PMMA Examinees' Perceptions: Basis for Improved Implementation of the Online Entrance Examinations in a Maritime Education Setting

Victoria Q. Paraggua[1*] • Froilan D. Mobo[2] • Ronalyn C. Acuavera[3] • Leah R. Villavicencio[4] • Geraldine C. Pasa[5] • Sheena Lee A. Guiang [6]

[1*-6] Department of Research, Development and Extension, Philippine Merchant Marine Academy, Zambales, Philippines.

*Corresponding author. Email: pmma.drd@pmma.edu.ph

Abstract

Given the Covid-19 pandemic situation, the conduct of online examinations became inevitable so that education will continue amidst the pandemic. Administering entrance examination online for incoming students in colleges and universities is a bit challenging. Studies reported benefits and drawbacks of this web activity which is increasingly being implemented by Higher Education Institutions (HEIs) in the Philippines. The purpose of this study is to examine the students' perception towards online entrance examination and to identify the challenges and difficulties encountered by the examinees in taking the first Philippine Merchant Marine Academy (PMMA) online entrance examinations. This quantitative-descriptive research utilized a survey questionnaire to gather data from the 4th Class cadets/cadettes of PMMA who took the first PMMA online entrance examination. In terms of validity, practicality, and implementation, the respondents strongly agree that the PMMA online entrance exam is useful. Although most of the respondents agreed to several advantages of online examination, they, however, experienced various challenges upon taking the first ever PMMA online entrance examination, such as poor/lack internet connection which is needed to proceed with the online examination. From these experiences, essential considerations, such as Online Exam Security and Online Entrance Exam Design, were noted for the successful implementation of online entrance examinations in PMMA.

Keywords: challenges, Covid- 19 pandemic, higher education institutions, online examination, perceptions

1.   Introduction

The COVID-19 pandemic has created the largest distraction of education systems in history, affecting nearly billions of learners in more than 200 countries. The closures of schools and other learning institutions have affected more than 94% of the world's student population and has brought vast changes to all aspects of our lives. Also, traditional educational practices have significantly disrupted by lockdowns and other restrictive movement policies (Pokhrel & Chhetri, 2021). As a result, education institutions have sought to use technology and offer online classes to guarantee the continuity of education despite the lockdown caused by pandemic; however, many universities are still struggling to come up with

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alternative ways to conduct instruction, assignments and examinations disrupting students' learning routes and development.

Indeed, lockdown has greatly affected the facilitation of learning in the Higher Education Sector. Many institutions have started practicing digitization through online admissions, e-attendance, online teaching learning, and online examination management system. Though this system is newly adapted for traditional courses, professional management courses are using this system many years ago. (Tilak et. al, 2020).

In 2021, Gorgani and Shabani mentioned that conducting online examinations are inevitable during this pandemic situation and will increase even in non-critical situations. Therefore, to implement them more fairly, proper procedures should be followed, and possible malfunctions and errors should be identified to be alleviated or eliminated as a precaution. Many colleges and universities have shifted their traditional classes system to online classes, and the examination system also has been shifted from offline to online (Tarkar, 2020).

The Commission on Higher Education (CHED) admitted that conducting entrance examination online for incoming students in colleges and universities is a bit "problematic." The CHED Chairperson J. Prospero De Vera III said that the integrity of examinations when administered online is a bit problematic as schools are unsure who is answering the test. He added that should universities and colleges conduct online entrance tests for admission of their students, the exam design should be revised. As the country deals with the COVID-19 pandemic, universities and colleges in the Philippines chose not to hold entrance exams for school year 2021 – 2022 (San Juan, 2020).

The start of the journey of a Filipino youth who dreams to embrace the profession at seas, through the PMMA, is when he submits his application form to the Admission's Office for processing, so that he can take the PMMA Entrance Examination (PMMAEE). Traditionally, the PMMAEE is conducted every last Saturday of the month of September in different testing centres nationwide. Over the years, the most recognizable and traditional type of examination in PMMA has been pencil-and-paper test. The previously scheduled PMMA Annual Entrance Examination on September 26, 2020 was cancelled due to the COVID-19 pandemic. On October 23, 2020, the PMMA announced that the Annual PMMAEE will be conducted online for the first time, but, instead of the original schedule of October 31, 2020, it was postponed to November since the platform to be used was still being finalized. The Academy administered the 2020 PMMAEE online, wherein the examination was conducted on various dates to be able to accommodate all the applicants' concerns, queries and address possible technical problems. The Admissions Office prepared two sets of examinations for the first and second batch of examinees. The first examination was conducted on November 28- 30, 2020 and the second examination, which was administered at the places affected by the typhoon Ulysees, was conducted on December 5-6, 2020.

Although online entrance examinations are increasingly being implemented by Higher Education Institutions (HEIs) in Philippines, students' perception on their use remain unexplored. Therefore, the main aim of this research is to examine the students' perception towards online entrance examination and to identify the challenges and difficulties encountered by the examinees in taking the PMMA online entrance examinations. Its findings will help the PMMA identify important and strategic aspects of the effective design and setting of online entrance examination to support students' education in a higher education setting.

2.   Literature Review

Online learning, according to Adanır, et. al (2020), is becoming very familiar in educational settings, online exams are starting to be recognized as one of the more efficient assessment methods. Online exams are effective in either blended or traditional forms of learning, and when appropriately used, this modern way of assessment is very advantageous to both learners and the learning process. Results of the study of Alsadoon (2017) revealed that the undergraduate Saudi Electronic University students considered that online assessments would benefit their learning for these can reduce bias in grading exams. From the participants' perspective, online assessment does not require any advance skills, nor does it facilitate

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cheating. Moreover, Turkish learners regarded online examinations as less stressful, more reliable and fairer than traditional paper-based exams. (Adanır et al., 2020).

Karkera et. al. (2019) stated that the major feature of web-based examination system is that it offers a high level of transparency compared to traditional method. Hence, online examination is beneficial to both the participant and the conductor of examination. Ayo et. al. (2007) described the electronic examination as a type of examination conducted using the web or the intranet. E-examinations reduces huge workload on examination, training, grading and reviewing. The set of questions frequently used in these type of assessments are multiple choice objective tests and quizzes that can be easily evaluated online. Further, online examinations are advantageous for their being easy to administer, ability to offer applicants instant results, easy verification, lesser time in marking examination scripts, which in most cases are prone to errors and misplacement of some scripts due to the large volume of scripts that must be marked. Özden (2005) noted that using online exams needs close collaboration of academic and technical units. Teachers need to take extra effort in preparing questions for online settings. Questions should measure the intended level of knowledge. They should be trained on how to conduct a course online and ask questions via the Internet. Technical units should support such a teaching-learning environment and should prepare the required structure for the system.

According to Choubey, Kumar, Behra, Kisku, Rabidas, & Bhadra (2020), online exams are eco-friendly because they are paperless so students can practice using lesser paper. Sani, Karim, & Arefin (2019) found out that through online practice examination and automated score, students can prepare themselves for the admission examination in different universities. By this system, the students can prepare for the admission tests while staying in their houses. Since the system can generate automated scores, the students will find this as an advantage for they can review their mistakes and make necessary review for correction. Alruwais, Wills & Wald (2018) reported that the major advantages of using online assessment are direct and immediate feedback, improved student performance, less time and effort of the teacher, and promotion of high-order thinking, which is one of the main goals of education.

However, there are also disadvantages of online assessments. The recent entrance examination system with unified servers is prone to malfunctions and faces threats such as leaks in questions, cheating by students during the exam, impersonation, manipulation of the answers, and difficulty in verifying the authenticity and reliability of score cards by the university, etc. Thilagavathi (2021) recommended that to resolve these issues and to facilitate online entrance exams in a secure and easier manner, a framework based on private blockchain is proposed, which features immutability, enhanced security, and audibility. Blockchain keeps a stable record of all the transactions. Any efforts to manipulate the transaction data in a particular block will result in a different hash and that can result in breaking of chain. Moreover, each transaction can easily be validated and traced.

Noorbehbahani, Mohammadi & Aminazadeh (2022) comprehensively reviewed and classified cheating in online exams. They recommended knowing cheating motivations and cheating types and technologies to mitigate students cheating. Furthermore, cheating detection and prevention methods are essential to eliminate this act of dishonesty. Detection methods without applying prevention methods could not be effective. As modern cheating detection and prevention methods exist, new cheating types and technologies emerge as well. Furthermore, the study of Alruwais, Wills & Wald (2018) identified some other challenges concerning online assessments such as poor technical infrastructure and student unfamiliarity with computer.

The study of Khan, et al. (2021) noted that for a triumphant execution of e-exams, higher education institutions must provide adequate support required for conducting e-exams in the universities, attributing to the needfulness of training the students for using the online assessment system. Otherwise, they will experience anxiety while taking the examinations. Moreover, to avoid such a problem, the students must be well familiar with the online assessment system and have a jolly atmosphere when appearing in the e-exams.

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Butler-Henderson and Crawford (2020) emphasized that the current use of online examinations needs to be examined to understand the successes and gaps. The survey conducted by Tilak, Deshmukh, & Phadake (2020) addresses the viewpoint of learners on online examination who are pursuing management studies. With respect to online examination system, the survey showed that majority of students agree that the benefits of having online examination are greater than its drawbacks. Online examination system will not only reduce the time but also gives fast and accurate results.

The study of Idhalama, Udem, & Dime (2020) shows that computer-based examinations are the best and should be practiced frequently. Obviously, students of this generation wish to continue learning using modern technological devices. To this end, government and school administrators should endeavour to encourage the use of Computer Based Examination (CBE) and other ICT facilities in order to fast track teaching and learning among students. This will not only help students but also help teachers in easily realizing objectives.

When selecting a system for online examination, institutions should opt with those with features that reduce the need for online examinations to be invigilated, such as biometrics with a high level of precision. Other system features should include locking the system or browser, cloud-based technology so local updates are not required, and an interface design for using the online examination intuitive (Butler-Henderson and Crawford, 2020).

Hameed & Abdullatif (2017) proposed an Online Examination System (OES) to effectively assess the student using an automated system that provide fast and accurate results. The system is subdivided into two main subsystems (student and administrator) that are designed to give the system maximum benefit by thoroughly explaining each subsystem service. The administrator's functions are clearly identified to be able to manipulate user's information such as add (register), delete users and managing the exam materials and content such as add and delete questions. This can be easily implemented by higher education institutions to make the online exam more secure and more flexible.

Another system was proposed by Nandini & Maheswari (2020) who strived to build systems for evaluating descriptive answer of examinees taking online tests for it is challenging. The task lies in acknowledging the natural language answers and capturing the correct meaning to appropriately evaluate the knowledge obtained by the student. The proposed method includes phases such as answer classification, question classification, and answer evaluation. A syntactical relation-based feature extraction technique, a system that adopts a cognitive-based approach where the student answers are judged for its correctness based on the phrases used for answering the questions, was proposed for automatic evaluation of descriptive-type answers.

3.   Research Method

3.1.   Research Design

The study used a quantitative-descriptive research design to determine the students' perception toward online examinations. Descriptive research is a type of research that aims to precisely describe an existing phenomenon. The term "existing phenomena" distinguishes descriptive research from experimental research, which observes not only the existing phenomena, but also the phenomena after a certain period of treatment. The phenomena observed through descriptive study are already available and the researcher's goal is to collect data using research instruments including tests, questionnaires, interviews, and even observation. Surveys, correlation studies, qualitative studies, and content analysis are examples of descriptive research methodologies. These subtypes differ not in terms of data availability, but in procedures of data collection and/or analysis (Atmowardoyo, 2018).

The variables of the study are as follows: (a) perception on the usefulness of online examination in terms of validity, reliability, affective factors, practicality, security and implementation, (b) challenges and difficulties encountered by the examinees and (c) the essential considerations needed for the successful implementation of online entrance examination.

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3.2. Respondent

The participants of the study are the 222 Fourth-Class cadets/cadettes who took the first PMMA online entrance examination, 5.86% female and 94.14% male.

3.3. Instrument

The Student Perceptions of e-Assessment Questionnaire (Dermo, 2009) was used as the basis on which to develop an online questionnaire consisting of three main parts. The first part includes the demographics. The second part asked them to respond to several statements concerning their perception of online exams, all worded positively and grouped into six sets: validity, reliability, affective factors, practicality, security and implementation. The third part asked participants to select the important considerations needed for the successful implementation of online examinations, challenges and difficulties encountered by the examinees, and essential considerations needed for the successful implementation of online entrance examination. The last part covered the respondent's comments/suggestions on PMMA online entrance examination.

The survey questionnaire used a four-point Likert Scale to identify the perception of the students towards online entrance examination. The respondents' level of agreement to the given statements in the questionnaire was rated from (1) strongly disagree, (2) disagree (3) agree and (4) strongly agree.

3.4. Procedure

The detailed steps in conducting the perception survey are as follows:
i.   The researchers conducted an interview with the admissions office to ensure the survey instrument's applicability while adhering to the academy's COVID-19 safety protocols.
ii.   After the interview, the researchers revised the instrument, e-Assessment Questionnaire (Dermo, 2009) and encoded it through Google form.
iii. After finalization, the researchers sought approval from concerned heads/departments.
iv.   The researchers administered survey questionnaires to respondents.
v.   The collected data was processed and analysed using Tables and SPSS. The Weighted Mean was also identified which was interpreted as follows:

		Qualitative Interpretation
3.26 - 4.00	4	Strongly Agree
2.51 - 3.25	3	Agree
1.76 - 2.50	2	Disagree
1.00 - 1.75	1	Strongly Disagree

4. Findings and Discussion

Batch 2025 had experienced the first conduct of the online entrance exam in the Academy. The online entrance exam was composed of multiple-item type questions. Of the 6,207 applicants, 5,254 took the entrance exam and 3,417 passed (65.04%). After a series of stages of the screening process, 336 (5.41%) took their oath as full-fledged probationary where 5.95% are females.

4.1. Perception of the Examinees Regarding Usefulness of Online Examinations

4.1.1. Validity

Most of the respondents strongly agreed that the online entrance exam is valid and appropriate for the subject areas with a mean of 3.60 and appropriate to test the examinee's level of knowledge, with a mean of 3.51. This is contrary to the findings of Shraim (2018) that participants perceived online exams as

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invalid, in that they were not appropriate for many subjects and not well suited for assessing the higher-order thinking skills.

During the paper-based exams, each subject area contains 50 items, however, per the Head of the Admissions Office, the content of the online examination was changed into the following proportion: Abstract Reasoning – 20 items; and English, Mathematics and Science – 60 items each. This was changed so that the results of the examination would be more valid and fair in determining the level of knowledge of the examinees.

The respondents perceived that the online exam facilitates a more accurate assessment than the traditional method with a mean of 3.17. However, it should be noted that there were 47 (21.17%) who disagreed. This, on the other hand, is not enough to provide an impact on the result. This has a similar result from the study of Shraim (2018) that online exams facilitate more authentic assessment than traditional methods through the integration of multimedia and simulations.

4.1.2. Reliability

Reliability provides a strong foundation for validity. It is an important issue in any exam. The respondents agreed that marking online entrance exam is more accurate than paper-based marking with a mean of 2.95. This is consistent with the findings of Baleni (2015), who also found that transparent marking and immediate delivery of grades give learners more confidence in the results than in those of traditional tests. With online exam software, the paper verification procedure can be completely automated. When the exam is over, the results for each candidate are generated, and the administrator can access them with a single click. On the other hand, the interview with the Admissions Office staff revealed that they perceive the online examination to be more accurate since marking of the examination via the traditional method is prone to human error.

While most considered online entrance exam results more reliable, with a mean of 2.73, still, there were 33 strongly disagreed and 60 disagreed respectively. This comprises 41.89% of the total respondents. This implies that nearly half still consider paper-based as more reliable.

Another important requirement for the successful implementation of the online entrance exam is the technology used. The result reveals that the respondents agreed that the technology used in online exams is reliable with a mean of 2.73. The Psy Systems Innovations (PSI) was the service provider of the Academy as of 09 November 2020. As noted by Abass, Olajide, & Samuel (2017), the improvement of technology in the area of computer science has required computer usage in major areas of human life and endeavours including the field of education. Web-based Examination System (WES) was, therefore, developed to deal with the problems of the traditional (paper-based) examination system. The software interface by the provider, PSI, is designed user-friendly with clear instructions and guidelines provided. Consequently, based from the interview with Admissions Office staff, the internet connection of the service provider does not affect the online exam's reliability. Conversely, the problem was on the slow internet connection of the examinees. However, the system has an auto-save feature wherein even if the examinee lost his/her connection for a while, he/she can still continue with the exam once the connection has resumed, given that there is still available time to complete the exam.

4.1.3. Affective Factors

Another important consideration was the affective aspects of online exams. Ilgaz, H., & Afacan Adanır, G. (2019), for instance, revealed that examinees experienced anxiety relative to the potential technical system problems, aside from their own exam-related stress, in online exams conducted. One hundred six (106) out of two hundred twenty-two (47.75%) strongly agreed that as compared with the paper-based exam, the PMMA online entrance exam reduces the examinees' stress and exam anxiety since they don't need to go to the exam venue, instead, they are at the comforts of their home/own environment which is less stressful and saves time and money going to a test centre. The e-exam allows them to focus and concentrate more on the questions other than anything else (mean = 2.96). A clear majority of the respondents agreed that they feel more comfortable doing an online exam than a paper-based (mean =

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3.23). This is similar to the findings of f Shraim (2018). The respondents mentioned in their comments some challenges encountered that cause stress, including the interruption of the exam due to poor/lack of internet access, unscheduled brownout, and unavailability of the device to be used.

Although the examinees have agreed with the statements, it can be noted that there are significant number of respondents who strongly disagreed and disagreed. Validation of the result from the Admissions Office revealed that the examinees experienced anxiety and stress wherein they have received calls asking if they need to go to testing centres or they are having difficulties entering the Zoom meeting. Furthermore, Admissions Office staff reported that since they require that the examinees open their microphone, everything on their surroundings can be heard, including noise from their family members at home or from their pets and animals within their vicinity, most especially chickens. Thus, these can cause distractions to other examinees who try hard to focus and concentrate on the examination. Accordingly, in terms of comfort, there may be instances that the examinees are not comfortable where they took the examination (e.g., in the mountains, computer shop, pisonet, etc.) as compared to the comforts of a quiet and conducive examination room during paper-based exam.

4.1.4. Practicality

One hundred twenty (120) out of 222 (54.05%) respondents strongly agreed that the online entrance exam is more time-saving and more cost-effective with the same mean of 3.40. In accordance with this, the examinees save time, money, and effort during online examination since they do not need to go to testing centres which may be far from their residence. The same result is from the study by Henderson and Crawford, 2020. Almost half of the respondents strongly agreed that the online entrance exam contains multiple-choice questions that are easier to review than the paper-based exams. Moreover, according to Ayo et. al (2007), the multiple-choice type of test is formally and easily administered and evaluated online which offers applicants instant results.

Although most of the respondents agree, 21.62% of them disagree that the PMMA online entrance exam is more efficient in terms of effort than compared with paper-based exams. It can be implied that those who disagree are those who mentioned that one of the challenges they encountered is having no instructional video from PMMA/service provider. This made them perceive that the facilitators of the PMMA online entrance exam did not exert much effort in preparing the test. Unlike during paper-based exam, the examinees may raise their queries or clarifications if the need arises. This may also denote that this group, thinking that the test is a multiple-choice type of test, are those who did not made much effort to review well before taking the test for they can just make the best guess.

Further, 22.52% of the respondents disagree that the PMMA online entrance exam is more accessible as compared with paper-based exam. This group still considers the paper-based test to be more accessible than the online one. As experienced by most of the respondents, the following are the reasons why these respondents regard the paper-based test to be more accessible than the online exam: poor/lack of internet connection, unscheduled brownout, availability of the device to be used, and lack of computer knowledge.

4.1.5. Security

Security is a critical aspect of any exam. It was recognized as a significant issue for examination. Some scholars indicate that the primary reason for requiring physical attendance for proctored examinations is to validate and authenticate the student taking the assessment (Henderson & Crawford, 2020). Test questions for PMMAEE are gathered either through requisition by the Admissions Office Head from the General Education Faculty members of both colleges who are in line/expert with the core subject in English, Math, and Science and/or gathers possible questions from various books covering the subjects in English, Math, Science, and Abstract Reasoning. The Admission Office Head thoroughly reviewed the questions, selected the items included in the exam and sent a copy to the service provider (Admissions Office Quality Operations Manual, 4.3 Preparation of Test Questionnaire).

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Most of the participants considered test materials and results of online exams to be more secure than the traditional method and using randomized questions from a bank means that cheating is less likely than paper-based (means = 3.09 and 3.00, respectively).

Although it was the first time that the Academy conducted an online entrance examination, the respondents still agreed that the technology used is sufficiently effective in dealing with cheating (mean = 2.85). This contrasts with the study of Shraim (2018), with which as many as 83% of the participants disagreed. Preventing cheating during online exams can be difficult, given the availability of technologies. These provide several ways for examinees to search the internet and to communicate with others during exams and are not easily blocked.

The 51 respondents who disagree that the test materials and results of online exam are more secure than traditional methods may have knowledge that the test materials and results of online exam are susceptible to malfunctions. Thilagavathi (2021) noted that there are threats when it comes to the administration of online assessments, such as: leaks in question papers, copying by students during the exam, impersonation, manipulation of the answers, forging the score cards, difficulty in verifying the authenticity and reliability of score cards by the university, etc.

According to 33.78% of the respondents, the technology used in online exam is insufficiently effective in dealing with cheating. The service provider involved in the full creation and administration of the PMMA online entrance exam may lack certain features that would ensure honesty among the examinees before, during and after the conduct of the online exam.

Moreover, 26.57% of the respondents do not agree that using randomized questions from a bank means that cheating during online exams is less likely than for paper-based ones. The random order of items or questions in an online test would not guarantee that cheating will not exist. Since the test is conducted online, and the facilitators are not physically in the examination area, test takers who are in the same room may share answers, unless cameras are required for monitoring and supervision purposes.

The PSI incorporated lock-out features with three warnings. Lock-out can happen when the examinee opened a new tab, sleep mode and incoming call for those who use cell phones during exam.

4.1.6.   Implementation

The respondents strongly agreed on all attributes regarding the usefulness of online entrance examinations in terms of implementation with an overall mean of 3.45. It was revealed that they find online registration more convenient which was rated with highest mean of 3.58. The candidates can fill out the application form digitally from any location, giving them the flexibility to fill out the form for the online entrance exam regardless of their geographic location. This is the aim of the Academy, to reach out to more applicants nationwide, while candidates will save time and money travelling. This was far from the traditional registration wherein the applicants would send the registration/application through the mail. The research of Ahmed and Kabir (2022) had developed an integrated, reliable, fast, less error, and well-organized unique web-based system to check, control and manage the whole procedure of students' registration and exam form fill-up in educational institutes like universities. They found that the system will reduce time consumption, working load of authorities, and overcome the drawbacks of paper tracking and file maintenance.

The online entrance exam was conducted to ensure that all interested applicants nationwide can avail themselves of this opportunity. The Academy provided timely information regarding the examination schedule as perceived by the respondents with a mean of 3.55. The examinees/respondents were well informed about the schedule, especially whenever there were changes. The Admissions Office makes the announcements through the Academy's Facebook page, PMMA website, Facebook account, and examinees' email. The respondents were satisfied with the instructions/guidelines given for the conduct of the exam, the reason for the strongly agreed rating with a mean of 3.48. Furthermore, the instructions/guidelines were placed in the examinee portal. The Admissions Office provides immediate feedback about the examiner's result as soon as it is available. The service provider forwards the result to

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the Admissions Office and endorses it to the Superintendent through the Assistant Superintendent for Academics, Training, Research, and Extension. Then, the result will be posted on the website. The examinee-applicant will be emailed about the result. Conducting an online entrance exam for admission is an appropriate strategy than a paper-based one during the pandemic as perceived by most of the respondents. With regards to the capability of handling real-time approach transactions, the respondents strongly agreed that the Academy handled it well (mean = 3.35).

The respondents had mixed experiences regarding the online entrance examinations. They strongly agreed that PMMA performs well in implementing an online admission exam; however, they consider that the online exam being administered by the academy is not that reliable, for nearly half of them still perceive that paper-based exam is more reliable. The findings of Al-Qdah & Ababneh (2017) revealed that all the student respondents slightly preferred paper type exams; but many students preferred some options of online examination such as automatic exam results, automatic feedback, and less time to take the exam.

4.2.   Challenges Encountered in Taking the Online Entrance Examination

Table 1 shows the challenges that the respondents experienced in taking the first ever online entrance examination of the PMMA. Most of the respondents, 181 or 81.53%, have stated that they have experienced poor/lack internet connection which is needed in order to proceed with the online examination. Since 1994, the internet has been made available in the Philippines. More recently, in 2014, the Philippines was named the fastest growing Internet population in the last five years with a growth of 531% with regard fixed (wired) and mobile broadband penetration according to the data from The Global Web Index (Magdirila, 2014). Further, based on statistics, in 2020, the number of internet users in the country grew to roughly 79.7 million people, which accounts for more than half of the total population. The country's digital population mostly belong to the age group of 16 years old and above. However, previous data showed that the internet in the country is extremely slow (Philipp, 2021; Rodriguez, 2020; Esquire PH, 2020; Salac & Kim, 2016). According to the Speedtest Global Index as of August 2020, the country ranked 119th of 139 countries for mobile speed (16.44 mbps) and 106th of 174 countries for broadband speed (25.34 mbps) compared to South Korea's 113.01 mbps for mobile and Singapore's 218.07 mbps for broadband (Rodriguez, 2020). Further, based on the Digital Quality of Life Index of 2020, the Philippines ranked 84th out of 85 countries in terms of internet quality, only surpassing Sri Lanka. Internet quality highly depends on its speed and stability. Having a slow and unstable connection inhibits daily use and decreases work efficiency, while fast and stable internet allows to communicate better, enjoy high quality content, and more. Moreover, aside from the slow internet connectivity in the country, the Philippines also has an expensive internet connection ranking 79th out of 85 countries on internet affordability. Thus, individuals living in poverty without internet access or those included in the so called "internet poverty" thrive in the country (Philipp, 2021).

Further, they have encountered unscheduled brownout in their respective areas which affects their concentration and overall conduct of online exam. This is in consonance to the study of Baticulon, et.al., (2021) that "power interruptions, weak infrastructure, and internet costs restricted the students' access to online content". Based from the 2020 Power Situation Report of the Department of Energy, the country has a total generating capacity of 101,756 GWh. However, power generation, transmission, and distribution facilities and infrastructures were negatively affected by the pandemic and several natural disasters. In addition, the delays in commercial operation of committed power projects, caused by the community quarantine restrictions, contributed to the limited power supply (DOE – EPIMB, 2021).

Table 1. Challenges Encountered by the Examinees in taking the Online Entrance Examination

Challenges Encountered	Frequency	Percentage of Respondents
1. Poor/lack of internet connection	181	81.53
2. Unscheduled brownout	109	49.10
3. Availability of the device to be used	76	34.23

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4. No instructional video from PMMA/service provider	40	18.02
5. Lack of computer knowledge	22	9.91
6. None	5	2.25
7. Cannot focus due to background interruption	1	0.45
8. Poor performance of gadget	1	0.45
9. Unnecessary background noise from other examinees	1	0.45

Moreover, since the online exam necessitates a device to be used such as desktop, laptop, or smartphone, the respondents have difficulties securing a device since some of them do not own such devices. This finding is related to the study of Cleofas & Rocha (2021) wherein poor students do not own laptops and desktop computers and have limited internet connectivity. Accordingly, Asio, et.al.'s (2021) research revealed that most of the students have smartphones, but, only a portion of the students have tablets, laptops, and personal computers to use for their online learning.

In addition, 40 or 18.02% of the respondents stated that the lack of instructional video from PMMA or service provider posed a challenge to them. Accordingly, some of the respondents, 22 or 9.91% stated that they have lack of computer knowledge which hindered them in taking the online exam. This finding supports the study of Alruwais, Wills & Wald (2018) that identified student unfamiliarity with computer as one of the challenges concerning online assessments.

4.3. Essential Considerations for Successful Implementation of Online Entrance Examination in PMMA

i.   Online Entrance Exam Design
Majority of the respondents stated that an online exam must be able to provide immediate meaningful feedback, maintain a bank of validated questions for adaptive testing, and develop different types of questions aside from multiple choice. This is in consonance with the study of Ayo, et.al. (2007) that e-exam is advantageous as it is easy to administer, able to offer participants quick results, and devoid of paperwork and long time in marking exams, among others.

ii.   Online Exam Security
Respondents expressed that an online exam must ensure that the system maintains confidentiality, minimise cheating, and have additional security measures such as camera and screen sharing. As argued by Thilagavathi (2021), the issues related to the current entrance examination such as threats with respect to leaks in question papers, manipulation of answers, etc. must be addressed and conduct it online in a secure manner, proposing the use of a framework based on a private blockchain. Further, Mohammadi & Aminazadeh (2022) recommended that to combat cheating in examinations, cheating detection and prevention methods must be employed.

iii.   Institutional Support
An online entrance exam cannot be successful if there is no institutional support (Khan, et.al., 2021) which includes formulation of necessary conditions for conducting e-exams. Based on the results, the respondents have stated that PMMA must provide resources and facilitating procedures such as instructional videos and guidelines. This, according to Khan, et.al. (2021), will diminish the examiners' anxiety and result to a jolly atmosphere since the students/examiners will be well acquainted with the online system.

Accordingly, the PMMA entrance examination is free for all eligible takers; thus, no fee is collected from them. This widens the chance of the poorest of the poor to be part of a maritime school that is fully supported by the government with employment assurance.

5. Conclusion

The students' experience on the online examination was examined in this study. Accordingly, it also described the challenges and difficulties that they have encountered in taking the online exam. Further,

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this study also looked into essential considerations needed for the successful implementation of online entrance exam in PMMA.

Using a researcher-made questionnaire based on the Student Perception of e-Assessment Questionnaire by Dermo (2009), this study found out the following:

i. Perceptions of examinees regarding usefulness of online examinations:
   - In terms of validity, practicality, and implementation, the respondents strongly agree that the PMMA online entrance exam is useful.
   - On the other hand, the respondents agree that the PMMA online entrance exam is reliable and secure.

ii. Challenges and Difficulties Encountered by the Examinees in Taking the Online Entrance Examination
   - Most of the respondents experienced difficulties regarding poor/lack of internet connection.
   - They have also encountered challenges related to unscheduled brownouts in their area, unavailability of device to be used in taking the exam, lack of instructional video from PMMA/service provider which shows the process in taking the exam and other relevant information, and lack of computer knowledge.

iii. Essential Considerations needed for the Successful Implementation of Online Entrance Examination in PMMA
   - In terms of online exam design, PMMA must provide immediate meaningful feedback, maintain a bank of validated questions for adaptive testing and develop different type of question other than multiple choice.
   - For security of online exam, it must be ensured that confidentiality is maintained, cheating is minimized, and additional security measures are employed.
   - For institutional support, resources and facilitating procedures such as instructional videos and guidelines must be provided and continue providing the exam free-of-charge.

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