REMOTE INSTRUCTION: CHALLENGES, INITIATIVES, AND FUTURE DIRECTIONS FOR MARITIME EDUCATION INSTITUTIONS IN A DEVELOPING COUNTRY

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ABSTRACT

The COVID-19 pandemic has caused a shift in pedagogy that has affected the operations of maritime education and training institutions (METIs), the instructors, and the students. This study sheds light on the following topics: (1) Challenges faced by instructors, students, and METIs in implementing remote instruction, (2) METI initiatives to cope with and address these challenges, and (3) Future directions for METIs for effective delivery of remote instruction. Data were collected through a survey and structured interview with 105 instructors, 804 students, and five administrative officers of METIs. Frequency count and percentage were used to analyze the numerical data, while thematic analysis was employed in organizing data from open-ended questions. The results revealed that most of the challenges experienced during the transition from face-to-face to remote mode of instruction stemmed from the "far-from-advanced" technological resources and difficulty in coping with the sudden shift in the METIs' operations, and the instructors' and the students' new academic routines that have affected their physical, mental, and emotional state. Initiatives focused on the academic, financial, human, and technological resources were implemented to cope with the sudden change. Future directions in MET are set on Strengthening IT/Technological Infrastructure, Capitalizing on IT and Research and Development, Academic Calibration for a More Relevant and Responsive Maritime Education and Training, Advancing Instructors' Technical Capacities, Strengthening Parental Engagement, and Building Wider Alliances and External Partnerships.

Keywords: Remote Instruction, Maritime Institutions, Maritime Education and Training, Institutional Initiatives, COVID-19

1. INTRODUCTION

The COVID-19 pandemic has posed challenges for developing countries like the Philippines, particularly in transitioning from in-class to online learning (O'Neill et al., 2020). Maritime institutions have resorted to online, modular, and blended learning modalities. Adjustments had to be made in the MET operations. The pedagogical shift has brought challenges to the instructors -- preparing instructional materials appropriate to each learning modality and conducting virtual classes despite limited internet connectivity. The instructors also had to equip themselves with the

necessary IT skills. These initiatives have taken a toll on the institution's financial, technological, and human resources.

As of September 2020, 75% of Filipino households and 44.44% across countries in Southeast Asia have lost their jobs. Eighty-five percent of the Filipinos and 58% across Southeast Asian countries have experienced financial difficulty during the pandemic (Asian Development Bank cited in Basilio, 2021). Over 1.2 billion students worldwide were suddenly out of school (Li & Farah, 2020). Families struggled to survive while forced to provide their children gadgets and internet access to cope with the shift into remote learning.

With the pandemic impacting the academe, maritime education institutions in the Philippines are trying to sustain their academic programs by adopting multiple measures in delivering instruction (*Report of ICS IAMU Virtual Dialogue, September 2020*). The Philippine Association of Maritime Institutions (PAMI), the Maritime Industry Authority (MARINA), the Commission on Higher Education (CHED), and other stakeholders have expressed their optimism in resolving problems that affect the maritime education sector (Pimentel, 2021). A study conducted by van Tatenhove (2021) delved into different ways public authorities and private sectors in the maritime industry in Europe are affected by the COVID-19 pandemic and discovered its pervasive effects on the development of maritime sectors such as transport and shipping, cruise tourism, and fisheries. Earlier studies in the Philippines have explored various academic issues and concerns due to the pandemic (Tria, 2020; Dziuban et al., 2018; Unger & Meiran, 2020). However, gaps in the literature have surfaced, each of them needing further exploration. First, research is limited when evaluating the realities maritime students have experienced because of the shift in the learning modalities. Second, METIs have limited data on how their initiatives could affect the students and the instructors. Lastly, nothing much has been explored on the impact of the COVID-19 pandemic on remote instruction in the context of METIs' financial, technological, structural, and human resources; hence, this paper.

2. OBJECTIVES

This investigation aimed to (1) profile the challenges met by instructors, students, and the administration of METIs in the implementation of remote instruction, (2) discuss the initiatives done by METIs in coping with the situation and in addressing the challenges, and (3) point out future directions for METIs to strengthen their resources for effective delivery of remote instruction.

3. METHODS

A descriptive design using survey and structured interview provided the intellectual machinery for gathering and analyzing the data. An online survey through Google Forms generated

substantial data from 105 METI instructors and 804 maritime students. A structured interview with five school administrators and department heads was conducted to get their views from the perspective of the METIs. Frequency count and percentage were used to report and analyze the numerical data. Thematic analysis was employed in organizing and reporting the data from open-ended questions. The results presented are based on the data from the entities who have responded to the survey. An extensive review of related literature and studies conducted in education at the time of the pandemic was done.

4. RESULTS AND DISCUSSIONS

With the pandemic, education has become one of the most affected sectors worldwide, with over 1.5 billion learners in 165 countries being affected by school closures to contain the spread of COVID-19 (UNESCO, 2020). The following discussions summarize the salient findings of this study.

4.1 Challenges Experienced by Students

On top of the challenges experienced by students were Limited Access to a Device and Internet Facilities (f = 659), Excessive Academic Pressure (f = 659), and Mental and Emotional Stress (f = 595).

Limited Access to a Device and Internet Facilities

Twenty percent of the students have stable internet connectivity, 78% have limited connectivity, and 2% do not have access to the internet and have to go to the nearest internet station to get one. Thirty-three percent of the respondents have laptops, 12% have PCs, and the rest have mobile phones to access online learning. Thirty percent experienced difficulties using the Learning Management System and internet signal interruptions. Other problems encountered were slow internet speed, inadequate network coverage, and the high cost of a data package. The findings of this study are corroborated by the study of Ochavillo (2020), which found that 74% of maritime students do not have a computer or laptop for schoolwork purposes, 55% did not have an internet connection, and 80% did not have access to internet shops.

Forty-two percent of the respondents come from low-income and 51% from middle-income classes. Educational inequality in financial and material resources has become more apparent in developing countries because of the pandemic. Ochavillo (2020) reported that 55% of parents have an informal income source; hence, students with parents in this income group are the most vulnerable and most affected by the pandemic.

Online learning highlighted the inequality in educational opportunity. Some students have connectivity concerns or reside in areas where telecom signals are absent. Students from higher socioeconomic status have access to computers, high-end gadgets, and better internet access. This

inequality may discourage low-income students from enrolling in schools with well-equipped IT and LMS. Adedoyin and Soykan (2020) pointed out that students who cannot afford broadband connections are most vulnerable to encounter additional challenges in online learning.

Excessive Academic Pressure

Eighty-two percent of the students have voluminous tasks and requirements to perform but hardly get feedback from their instructors, reducing their motivation to perform well. Working in isolation, compounded by family-related struggles in coping with the pandemic, contribute to their academic stress. According to Bedewey and Gabriel (2015), as cited in (Chandra 2020), this perception of academic stress affects their well-being and ability to manage course workload.

Mental and Emotional Stress

Seventy-four percent of the students find online learning more stressful than face-to-face classes as it takes away the benefit of socializing with their classmates (Angdhiri, 2020). Mental and emotional stress may have a detrimental effect on students' learning, and without the physical interactions with their teachers and classmates, their emotional well-being may be compromised. This raises serious concern considering that mental health during the COVID-19 crisis has been associated with suicidal behavior (Sher, 2020; Mukhtar, 2020). Seventeen reported cases of suicides in the Philippines had been linked to these factors (Cervantes, 2020).

4.2 Challenges Experienced by Instructors

The challenges experienced by maritime instructors fall into the following themes: Personal Readiness, ICT Background, Virtual Classroom Management, and Technological Infrastructure.

Personal Readiness

Instructors experienced physical and mental fatigue caused by their multiple roles in delivering online instruction. They also struggled to find time to develop e-learning materials, meet high expectations, and cope with serious personal and financial issues resulting from the implementation of lockdowns and quarantines.

ICT Background

Thirty-two percent of the respondents admitted having weak ICT skills and moderate skills in using the LMS. The older instructors were unfamiliar with online applications for teaching until the pandemic happened and were compelled to learn them overnight. The data revealed that most teachers used online teaching for the first time and have difficulty using the online tools and technology.

Virtual Classroom Management

Students have participated poorly in online class interactions. Most of them turn off their cameras due to poor internet connection that instructors found it hard to monitor their learning. Due

to connectivity issues, synchronous virtual classes are held during the first hour, with the rest spent for asynchronous activities. Other challenges were irregular student attendance, unreliable assessment results, and pressure in answering students' queries.

According to Arkorful and Abaidoo (2015), since assessments are carried online, the physical absence of the instructors makes it impossible to control cheating, which affects the credibility of the assessment results. Since students could only work at their own pace, the instructors are overwhelmed responding to their concerns and providing immediate feedback. For instructors handling several classes with close to 40 students each, the pressure could take a toll on their physical and mental state.

Technological Infrastructure

Unstable internet connectivity and inadequate technical support are common problems among instructors. The need for METIs to upgrade their IT infrastructure to facilitate online learning was identified. According to Adedoyin and Soykan (2020), inadequate IT infrastructure and broadband access may negatively impact the instructors' productivity and efficiency.

The Philippines' internet speed improved by 262.70% in 2020, yet it still lags behind its regional peers. As of October 2020, the Philippines ranked 32nd in Asia in terms of broadband speed and 34th in mobile internet speed out of 50 countries in the continent (Domingo, 2020). With online learning as the new norm, the government should prioritize improving the internet infrastructure across the country. Universities also need to train teachers to enhance their online teaching skills to deliver lessons more effectively (Chung et al., 2020).

4.3 Challenges Faced by METIs in the Implementation of Remote Instruction

When COVID-19 became a pandemic, METIs in the Philippines have been pressed to adhere to the orders and guidelines from governing and regulating bodies like the Commission on Higher Education (CHED), Department of Labor and Employment (DOLE), Department of Education (DepEd), and the Inter-Agency Task Force (IATF).

It is on the financial aspect of the operations that the METIs were hit the most. IT infrastructure had to be established and upgraded by subscribing to better bandwidth, creating a multimedia studio, subscription to learning management software, teleconferencing applications, and online library resources. A robust IT infrastructure facilitates better online instruction, improves student outcomes, and reduces dropout rates (Teixeira et al., 2017). This study showed that a significant portion of the budget was spent to capacitate the instructors through a series of training in online instruction, designing e-learning modules, and using the LMS and telecon apps. Moreover, laptops, headsets, and cellphone loads were purchased to support the online delivery of instruction. To adhere to health protocol requirements, the schools purchased thermal scanners,

disinfectants, PPEs, construct an isolation room, and install plastic barriers in offices. Substitute instructors had to be assigned for those who were quarantined. The low enrolment turnout due to the pandemic had affected the institutions' financial resources; hence, some schools imposed a cutdown on salary ranging from 80 to 50 percent to sustain operations, while other schools implemented a "no work, no pay" policy.
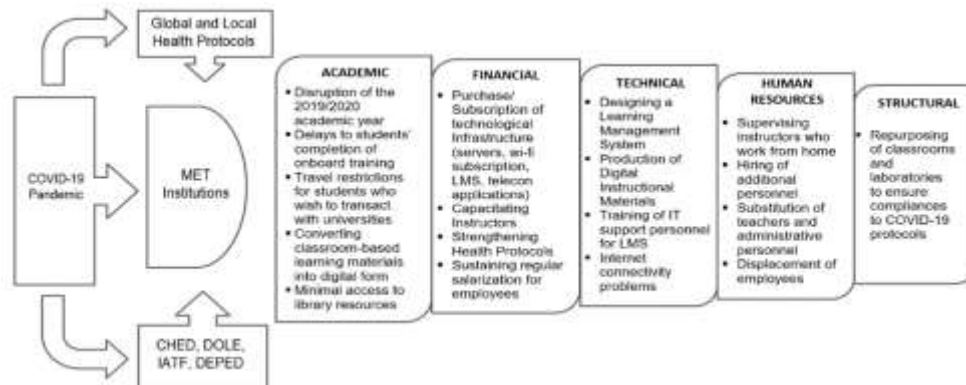

Figure 1. *Thematic Presentation of the Challenges on METI's Operations and Resources*

4.4 Initiatives Done by METIs to Cope with the Situation and to Address the Challenges

Administrative decisions gave much weight to strategic initiatives that address the paradigm shift in education. Figure 2 shows the initiatives taken by METIs to address the challenges of the new normal.

ACADEMICS	FINANCIAL	HUMAN RESOURCE	TECHNICAL	STRUCTURAL
• Adjusted planned schedules and academic calendar • Reduced class sizes to ensure that the academic schedule can be completed as planned and required • Been flexible to any changes in schedules as may be requested by shipping companies • Implemented online//blended approaches and strategies • Revised the curriculum by offering lecture courses first and the laboratory courses next, as soon as controlled FTF classes are allowed by DEPED and CHED • Conducted innovative online activities and games to combat the students' boredom	• Minimized person to person contact by subscribing to various payment avenues for students (banks and remittance centers) • Prepared a business-learning continuity plan that covered the various levels of community quarantine	• Conducted briefings to employees for info and instructions • Provided workshops on alternative instructional methods and approaches • Fast-tracked the training of faculty on the use of LMS • Minimized inter-office mobility of personnel through various undertakings (no face-to-face meetings, use of GC, sending memos in e-copy • Conducted webinars on mental health and stress management for students and employees	• Improved internet connectivity by increasing bandwidth subscription • Installed remote access software so that the simulators can be accessed by the students remotely	• Implemented covid-19 protocols as mandated by DOLE, IATF, CHED, DEPED, and LGU

Figure 2. *Initiatives Taken by METIs in Addressing the Challenges of the New Normal*

4.5 Future Directions for METIs

According to the CHED Chair, Prospero de Vera III, the commission has acknowledged that flexible learning will continue in the school year 2021 and after that. Hence, schools are given the freedom to choose what mode would be effective for them ---online, modular, or blended. He added that flexible learning would be the norm, and there is no going back to the traditional full-packed face-to-face classrooms (Magsambol, 2021). In a structured interview, five selected administrative officers of METIs were asked, "What future directions should maritime institutions be preparing for to efficiently deliver maritime education and training to students while ensuring

that they still meet the expected competencies as required?" Maritime institutions have channeled their priorities towards the directions shown in Figure 3 for the years ahead.

Figure 3. Future Directions for METIs

Strengthening IT/Technological Infrastructure

The pandemic has exposed the digital connectivity divide. METIs need to ensure affordable internet connectivity to advance learning for all. Improving IT infrastructure is crucial as it positively impacts e-learning systems (Obeng & Coleman, 2020). Enhancing the IT skills of instructors and students, protecting students' right to information, data privacy and protection, familiarity with teleconferencing and remote access software, subscribing to a more robust bandwidth and faster internet speed, and providing e-learning support to instructors during online classes must be considered along this line.

Capitalizing on IT and Research and Development

METIs should invest more in online educational platforms, online library resources, and audio-visual materials accessible to students online or offline. Schools should capitalize on research and development initiatives to encourage technological innovations and address the demand for digital transformation (Iivari et al., 2020). This digital transformation should be part of the strategic plan of METIs, with initiatives focused on people and empowered by technology.

Academic Calibration for a More Relevant and Responsive Maritime Education and Training

Academic calibration is a process of reviewing or revisiting existing academic practices to compare outcomes, maintain and improve educational standards, and promote discussion on good practice in learning and teaching (Rathore, 2019). METIs must reassess their current academic orientations to ensure that they are relevant and responsive to the needs of the times. This calibration may focus on deciding on the best mode of delivery for each subject. Each modality would require a different set of teaching methods and strategies that will redefine the role of teachers. METIs should explore virtual classrooms and simulation, designing digital instructional

materials, online tutoring, establishing a reliable grading system, and online feedback mechanisms for assessments.

Advancing Instructors' Technical Capacities and Strengthening Parental Engagement

Rubach and Lazarides (2021) identified six dimensions of basic ICT competence beliefs: information and data literacy, communication and collaboration, digital content creation, safety, and security, problem-solving, and analyzing and reflecting. From this premise, it is essential to advance the instructors' technical capabilities on (1) using various gadgets as instructional delivery tools, (2) discerning what information can be utilized to supplement the topic contents, (3) collaborating with peers in designing and creating digital learning materials, (4) adhering to ethical practices in borrowing learning materials from other sources, (5) ensuring data privacy and respecting intellectual properties, and (6) finding ways to enhance the delivery of instruction using various modalities.

More than half a billion children (Cohen & Kupferschmidt, 2020) have been forced to become virtual-school learners as they shelter in their homes, while family members have taken on the new role of learning facilitators, pseudo-teachers, and coaches. MET leaders have also affirmed the important roles of parents in the holistic development of students in the remote delivery of instruction where the instructors' presence is only virtual. Parental support is crucial in providing students with gadgets to stay connected in their virtual classes. METIs are also realistic when they say that laptops may eventually be required for every student to accommodate the learning materials that will be difficult to view and access on mobile phones.

Building Wider Alliances and External Partnerships

Collaborations between METIs must be strengthened for sharing of resources, best practices, and benchmarking. It may be beneficial to create a committee of researchers at the national and regional level who will be tasked to discuss the common problems, develop intellectual machinery through collaborations, and work on projects intended at improving maritime education and training during the pandemic and for a similar future scenario.

According to Glenn Blackwood, Head of the Policy and Planning Committee of the IAMU, Maritime universities need to maintain a close relationship with the global shipping industry to address the impacts of the COVID-19 pandemic (*Report of ICS IAMU Virtual Dialogue, September 2020*). In the same report, Mr. Tjitso Westra, Chair of ICS Manning and Training Sub-Committee, pointed out that shipowners and operators must pursue a close relationship with MET institutions for a comprehensive revision of the STCW Convention and Code.

5. CONCLUSIONS

The implementation of remote learning during the COVID-19 pandemic has affected

METIs, the instructors, and the students in the Philippines. Most of the challenges experienced during the transition from in-class to remote mode of instruction stemmed from the "far-from-advanced" technological resources, the difficulty in coping with the impact of the sudden shift on METIs' operations, and the change in the instructors' and the students' usual academic routines, impacting their physical, mental, and emotional state. Institutional initiatives have focused on implementing the needed transitions in the academic, financial, human resources, and technical operations to cope with the current situation. Future directions in MET are set on Strengthening IT/Technological Infrastructure, Capitalizing on IT and Research and Development, Academic Calibration for a More Relevant and Responsive Maritime Education and Training, Advancing Instructors' Technical Capacities and Strengthening Parental Engagement, and Building Wider Alliances and External Partnerships.

6. RECOMMENDATIONS

Given the findings, the IAMU may consider future collaborative research projects on developing e-learning materials that IAMU member universities may utilize for free. These materials can be used in virtual classes to augment instruction. Collaboration among peers may also be encouraged in designing learning strategies and materials tailored for hybrid instruction. Strong coordination between the administration, instructors, students, and parents must be established to promote a robust support system. Alternative solutions for students who do not have access to technology must be allowed to lessen the academic divide between those who can and cannot afford it. Extra-curricular programs and activities may be initiated to alleviate fatigue resulting from academic isolation and other difficulties due to the pandemic. A global network for learning may be created by inviting a pool of experts from IAMU member universities or tapping the alumni, industry partners, and the government sector to share information, updates, and current issues in the maritime industry. Lastly, MHEIs should review the entire academic system by revisiting the curriculum, course contents, pedagogy, grading system, and assessment instruments and align them in the context of remote education.

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