadership and commitment towards the implementation of the quality management system processes. Therefore, this indicator needs to be improved.

Table 3. Extent to Which Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Organizational Structure as to Customer Focus

Indicators	Mean	Description
1. Ensure that customer and applicable statutory and regulatory requirements are consistently determined by all concerned.	3.70	Great Extent
2. Ensure that customer and applicable statutory and regulatory requirements are consistently understood by all concerned.	3.71	Great Extent
3. Ensure that customer and applicable statutory and regulatory requirements are consistently complied by all concerned.	3.70	Great Extent
4. Ensure that the risks and opportunities that can affect the conformity of services and the ability to enhance customer satisfaction are determined and addressed.	3.51	Great Extent
5. Ensure that the focus on enhancing customer satisfaction is maintained.	3.64	Great Extent
Aggregate Mean	**3.65**	**Great Extent**

The aggregate mean of 3.65 indicates that the respondents assessed that the quality management system of the maritime education programs was practiced to a *great extent* in compliance with the CHED-MARINA requirements in the area of organizational structure as to customer focus.

As stated by Qualio (2024), a QMS enables businesses in highly regulated industries to consistently apply quality processes to produce products that meet regulatory requirements. QMS frameworks such as ISO 9001:2015 provide a comprehensive blueprint for customer-focused quality management based on principles for leadership, the workforce, processes, improvement, evidence-based decisions, and relationships.

Meanwhile, the performance indicator: ensure that the risks and opportunities that can affect the conformity of services and the ability to enhance customer satisfaction are determined and addressed was rated as the lowest with a mean of 3.51. This result can be associated to the fact that understanding how to implement the risk and opportunity management as a requirement for the quality management system takes deeper knowledge of the inter-related processes. Considering that risks and opportunities are critical for planning, this performance needs action for improvement.

Table 4. Extent to Which Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Organizational Structure as to Establishing Quality Policy

Indicators	Mean	Description
1. Establish, implement, and maintain quality policy.	3.79	Great Extent
2. Ensure that the policy is appropriate to the purpose and context of the Maritime Education and supports its strategic direction.	3.75	Great Extent
3. Provide a framework for setting quality objectives.	3.64	Great Extent
4. Include in the policy a commitment to satisfy applicable requirements.	3.74	Great Extent
5. Include in the policy a commitment to continual improvement.	3.79	Great Extent
Aggregate Mean	**3.74**	**Great Extent**

The aggregate mean of 3.74 indicates that the respondents assessed that the quality management system of the maritime education programs was practiced to a *great extent* in

compliance with the CHED-MARINA requirements in the area of organizational structure as to establishing quality policy.

The result is in accordance with what the 9000 Store (2024) advocates that; setting clear policy and objective is crucial for any organization because it provides direction and focus for the QMS, helps ensure that everyone in the organization is working toward the same goal, and ensures that the QMS is aligned with the organization's strategic objectives.

Despite being interpreted as practiced with great extent, the performance indicator; provide a framework for setting quality objectives was rated the lowest with a mean of 3.64. This finding can be linked to UC maritime education's lack of regular orientation or seminar relevant to understanding how to formulate quality objective. Thus, even if there is an established framework or policies for setting the quality objective, to some of the respondents it seemed that it is not provided. Therefore, the management through the quality assurance office shall implement an action plan to improve this indicator.

Table 5. Extent to Which Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Organizational Structure as to Roles, Responsibilities and Authorities

Indicators	Mean	Description
1. Ensure that the quality management system is utilized as a tool for conformance to the CHED-MARINA requirements.	3.75	Great Extent
2. Ensure that the established processes are delivering their intended outputs.	3.60	Great Extent
3. Regularly report the performance of the quality management system for improvement to top management.	3.58	Great Extent
4. Ensure the promotion of customer focus throughout the Maritime Education.	3.69	Great Extent
5. Ensure the integrity of the quality management system is maintained when changes are planned and implemented.	3.73	Great Extent
Aggregate Mean	**3.67**	**Great Extent**

The aggregate mean of 3.67 indicates that respondents assessed the quality management system of the maritime education programs was practiced to a *great extent* in compliance with the CHED-MARINA requirements in the area of organizational structure as to roles, responsibilities and authorities.

MBA Note (2024) which stated that: managers analyze the future, make forecasts, and develop strategies to steer the organization in the desired direction; divide tasks, delegate responsibilities and create a structured framework for smooth operation; foster a positive work environment and motivate employees to work towards shared goals; synchronize activities, align efforts, and promote collaboration to avoid conflicts and improve productivity; monitor performance against established standards and taking corrective actions when necessary; and assess outcomes, compare them to plans, and make adjustment to ensure progress.

The performance indicator that got the lowest mean of 3.58 is: regularly report the performance of the quality management system for improvement to top management. Even though the mean of this finding is still interpreted as practiced with great extent, it is still important that UC maritime education management will take action for improvement. The perception of the respondents signifies that the performance of the quality management system is seldom reported to top management. The top management in this context is the UC Vice Chancellors and the Executive Vice Chancellor. Although regular reporting is done by the quality assurance office, but as experienced by the personnel involved in the

implementation of the quality management system, they only have interaction of the top management about quality management during the conduct of the management review.

Table 6. Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Provision of Resources as to People

Indicators	Mean	Description
1. Determine and provide the person necessary for the effective implementation of the Maritime Education's operation and control of its processes.	3.65	Great Extent
2. Determine the necessary competence of the person(s) under the Maritime Education that affects the performance and effectiveness of its operation.	3.65	Great Extent
3. Ensure that the persons under the Maritime Education are competent on the basis of appropriate education, training, or experience.	3.69	Great Extent
4. Take action(s) to acquire the necessary competence, and evaluate the effectiveness of the action(s) taken.	3.73	Great Extent
5. Retain appropriate documented information as evidence of competence.	3.69	Great Extent
Aggregate Mean	**3.68**	**Great Extent**

The aggregate mean of 3.68 indicates that the respondents assessed the quality management system of the maritime education programs was practiced to a *great extent* in compliance with the CHED-MARINA requirements in the area of provision of resources as to people. This outcome indicates that UC maritime education is equipped with sufficient human resources that have relevant education, training, and experience for the specific position they are designated.

According to Checkify (2024), Juran Trilogy is an approach that emphasizes people rather than systems when looking to boost quality. Companies can apply the methodology to drive continuous improvement that reduces errors and, consequently, costs.

The finding also serves as a proof that that management regularly performs monitoring and evaluation of the effectiveness of the action taken for the acquisition of such competency. Gitlow et. al. (2005) stressed that: the evaluation of processes does not require large costs or reductions of quality. It is important to have sufficient knowledge and experience, as well as technical potential when implementing changes in an organization, to profit from experiences and good practice of successful enterprises. The improvement of performance does not have to be limited to implementation of means of improvement of processes and application of methods; it is important to observe the influence of changes on the effectiveness of processes and take appropriate actions of adjustment if necessary.

Although all the performance indicators are perceived by the respondents as practiced with great extent, it is significant to consider the two indicators that were rated lowest with a mean of 3.65. The indicators are: determine and provide the person necessary for the effective implementation of the maritime education's operation and control of its processes, and determine the necessary competence of the person(s) under the maritime education that affects the performance and effectiveness of its operation. This result can be related to the fact that UC maritime education is experiencing difficulty in hiring additional or replacement personnel with appropriate qualification to fill in position(s) needed for its operation. The challenge is the effect of the updated qualification requirements for maritime education personnel by relevant JCMMC issuances. To address the possible effect of this finding, UC

maritime education management should initiate action to improve the recruitment and hiring process, as well as the retention program of its personnel.

Table 7. Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Provision of Resources as to Infrastructure

Indicators	Mean	Description
1. Determine, provide, and maintain the infrastructure necessary for the operation of the Maritime Education's processes.	3.65	Great Extent
2. Provide and maintain buildings and associated utilities.	3.56	Great Extent
3. Provide and maintain equipment, including hardware and software.	3.49	Great Extent
4. Provide and maintain transportation resources.	3.40	Great Extent
5. Provide and maintain information and communication technology.	3.56	Great Extent
Aggregate Mean	**3.53**	**Great Extent**

The aggregate mean of 3.53 indicates that the respondents assessed the quality management system of the maritime education programs was practiced to *great extent* in compliance with the CHED-MARINA requirements in the area of provision of resources as to infrastructure.

This outcome can be attributed to the fact that infrastructure like building and associated facilities, equipment including hardware and software, and information and communication technology are required by CHED-MARINA. Non-provision of these infrastructures can result to a major nonconformity. As stated by Manuel & Nakazawa (2008), Quality assurance in MET consists of the following three elements: (l) the proposed curriculum, (2) teaching methodology and assessment and (3) adequate resources.

The indicator: provide and maintain transportation resources, obtained the lowest mean of 3.40. The result can be explained by UC's policy of sharing the existing transportation vehicles to all its campuses. There is no designated transportation vehicle per campus thus requesting to avail the use of one vehicle will take quite a while. This fact may have influenced the respondents to mark this indicator as the lowest. Considering that transportation is an important element of the operation, UC maritime education management should take action to mitigate its possible risk and for continual improvement.

Table 8. Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Provision of Resources as to Environment for Operation

Indicators	Mean	Description
1. Determine, provide, and maintain the environment necessary for the operation of the Maritime Education's processes.	3.66	Great Extent
2. Provide and maintain a suitable environment for social activities.	3.50	Great Extent
3. Provide and maintain a suitable environment for psychological activities.	3.45	Great Extent
4. Provide and maintain a suitable environment for physical activities.	3.49	Great Extent
5. Provide and maintain a suitable and comfortable environment for conducting work.	3.49	Great Extent
Aggregate Mean	**3.52**	**Great Extent**

The aggregate mean of 3.52 indicates that the respondents assessed the quality management system of the Maritime Education programs was practiced to *great extent* in compliance with the CHED-MARINA requirements in the area of provision of resources as to environment for operation.

This outcome demonstrated the respondents' experience of having adequate and suitable environment where they can perform work comfortably and efficiently. This finding means that UC maritime education adheres to the ISO 9001:2015 requirement under clause 7.1.4 which stated that: the organization shall determine, provide, and maintain the environment necessary for the operation of its processes and to achieve conformity of product and services. A suitable environment can be a combination of human and physical factors such as: a) social (e.g. non-discriminatory, calm, non-confrontational), b) psychological (e.g. stress-reducing, burn out prevention, emotionally protective), and c) physical (e.g. temperature, heat, humidity, light, airflow, hygiene, noise) (ISO 9001: 2015, 2024).

The indicator: provide and maintain a suitable environment for psychological activities, got the lowest mean of 3.45. This result can be attributed to the fact that there is only limited psychological activities implemented by UC maritime education intended for the non-teaching personnel. As stated by Rodgers (2023), by addressing mental health in the workplace, organizations can help curb harmful levels of stress and create a positive and supportive work environment. With the right employee wellness program and mental wellness activities in the workplace, employers can help reduce the effects of stress and boost mental health among workers.

Table 9. Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Provision of Resources as to Communication

Indicators	Mean	Description
1. Determine the internal and external communication relevant to the Maritime Education's operation.	3.70	Great Extent
2. Determine what the Maritime Education will communicate internally and externally.	3.60	Great Extent
3. Determine with whom the Maritime Education will regularly communicate internally and externally.	3.59	Great Extent
4. Determine how to communicate internally and externally.	3.55	Great Extent
5. Determine who will make the internal and external communication.	3.58	Great Extent
Aggregate Mean	**3.60**	**Great Extent**

The aggregate mean of 3.60 indicates that the respondents assessed the quality management system of the maritime education programs was practiced to a *great extent* in compliance with the CHED-MARINA requirements in the area of provision of resources as to communication.

As stated by Guest Author (2024), the importance of communication to an organization can't be understated. Effective communication is the bedrock upon which lasting organizations are built. It is the lifeline that connects every corner of an organization, and it is this connectivity that fosters a sense of unity and shared purpose. Through it, everyone can collaborate to achieve a common outcome, enhancing the overall productivity and efficiency of the organization.

The indicator: determine how to communicate internally and externally, got the lowest mean of 3.55. This outcome can be associated to lack of exposure of most personnel in performing communication. As practiced, not all offices have a regular external

communication and for internal communication, normally it is done through meetings only which is mostly attended by the head of the office. It is very seldom that an open dialogue will happen in the office where all employees are encouraged to talk openly about issues and concerns.

Table 10. Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Operation as to Planning

Indicators	Mean	Description
1. Take into consideration the requirements, needs, and expectations of its customers or interested parties.	3.63	Great Extent
2. Utilize process approach to enhance the desired outputs.	3.61	Great Extent
3. Utilize system approach to prevent undesired effects.	3.60	Great Extent
4. Clearly designate authority, responsibility, and accountability.	3.63	Great Extent
5. Identify risks and opportunities for the operation.	3.65	Great Extent
Aggregate Mean	**3.62**	**Great Extent**

The aggregate mean of 3.62 indicates that the respondents assessed the quality management system of the maritime education programs was practiced to a *great extent* in compliance with the CHED-MARINA requirements in the area of operation as to planning.

In ISO 9001 certification, planning is the first phase in formulating the steps of ISO 9001 implementation. Among the essential things to do is identify quality aspects for the improvement the quality of work (Bakhtiar, 2012). These aspects include clarity about the sequence and the provision of duties, the implementation of documentation with the recording of data and recording of employment activities as evidence of the implementation of ISO 9001 within the organization, and the establishment of standard procedures for organizing work activities undertaken by members of the organization (Feng et al., 2008).

The indicator that is rated with the lowest mean of 3.60 is: utilize system approach to prevent undesired effect. This result may be associated with some of the respondents' lack of total understanding on how the system works. This is quite true specially for personnel who have not yet reached 5 years of service in the maritime education. Considering that system approach is an essential part of the quality management system, it is important that UC maritime education should take action in order to enhance the knowledge of the personnel.

Table 11. Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Operation as to Implementation

Indicators	Mean	Description
1. Use standard policies, procedures, and forms.	3.80	Great Extent
2. Ensure that applicable statutory and regulatory requirements are understood and consistently met.	3.79	Great Extent
3. Take action to mitigate the identified risks.	3.61	Great Extent
4. Provide the appropriate personnel necessary for the effective operation and control of the processes.	3.60	Great Extent
5. Provide the suitable infrastructures necessary for the operation of the processes and to achieve compliance to requirements and conformance to standards.	3.68	Great Extent
Aggregate Mean	**3.70**	**Great Extent**

The aggregate mean of 3.70 indicates that the quality management system of the maritime education programs was practiced to a *great extent* in compliance with the CHED-MARINA requirements in the area of operation as to implementation.

The result can be connected to UC maritime education's consistent adherence to the quality management system requirements in their operation involving the use of documented information, reference to statutory and regulatory requirements, management of risk and opportunity, and provision of resources. This practice is in alignment with Qualio (2024) who opined that: a QMS enables businesses in highly regulated industries to consistently apply quality processes to produce products that meet regulatory requirements.

The indicator: provide the appropriate personnel necessary for the effective operation and control of the processes got the lowest mean of 3.60. This result can be attributed to the fast turn-over of UC maritime education personnel handling key positions related to the operation and control of its processes. Considering that personnel are an essential asset to the organization, UC maritime education management shall implement action(s) to improve the retention rate of their personnel.

Table 12. Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Operation as to Monitoring and Measurement

Indicators	Mean	Description
1. Determine what needs to be monitored and measured.	3.76	Great Extent
2. Control the methods for monitoring and measurement, analysis and evaluation needed to ensure valid results.	3.60	Great Extent
3. Ascertain the frequency of the monitoring and measurement.	3.64	Great Extent
4. Establish schedules when the results of the monitoring and measurement be analyzed and evaluated.	3.60	Great Extent
5. Appropriately retain documented information.	3.64	Great Extent
Aggregate Mean	**3.65**	**Great Extent**

The aggregate mean of 3.65 indicates that the respondents assessed the quality management system of the maritime education programs was practiced to a *great extent* in compliance with the CHED-MARINA requirements in the area of operation as to monitoring and measurement. This outcome indicates that UC maritime education diligently performs monitoring and measurement to all processes of their operation for continual improvement. Turri (2023) suggested that the notion of continuous improvement implicitly includes the one of measuring and monitoring; in other words, there is no continuous improvement where there is no measuring and monitoring.

The performance indicators: control the methods for monitoring and measurement, analysis and evaluation needed to ensure valid results, and establish schedules when the results of the monitoring and measurement be analyzed and evaluated got the lowest mean of 3.60. These results may be attributed to some issues and concerns on how the control of the methods is implemented and no regular schedule of discussion related on the results of monitoring and measurement. Thus, it is important that UC maritime education management shall implement action to improve these monitoring and measurement indicators.

Table 13. Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Operation as to Evaluation

Indicators	Mean	Description
1. Analyze the degree of the customer satisfaction.	3.70	Great Extent
2. Determine if planning has been implemented effectively.	3.61	Great Extent
3. Find out the effectiveness of the actions taken to address risks and opportunities.	3.63	Great Extent
4. Assess the performance of the external providers.	3.61	Great Extent
5. Appraise the areas that need improvement.	3.64	Great Extent
Aggregate Mean	**3.64**	**Great Extent**

The aggregate mean of 3.64 indicates that the respondents assessed the quality management system of the maritime education programs was practiced to a *great extent* in compliance with the CHED-MARINA requirements in the area of operation as to evaluation.

The evaluation of performance of enterprise can also be understood as a constituent part of management which helps to make managerial decisions. Enterprises that carry out integrated evaluation of performance work more effectively than those that do no evaluate their performance. Performance evaluation helps to implement the strategy, to follow the development of an enterprise, to integrate short-term and long-term goals and opportunities of an enterprise and evaluate an organization as a single entity (Ruževičius et al., 2004; Gitlow et al., 2005; Kaziliūnas, 2006).

The performance indicator that got the lowest mean of 3.61 is: determine if planning has been implemented effectively, and assess the performance of the external providers. For planning, the result can be linked to the lack of regular monitoring of the actual implementation of the plan. Measurement will only be done through the accomplishment report.

For assessing the performance of external providers, the result may be associated with the fact that not all offices of UC maritime education have direct interaction of the external providers. Thus, they have not experienced assessing their performance.

How the Maritime Education Implements the Quality Management System as a Tool for the Compliance of CHED-MARINA Requirements

Table 14. Maritime Education Programs' Implementation of the Quality Management System in the aspect of Program Design and Development

Indicators	Mean	Description
1. Determine the nature, duration, and the complexity of the design and development activities.	3.69	Highly Implemented
2. Design and develop the required process stages, including applicable design and development review.	3.60	Highly Implemented
3. Implement the required design and development verification and validation activities.	3.65	Highly Implemented
4. Specifically assign responsibilities and authorities involved in the design and development process.	3.69	Highly Implemented
5. Provide the internal and external resources needed.	3.63	Highly Implemented
Aggregate Mean	**3.65**	**Highly Implemented**

The aggregate mean of 3.65 indicates that the respondents assessed the maritime education programs' implementation of the quality management system in the aspect of the program design and development was *highly implemented*.

In Maritime Education and Training (MET), quality is critical. It has always been crucial for contributors in the educational and training process, despite being recurrently taken for granted. Altered situations, increasing involvement, broader access, demand on people and physical resources, assessment, audit, and evaluation have all enhanced the profile of quality in higher education (Harvey & Green, 1993).

The performance indicator that got the lowest rating of 3.60 is: design and develop the required process stages, including applicable design and development review. This finding can be interpreted that there are some issues regarding the process stages of the design and development including the review phase. Although the indicator is still interpreted as highly implemented, it is important for UC maritime education to take action to address this concern relevant to prevent future problems.

Table 15. Maritime Education Programs' Implementation of the Quality Management System in the Aspect of Examination and Assessment

Indicators	Mean	Description
1. Standardize the formulation process of the examination and assessment.	3.65	Highly Implemented
2. Standardize the review process of the examination and assessment.	3.61	Highly Implemented
3. Standardize the validation process of the examination and assessment.	3.60	Highly Implemented
4. Standardize the approval process of the examination and assessment.	3.66	Highly Implemented
5. Standardize the conduct and record keeping processes of the examination and assessment.	3.66	Highly Implemented
Aggregate Mean	**3.64**	**Highly Implemented**

The aggregate mean of 3.64 indicates that the respondents assessed the maritime education programs' implementation of the quality management system in the aspect of examination and assessment as *highly implemented*.

This outcome can be interpreted that the process for the examination and assessment which includes, formulation, review, validation, approval, and conduct are standardized and regularly implemented by UC maritime education. This is expected considering that the process is auditable by CHED-MARINA.

The Joint CHED MARINA Memorandum Circular 01 Series of 2023, Article Vll, Section 19 states that the policies and procedures for examination and assessment system shall form part of the quality standards system to ensure their suitability for the specified training objectives and shall include valid and explicit performance and assessment criteria to enable objective, uniform and reliable measurement and evaluation of the achievement of the competence standards.

The performance indicator: standardize the validation process of the examination and assessment obtained the lowest rating of 3.60. This result can be interpreted that there is an issue with the standardization of the validation process. Although the indicator is still rated as highly implemented, considering that validation is an essential part of the whole examination and assessment process, UC maritime education management shall take action(s) to address this concern.

Table 16. Maritime Education Programs' Implementation of the Quality Management System in the Aspect of Provision of Education and Training Resources

Indicators	Mean	Description
1. Provide the personnel necessary for the effective implementation of its operation and control of its processes.	3.73	Highly Implemented
2. Provide and maintain the infrastructures necessary for the operation of its processes to achieve conformity to standards.	3.64	Highly Implemented
3. Determine, provide, and maintain the environment necessary for the operation of its processes.	3.66	Highly Implemented
4. Ensure that the personnel providing the education and training are competent on the basis of appropriate education, training, or experience.	3.64	Highly Implemented
5. Ensure that measuring equipment shall be calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards.	3.63	Highly Implemented
Aggregate Mean	**3.66**	**Highly Implemented**

The aggregate mean of 3.66 indicates that the respondents assessed the maritime education programs' implementation of the quality management system in the aspect of provision of education and training resources as *highly implemented*.

It is necessary to integrate marine curriculum education into school management. Maritime education must be one of the visions and goals of the school with a commitment to develop student competencies for marine values. School management is simply defined as the utilization of resources (human and non-human) by educational institutions through the process of planning, organizing, implementing, and monitoring to achieve certain goals (Davis & Newstrom, 2004; Kotter, 2004; Terry & Franklin, 1997).

The performance indicator that got the lowest mean of 3.63 is: ensure that measuring equipment shall be calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards. This finding can be interpreted that there is a possible issue regarding the calibration of measuring equipment used for measurement. It may be due to inconsistency in the conduct of calibration or not following the procedure. Since measuring equipment are essential tools for performance measurement against established standards, UC maritime education shall implement action to improve this performance indicator to ensure adherence to the quality management system requirement.

Table 17. Maritime Education Programs' Implementation of the Quality Management System in the Aspect of Onboard Training Deployment of Students

Indicators	Mean	Description
1. Plan, implement, and control the processes needed to meet the regulatory requirements and standards of onboard training deployment.	3.60	Highly Implemented
2. Provide the resources needed to achieve compliance and conformity to the reference requirements and standards.	3.63	Highly Implemented
3. Apply criteria for the monitoring of onboard training deployment rate and onboard trainee's performance.	3.71	Highly Implemented
4. Establish, implement, and maintain an assessment process that is appropriate to ensure compliance and conformance to regulatory requirements and standards.	3.70	Highly Implemented
5. Retain documented information needed to demonstrate that	3.66	Highly

compliance and conformance to requirements and standards have been met.		Implemented
Aggregate Mean	**3.66**	**Highly Implemented**

The aggregate mean of 3.66 indicates that the respondents assessed the maritime education programs' implementation of the quality management system in the aspect of onboard training deployment of students as *highly implemented*.

This outcome can be interpreted that when it comes to the onboard training deployment of students, UC maritime education regularly implements the required processes. This means that the maritime education through the its quality management system standard, has formulated a plan, provide resources, apply criteria, maintain an assessment process, and retain documented information as evidence of compliance to the regulatory requirement.

The performance indicator: plan, implement, and control the processes needed to meet the regulatory requirements and standards of onboard training deployment obtained the lowest mean of 3.60. This finding may be linked to the fact that despite having a plan, there are challenges in the implementation and control of the processes to meet the regulatory requirements and standards of onboard training deployment. The increasing high percentage of deployment rate makes it difficult for the established plan to attain its objectives. Thus, regular monitoring and evaluation of the progress of the plan's strategies should be initiated by UC maritime education.

The Extent of Efficiency of the Quality Management System of the Maritime Education Programs of UC as a Tool for Compliance to CHED-MARINA Requirements

Table 18. Extent of the Efficiency of the Quality Management System of the Maritime Education Programs in the Compliance of the CHED- MARINA Requirements in Terms of Documented Information

Indicators	Mean	Description
1. Regularly create and update the identification and description (title, date, author, reference number), format (language, software version, graphics of the documented information for suitability.	3.66	Highly Efficient
2. Ensure that the documented information is available when and where it is needed.	3.65	Highly Efficient
3. Ensure that control of documented information shall address the distribution access, retrieval and use, storage and prevention, control of changes, and retention and disposal.	3.69	Highly Efficient
4. Identify and keep documented information of external origin necessary for the planning and operation.	3.64	Highly Efficient
5. Ensure that documented information retained as evidence of conformity shall be protected from unintended alterations.	3.66	Highly Efficient
Overall Mean	**3.66**	**Highly Efficient**

The aggregate mean of 3.66 indicates that the respondents assessed the efficiency of the quality management system of the maritime education programs in the compliance of the CHED-MARINA requirements in terms of documented information as *highly efficient.*

ISO 9001:2015 clause 7.5.1 states that: the organization's quality management system shall include: a) documented information required by the standard, b) documented

information determined by the organization as being necessary for the effectiveness of the quality management system.

For documented information, the performance indicator: ensure that the documented information is available when and where it is needed got the lowest mean of 3.65. This finding implies that UC maritime education does not systematically ensure that the use and control of their documented information regularly adheres to the quality management system standards and requirements.

Table 19. Extent of the Efficiency of the Quality Management System of the Maritime Education Programs in the Compliance of the CHED- MARINA Requirements in Terms of Reduction of Risk of Nonconformity

Indicators	Mean	Description
1. Regularly identify the risk per process and plan the action(s) to mitigate the risk of nonconformity.	3.70	Highly Efficient
2. Monitor the progress of the risk reduction plan in relation to time frame and intended measurable data.	3.74	Highly Efficient
3. Validate and evaluate the results of the plan and the quality objectives.	3.69	Highly Efficient
4. Regularly conduct internal quality audit.	3.71	Highly Efficient
5. Regularly conduct management review.	3.76	Highly Efficient
Aggregate Mean	**3.72**	**Highly Efficient**

The aggregate mean of 3.72 indicates that the respondents assessed the efficiency of the quality management system of the maritime education programs in the compliance of the CHED-MARINA requirements in terms of reduction of risk of nonconformity as *highly efficient*.

The basis of the mentioned standards is a risk-oriented approach requiring higher education institutions to plan and perform certain actions regarding the consideration of risks and opportunities, which is the "foundation" of the effectiveness of the quality management system, the achievement of improved results and the prevention of negative impacts (Vykydal, et. al. 2020; Nehrii, et. al., 2022).

The performance indicator that got the lowest mean of 3.69 is: validate and evaluate the results of the plan and the quality objectives. This result indicates that there is an issue on how UC maritime education conducts validation and evaluation of the outputs of the plan and the quality objectives. Taking into consideration that validation and evaluation of results are critical to address potential problems in the operation, UC maritime education will have to initiate action to improve this performance indicator.

Table 20. Extent of the Efficiency of the Quality Management System of the Maritime Education Programs in the Compliance of the CHED- MARINA Requirements in Terms of Correction and Corrective Action

Indicators	Mean	Description
1. React to the nonconformity and, as applicable take action to control and correct it, and deal with the consequence.	3.76	Highly Efficient
2. Evaluate the need for action to eliminate the cause(s) of the nonconformity in order that it does not recur or occur.	3.71	Highly Efficient
3. Implement any action needed, and review the effectiveness of any corrective action taken.	3.76	Highly Efficient
4. Update the risks determined during planning to prevent	3.64	Highly Efficient

	further nonconformity.		
5.	Retain documented information of the nature of the nonconformity and any subsequent actions taken.	3.69	Highly Efficient
	Aggregate Mean	**3.71**	**Highly Efficient**

The aggregate mean of 3.71 indicates that the respondents assessed the efficiency of the quality management system of the maritime education programs in the compliance of the CHED- MARINA requirements in terms of correction and corrective action as *highly efficient*.

ISO Tracker (2023) suggested that the primary goal of quality management within the workplace is to strive for continual improvement. As such, both corrective and preventive actions play an important role in providing employees, management and even stakeholders with improved systems. Through correcting non-compliances, employees are able to improve any potential skills shortages or motivational issues that may have been in place, thereby preventing further issues down the road.

The performance indicator that got the lowest mean of 3.64 is: update the risks determined during planning to prevent further nonconformity. This result can be attributed to some offices not regularly conducting review of their identified risks. To address this issue, the monitoring schedule for risks shall be strictly adhered by the responsible offices.

Table 21. Extent of the Efficiency of the Quality Management System of the Maritime Education Programs in the Compliance of the CHED- MARINA Requirements in Terms of Attainment of the Program Outcomes

	Indicators	Mean	Description
1.	Regularly formulate a plan for the design and development, implementation, monitoring, and evaluation of the academic and support office operational processes for the attainment of the program outcomes.	3.73	Highly Efficient
2.	Consistently implement the approved academic and support offices operational processes based on the declared schedules.	3.69	Highly Efficient
3.	Regularly monitor and measure the results of the implementation based on the target output(s).	3.69	Highly Efficient
4.	Regularly validates and evaluates the overall results of the operational activities against the target outputs.	3.64	Highly Efficient
5.	Look for ways and means for the continual improvement of the operational processes.	3.71	Highly Efficient
	Aggregate Mean	**3.69**	**Highly Efficient**

The aggregate mean of 3.69 indicates that the respondents assessed the efficiency of the quality management system of the maritime education programs in the compliance of the CHED- MARINA requirements in terms of attainment of the program outcomes as *highly effective*.

While Juran and Defeo (2010) lends the general definition of quality to the educational process, it is important to note that the quality of education and its services need to be specific and agile to the demands of the external environment. This highlights the subjective characterization of quality in educational service. And it further points to the dependence of the definition of quality in educational services through the prism of the consumer of the educational product (Michalska, 2009). As a result, Michalska (2009) alludes that “quality

should be estimated both through results from the offered services, and through the process itself which leads to the given result".

The performance indicator: regularly validates and evaluates the overall results of the operational activities against the target outputs, obtained the lowest mean of 3.64. This finding may imply that there is an issue in the conduct of validation and evaluation processes of the actual result against the desired target. Thus, the management must determine and implement appropriate ways for the continual improvement of this performance indicator.

CONCLUSION AND RECOMMENDATIONS

The goal of the study is to ascertain the practice, implementation, and the efficiency of the quality management system of UC maritime education programs. Based on the result of the inquiry, it is concluded that the quality management system standards are practiced with great extent, the implementation of its processes is highly implemented, and the efficiency of its implementation in the aspect of attaining its objectives and strategic plan is highly efficient. However, there are some specific areas that require actions from the management to ensure continual improvement.

The Theory of Management by Deming acquiesces with the conclusion. The theory is a system-based management philosophy framework that represents a holistic approach to leadership and management. Deming outlined what he found to be the managerial changes necessary to improve quality. These changes are illustrated through four main areas as well as a list of 14 principles intended to guide improvement in organizational structure and behavior. In short, when executed, the framework creates continuous improvement in people and organizations. It gives leaders a roadmap for how to work with teams and organizations as systems, rather than focusing on problems with or actions of the individual people working within silos (Testing Change, 2020).

Based on the findings and conclusion of the study, the following actions are recommended: for Higher Education Institutions offering Maritime education to choose appropriately the quality assurance or quality management system that will guide them in establishing structured approach to quality management, regulatory compliance, and continual improvement.

For Maritime education administrators; the top management shall regularly demonstrate their leadership and commitment with the quality management system by taking accountability for the effectiveness of the quality management system, ensuring the integration of the quality management system requirements into the organization's business processes, and ensuring that the resources needed for the quality management system are available. The Dean and the different academic heads shall take pro-active actions to identify the root cause of the specific areas that need to be improved through regular monitoring and measurement, validation, and evaluation of desired outcomes against actual results.

For Maritime education support offices; make regular coordination with the quality assurance office of their respective campuses to ensure that the practice and implementation of the standards and requirements of the quality management system shall be fully understood and complied with.

For future researchers; conduct a future qualitative study that will focus on the challenges encountered by maritime education programs in using the quality management system for the compliance of the regulatory requirements.

For University of Cebu Maritime Education: to implement the strategic plan that will be proposed based on the findings of the study.

REFERENCES

Bakhtiar, A. (2012, October). The benefits assessment of standards: A cross case analysis in manufacturing industries-Indonesia. *Proceedings of the 2012 International Conference on Information Management, Innovation Management and Industrial Engineering* (Vol. 3, pp. 356–360). IEEE. Retrieved April 25, 2024 from: https://bitly.cx/WUz.

Checkify Ltd. (2024). *Juran trilogy: Its role in improving operation quality*. Retrieved June 2024 from: https://shorturl.at/Ho6Ek.

Davis, K., & Newstrom, J. W. (2004). *Organizational behavior: Human behavior at work*. McGraw-Hill. 1221, Avenue of the Americas, New York, NY, 10020.

DeFeo, J. A., (2019). *More about Juran trilogy*. Retrieved June 2024 from: https://shorturl.at/Ho6Ek.

Deming, W. E. (1982). Improvement of quality and productivity through action by management. *National Productivity Review, 1*(1), 12-22.

Deming, W. E. (1986). *Out of the crisis*. Cambridge: Massachusetts Institute of Technology, Center for Advanced Engineering Study.

Erquiza, M. (2021). *The role of quality management principles in developing quality culture of the Philippine maritime education and training institutions*. (World Maritime University Dissertations). Retrieved April 2024 from: https://bitly.cx/N2aw.

Excellence through quality. (n.d.). ASQ. Retrieved May 2024 from; https://asq.org/.

Feng, M., Terziovski, M., & Samson, D. (2008). Relationship of ISO 9001: 2000 quality system certification with operational and business performance: A survey in Australia and New Zealand-based manufacturing and service companies. *Journal of Manufacturing Technology Management*, *19*(1), 22-37. Retrieved April 1, 2024 from: https://bitly.cx/VOj.

Gitlow, H. S., Oppenheim, A. J., Oppenheim, R. & Levine, D. M. (2005). *Quality management*. (3rd ed.). USA: The McGraw-Hill companies, Inc.

Guest Author, (2024). *The importance of communication in an organization*. Retrieved November 2024 from: https://www.poppulo.com/blog/importance-of-communication-in-an-organization.

Hammar, M. (2024). *Quality management system: What is it*? Retrieved April 15, 2024 from: https://shorter.me/chmwT.

Harvey, L., & Green, D. (1993). Defining quality. *Assessment & Evaluation in Higher Education 18*(1), 9–34. Retrieved April 20, 2 2024. Retrieved from: https://bitly.cx/Qwed.

ISO 9001:2015 (2024). *Quality management system manual.* Retrieved April 2024 from: https:// shorter. me/2q2da.

ISOTracker. (2023). *Who is responsible for corrective actions in a quality management system?* Retrieved May 15, 2024 from: https://www.isotracker.com/blog/who-is-responsible-for-corrective-actions-in-a-quality-management-system/.

Joint CHED-MARINA Memorandum Circular 01 (2023). Retrieved October 2024 from: https://stcw.marina.gov.ph/joint-ched-marina-memorandum-circular/.

Joint MARINA and PCG memorandum circular. (n.d.). Maritime Industry Authority. https://stcw. marina.gov.ph/.

Juran, J.M. (1986). The Quality Trilogy: A universal approach to managing for quality in ASQC40th Annual Quality Congress. Retrieved 2023 from: https://statmodeling.stat.columbia.edu/wp-content/uploads/2017/10/Juran-trilogy-1986.pdf.

Juran, M. & Defeo, J. A. (2010). *Juran's quality handbook: The complete guide to performance excellence*. McGraw-Hill Professional Pub. New York, New York, United States.

Kaziliūnas, A. (2006). *Kokybės vadyba. Monografija*. Vilnius: Mykolo Romerio universitetas. Retrieved April 18, 2024 from: https://bitly.cx/lMdiJ.

Kotter, J. P. (2004). *The leadership factor*. New York: Free Press.

Manuel, M. & Nakazawa, T. (2008). *Instructor criteria of or the "new maritime community*. 9th Annual General Assembly, International Association of Maritime Universities (IAMU).

MBANote. (2024). *Administrative theory of management: definition, history, examples, and faqs*. Retrieved April 2024 from: https://rb.gy/sdmd2q.

Michalska-Ćwiek, J. (2009). The quality management system in education-implementation and certification. *Journal of Achievements in Materials and Manufacturing Engineering, 37*(2), 743-750.

Nehrii, S, Nehrii, T., Volkov, S., Zbykovskyy, Y. & Shvets I. (2022). Operation complexity as one of the injury factors of coal miners. *Mining Mineral Depos., 16*(2), 95–102. Doi: 10.33271/mining16.02.095.

Osoian, C., Zaharie, M. & Ilieş, L. (2010). *Quality management system in higher education employers' approach. Managerial challenges of the contemporary society 14*. Faculty of Economics and Business Administration, Babes-Bolyai University. Retrieved April 14, 2024 from: https://t.ly/3jeER.

Pavlovic, A. (2019). *What is the purpose of a quality management system?* Retrieved April 20, 2024 from: https://shorter.me/eRr_G.

Qualio, (2024). *5 benefits of quality management system in 2024*. Retrieved April 2024 from: https://shorter.me/gDCkM.

Quiambao, J. L. & Alvaro, K. N. G. (2023). Impact of quality management system practices on the business performance of a government corporation in Clark Freeport Zone, Philippines. *International Journal of Multidisciplinary: Applied Business and Education Research*, *4*(3), 995-1006. Retrieved May 15, 2024 from: https://shorter.me/BdKm.

Ruževičius, J., Adomaitienė, R., & Sirvidaitė, J. (2004). Motivation and efficiency of quality management systems implementation: A study of Lithuanian organizations. *Total Quality Management & Business Excellence, 15*(2), 173189.

Sarma, S.K. (2013). Quality Assurance in maritime education and training: A case study of China and lessons for Nigeria. *International Journal of Innovative Research and Development*, *2*(8) 1258-1267.

Study.com (n.d.). *Henri Fayol's Principles of Management/Definition and Importance*. Retrieved September 2024 from: https://study.com/academy/lesson/henri-fayols-management-principles-managing-departmental-task-organization.html.

Terry, G. R. & Franklin, S. G. (1997). *Principles of management*. New Delhi: AITBS Publisher.

Testing Change. (2020). *Deming's theory for quality improvement*. Retrieved May 25, 2024 from: https://tinyurl.com/yc6x3rhj.

The W. Edwards Deming Institute (2024). *The system of profound knowledge*. Retrieved June 2024 from: https://deming.org/the-system-of-profound-knowledge.

The 9000 Store. (2024). *What is a QMS*? Retrieved April 25, 2024 from: https://shorter.me/fC5-Z.

Toppr. (n.d.). *Staffing: Definition, meaning, and functions*. Retrieved November 2024from: https://www.toppr.com/guides/business-studies/staffing/introduction-to-staffing-and-its-meaning/.

Tuljak-Suban, D. (2013). Quality standards implementation in maritime education and training institutions: Fuzzy assessment. *Transport Problems 8*, 63–72.

Turri, A. (2023). *Article series continuous improvement in a QMS – Enhancing quality management through effective measurement and monitoring*. Retrieved April 25, 2024 from: https://shorturl.at/JPV57.

Vykydal, D., Folta, M. & Nenadál J. (2020). A study of quality assessment in higher education within the context of sustainable development: A case study from Czech Republic. *Sustainability, 12*(11), 4769. Doi: 10.3390/su12114769.

AUTHOR'S PROFILE

Rey Carlito Q. Aranzado, MST-ManSci, PG Cert MET, DBA

Rey Carlito Q. Aranzado is the Institutional Quality Assurance Director of the University of Cebu Maritime Education Programs. He is a licensed deck officer and earned the degree of Master of Science in Teaching-Major in Marine and Nautical Sciences from the University of Cebu, and a Post Graduate Certificate in Maritime Education and Training International from Warsash Maritime Academy, Solent Southampton University, United Kingdom. He is a candidate for the degree of Doctor of Business Administration at the University of Cebu. His experience in the maritime profession and quality assurance motivated him to conduct researches related to maritime education and quality management system and processes.