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To be a leading international academic journal that publishes and disseminates new knowledge and information, and innovative best practices in open and distance e-learning.

Mission

The IJODeL shall publish and disseminate new knowledge and information based on original research, book reviews, critical analyses of ODeL projects and undertakings from various researchers and experts in the Philippines, the ASEAN Region, and the world, and concept articles with the intention of presenting new ideas and innovative approaches to interpreting and implementing best practices in open and distance e-learning as alternative delivery mechanisms for quality education.

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Articles

Identifying Learner Support Services Gaps In Distance Education: Case Study Of A Federal Owned University In Nigeria

Osaretin Aigbovo[1] and Dorothy Akpon-Ebiyomare[2]

[1]Professor and Director, Centre for Distance Learning, University of Benin, Nigeria, osaretin.aigbovo@uniben.edu
[2]Deputy Director, Centre for Distance Learning, University of Benin, Nigeria, dorothy.akpon@uniben.edu

Abstract

A distance education institution must have strategies for success in place, one of which should be the provision of effective learner support services. Compared to that of the traditional/face-to-face mode of teaching and learning, the learner support services needed for distance learning are more critical. The aim of the study was to identify the availability of the components of learner support services and gaps existing in any available system. The study also investigated the level of availability of different support services at the institution for distance learners. It further examined the challenges faced by the institution in the provision of support services. The case institution for this study is the Centre for Distance Learning, University of Benin, Benin City, Nigeria. The study applied qualitative and investigative methods to obtain knowledge by means of observation, interviews and study of official documents. A total of 43 stakeholders participated in the study. The population comprised of management staff, program coordinator, course adviser, E-tutors, technical and administrative staff and learners. The study identified the need for increased funding to upgrade the facilities and sustain the day-to-day operations of the institution. More training and engagements with the learners on how Open and Distance Learning (ODL) works and how to carry out the important tasks required of them on the learning application were also recommended. In order to reduce isolation created by the physical separation between learners and the Centre, there is a need for periodic face to face interaction between learners and the Centre.

***Keywords**: open and distance learning, learner support service, e-Learning, ICT-based distance learning*

Introduction

The learner support system comprises all the resources in education that are designed to assist, guide, or facilitate learners in acquiring education (Arifin, 2018; Gurney & Grossi, 2019). These support services include study materials delivery, facilitator/tutor support, library services, ICT services, administrative support services, and guidance/counseling (Munyaradzi & Addae, 2019). In distance teaching and learning mode of education, the teacher and students are at dispersed geographical locations. This mode of education has opened a window of opportunity and widened access to education, enabling those who otherwise would not have been able to have access to education to embrace it. It frees learners from the constraints of time and space, while also offering

them flexible learning opportunities (Mmari, 1999). A great number of those who took advantage of this opportunity are those who are either physically challenged, could not afford to leave their jobs for school, wished to reduce the cost of education, and could not get admitted into the regular institutions or live in remote areas (Shikulo et al., 2020).

Over the years, distance education has progressed from correspondence mode to the adoption of technology as a tool to enhance learning (Morley, 2012; Robison & Huett, 2012). ICT has been introduced into different areas which include the areas of learners assessment (assignments, tests, and examinations), course material delivery (through online learning applications), and communication. In technology-enabled distance education environments, there are systems that need to be in place in order for distance learners to achieve meaningful learning. These systems are important factors in the success of any distance learning program (Mayes, 2006; Richardson et al., 2012).

The research findings by Godson (2007) reveal that there is a lack of basic learner support services and as a result learners face delay in the completion of their study programs, while some drop out of the program completely. Moyo and Mubengegwi (1995) also reported that remote students experienced delay in feedback on assignments and examinations. Some also abandoned their programs for various reasons and no one from their institution contacted them to know why they dropped out. A distance learning program is different from a conventional face to face learning program as the learners face isolation due to their teachers and fellow learners being at different locations from each other. Learner support services to students play a major role in learners' retention.

Objectives

The success of an ODL institution's learners support services positively affects the growth of the institution and the rate of attrition (Govender, 2018). The goal of this study was to investigate the learner support services provided by the institution under study and identify the areas that require improvement.

The specific objectives of the study were:

1. To investigate the learner support services at the Centre for Distance Learning, University of Benin and identify how these processes affect the learners, teaching and learning. The study examined the availability, quality, and effectiveness of learner support services for improving and facilitating distance learning.
2. To examine the managerial challenges faced by the management of the Centre in the provision of learner support services.

Review of Related Literature

For a developing country like Nigeria, with a population of over 200 million people, the regular tertiary institutions have not been able to give admission to the large number of qualified candidates (Alaneme & Olayiwola, 2013). Open and distance learning (ODL) has been found to be a promising and practical

strategy to address this challenge as it is able to increase participation in higher education without sacrificing quality (Adams et al., 2018). It is more cost-effective than setting up a regular university with high expenditure on infrastructure and other necessities. Distance education has experienced different stages, in which at the early stages used correspondence education, from cassette tape, radio, television broadcasts, cassette disk, and finally web-based education as means of providing learning resources (Akintola & Bello, 2021). Modern distance learning institutions employ web-based learning management systems that integrate many functions and processes into a system making it easy to manage their activities (Gatsha, 2020).

The integration of Information and Communication Technology (ICT) into the various learning processes including assessments, communication, course and instruction delivery, email, discussion forum, and chat room are some of the many ways that learning is enhanced (Alaneme & Olayiwola, 2013). In technology-enabled learning environments, the situation is complicated, and many conditions are needed to be in place in order for distance learners to achieve the expected learning outcomes (Mayes, 2006;, Richardson et al., 2012). The advanced ICT itself cannot naturally bring about a quality learning process nor can it on its own lead to the great achievement of students' learning. For students to have a quality learning process and good achievement, there is a need for effective learner support services to reduce the rate of dropout, increase retention, and improve the quality of learning (Gaskell, 2012).

Learner Support

Learner support services are the most important components that drive the success of a distance learning institution (Akintola & Bello, 2021). It constitutes and covers a wide range of processes including the initial enrolment and the teaching and learning program of the course and continues until the examination results are published (Moore, 2003; Tait, 2000). It also provides psychological support for those learners who feel isolated due to their distance from fellow learners. In most cases, learners miss the interaction that is present in face to face mode of learning, and for many, this mode of learning is different from what they were used to. It therefore takes time to get used to.

Components of Learner Support

Distance learning institutions are expected to have in place systems or procedures that monitor their implementation. These procedures should be able to take care of the following (Koul & Kanwar, 2006):

- Admission procedures
- Record keeping and administration
- Information service
- Library service
- E-Tutor support
- Counseling
- ICT Service provision
- Funding/ Financial support

These services encourage students to learn and develop a positive attitude towards distance mode of education provision (Koul & Kanwar, 2006).

Methodology

The case study approach was applied to this study. The study employed a qualitative and interpretive approach to investigate the case distance learning institution in two phases (Best & Khan, 2006). Data was collected by interviews and by direct observation. Direct observation helped to acquire dependable information without influence from the respondents (Kothari, 2008). Secondary data was used to complement the primary data, and relevant documents which included policy documents, and other official records were reviewed. A checklist was used to collect data on the available teaching and learning facilities such as study materials, computer systems, internet services, teaching staff, library service and other support services. The data obtained through observation was used to complement the gathered data through interviews (Yin, 1994). The population of this study comprised the University of Benin Centre for distance learning stakeholders. They were management staff, facilitator/e-tutors, technical, administrative staff members and learners/students of the Centre.

Reliability of Instrument

Reliability refers to the consistency with which repeated measures produce the same results across time and across observers (Engellant, Holland, & Piper, 2016). In order to achieve validity and reliability of the instruments, the researchers used the triangulation technique for data collection. The triangulation method used was to strengthen the data collection method as one method counterchecked the weakness of the other. The main mode of data collection was Interview. This was supplemented by review of documents of the institution. Observation was the third technique used to collect data. The documents from which data were collected were official documents of the communication between the main University and the Distance Learning Centre, and from the regulatory body of Universities. These documents include policies of the regulatory body on higher education; policy documents, documents on admission, inventory document on the available resources, and policy document for establishment of the Distance Learning Centre. This review was based on the actual events or factual information of what was going on as far as the learner support services were concerned. The research instruments were also refined in the field based on the reality on ground.

Data Analysis

The respondents of the study comprised the stakeholders of the Centre for Distance Learning of the University of Benin. They included the director, deputy director, e-tutors (lecturers), library, technical and administrative staff members of the Centre. Learners also participated in the study. The director and deputy director through their daily working experiences provided information on the managerial challenges facing the entire process of providing learner support services. Table 1 shows the composition of the study population.

Table 1

Respondents' Composition

S/N	Respondents	Number
1	Management Staff	2
2	Program Coordinator/Course Adviser	2
3	eTutors/Lecturers Support	17
4	ICT Technical Staff	2
5	E-Library Staff	2
6	Registry	1
7	Helpdesk Office/Learner Support	2
8	Recording Studio	1
9	Learners	1
	Total	**43**

Findings

The findings were obtained through interviews, observation and review of official documents of the Centre. Table 2 and Table 3 show availability checklists of the elements of learner support.

Table 2

Interview Checklist

S/N	Elements of Effective Learner Support	Available	Unavailable	Adequate	Inadequate
A	**Instructional Materials**		✓		
i	Reference Books	✓		✓	
ii	Electronic Books	✓		✓	
iii	Audiobooks		✓		
iv	Audio/visual Books	✓		✓	
v	Videos	✓			✓
vi	Hard Copy Prints	✓			✓
B	**Electronic Library**	✓			✓
C	**eTutor Support**				
i	Tutorials are conducted.	✓			✓
ii	Assignments and mentoring are provided	✓			✓

iii	Learners are given the opportunity to interact with tutors actively in the interpretation of study materials through participatory facilitation techniques	✓			✓
iv	Learners receive timely and constructive feedback from tutors on a regular basis.	✓			✓
v	The tutor-learner ratio is sufficiently small to enable tutors to give learners either individual or group attention.	✓		✓	
vi	Learners have the opportunity to contact tutors regularly, either by phone, email, or other approved means.	✓			✓
vi	Internet access available for teachers.	✓		✓	
viii	Internet service available for staff members.		✓		
D	**Information Service**	✓			✓
E	**Funding**	✓			✓
F	**Counseling Service**	✓			✓
i	Learners have access to counseling support in resolving difficulties (personal or academic).	✓			✓

Adapted from Welch and Reed (Eds) (n.d., 32-34).

Table 3
Availability of elements of effective learner support service

S/N	Elements of Effective Learner Support	Available	Unavailable	Adequate	Inadequate
i	Tutorial and assessment support and counseling activities are regularly monitored and feedback given to learners and tutors for improvement.	✓		✓	

ii	The number of tutors (most of whom are part-time to the program) is sufficient to provide for individual needs of learners.	✓		✓	
iii	Required learning resources, in the form of libraries, laboratories, and the equipment necessary for successful learning, are accessible to learners.	✓			✓
iv	Learners are provided with technical support (literacy skills) in the technology needed for the program, and equipment is in place to facilitate learning.	✓			✓
v	Procedures and processes for receiving, recording, and dispatching assignments for marking and returning to learners are in place and communicated to tutors and learners.	✓		✓	
vi	ICT/technical equipment are accessible to learners.	✓			✓
vii	Submission of assessment work is monitored, and inactive learners and those at risk are identified, and contacted.	✓		✓	
viii	Tutorial and assessment support and counseling activities are regularly monitored and feedback given to learners and tutors for improvement.	✓		✓	
ix	The number of tutors (most of whom are part-time to the Centre) is sufficient to provide for individual needs of learners.	✓		✓	
x	Correct up-to-date records of learners' profiles and contacts.	✓		✓	

Discussion

Admission Procedures

The processes that lead to being admitted are automated. The Centre has a website with a student portal that takes care of the application, admission processes, admission clearance, and fees payments. This portal makes the application seamless. There are also two staff members on the ground with their phone numbers on the portal for applicants to call when they encounter any challenge. When applicants or admitted learners have issues, there is either a helpdesk officer or on the ground staff that they can contact by phone

or visit at the Centre for assistance.

Information Service

The Centre established a two-way communication system where learners support staff have support telephone lines available to learners. Social media platforms are available where learners interact freely with the e-Tutors and staff members of the Centre. Here the teachers pass on information and get feedback from the learners. The LMS is another medium of communication between the e-Tutors and learners.

Phone calls, social media, the LMS, and emails are all means of communication between the Centre staff and the learners. The only issue here is that the staff members are using their personal phones for this service. The counselors also do not have any official device to reach the learners. Therefore, it was found that on-the-ground-communication was not effective enough, leading to a great challenge in supporting teaching and learning. Although there were systems of communication like the website, letters, phones, used for the daily operations, most of them were done with the personal devices of the personnel in charge.

Library Services

During interviews and interactive sessions with the learners, it was observed that the library had no copy of the study materials for learners to use for reference. Some who visited complained that there were no study materials or other educational materials that they could borrow. The situation would adversely affect learners' academic performance if what they have is limited only to the information on the Centre's online learning platform. Since the quality of library service affects the academic performance of the learners, it is therefore very important that the library services at the Centre should be improved upon to support the learning processes.

The Centre has a space set aside and equipped with three computer systems meant for use as the mini digital library. The library does not offer any library services. The reason is that the components that should enable them to have access to the internet are missing. The systems are also not networked so they are not linked to each other in a network format and therefore cannot communicate with each other or access the internet. Students using their own personal computers can access the main University of Benin library to have access to eBooks online. A link exists from the Centre's website to the University website library. Unfortunately, some of the students complain of not having their own computer systems and as such could not privately access the library. The mini digital library at the Centre would have filled that gap for learners but it cannot because it is not yet functioning as an electronic library. Some of the learners would have wanted to come to the library to use its facilities to go online if it was functioning. This lack of access has resulted in learners not responding to assignments given on the Centre's online learning platform. Even though the instructions/assignments were confirmed to be on the site, the learners claimed not finding them. In addition, some of the learners do not yet know how to use the learning management system (Moodle) adopted by the

institution for learning and teaching. Using phones for some of these activities is frustrating for the learners.

Academic Support Services - Study Materials

In the process of teaching and learning through open and distance learning, adequate availability of study resources was thought to be of paramount importance. One of the characteristics of ODL is the use of mixed media courseware which includes video, audios, hardcopy prints, and electronic books. These study materials in different formats cater to the different learning preferences of learners. The study therefore examined the availability and quality of the study resources at the institution. Study materials were found to be adequately prepared for all the courses. These were prepared by experienced lecturers in the regular arm of the University who had undergone training on ODL. The drawback is that the available materials are in only one format. They are only found in the institution's website in electronic format as ebooks. This will not meet the needs of learners who prefer to read printed books or those who prefer to listen to audio materials (Godson, 2007).

The unavailable financial resource to produce the course materials in hard copy is the reason they were not printed. In the interviews conducted with learners, they would have preferred to have their study materials in multimedia forms: print, electronic copy, audio and on CDs. Multimedia resources offer the learner options for mode of acquiring knowledge and using more than one mode of learning is an effective way to make content more comprehensible, build background knowledge, support students with academic speaking and writing, and bolster student engagement. As some learners stated, "…with more than one mode of learning, it is possible for me to continue to study even when I do not have data or power supply to go online."

Another learner who also preferred the study materials in multimedia format stated, "…I prefer to listen to audio materials, because it helps me to study anywhere…I could just plug my phone to my ear phone and learn. But we were not given in audio course."

The cost of producing learning materials in multimedia forms to give to learners was challenging. The major challenge was finance.

Funding

Adequate finance is very crucial to providing learners support service and lack of it has been found to contribute to very poor support services to learners as the services provided becomes the bare minimum just to get by (Ogbodo & Nwaoku, 2007; Chukwura, 2011). According to literature, a large number of education programmes suffer this fate of just managing to get by due to lack of the needed financial resources to run the learner support system as required or as it should be. This in turn affects the ability to provide adequate learner support services and in the long run affects the objectives of the distance learning institution.

Apart from daily administrative issues, there is the need for adequate finance to produce study/learning materials, communicate with learners through phone calls, place advertisements to create awareness of the existence of the distance learning program that at the moment is at its infant stage. All these need money which is insufficiently provided.

ICT Infrastructure

Concerning the availability of ICT facilities, the Centre has a robust website with two portals. One portal handles students' application processes leading to admission, clearance, and fees payment. The second portal houses the adopted learning management system of the Centre. The learning management system (LMS) adopted by the Centre is the Moodle LMS. Within the LMS, all the course modules (learning materials) are uploaded and from here learners access them. Assignments, quizzes, exam results and news updates can also be passed onto learners from the learning application.

As for physical facilities, the Centre is supposed to have a computer laboratory, conference room, offices for e-Tutors, and an electronic library equipped with computers with internet access at the Centre. These physical resources are vital in enhancing pedagogical orientation as well as school functioning towards quality education. In the absence of these, the Centre temporarily is using the facilities of the main University. However, there needs to be some basic equipment at the Centre for staff and learners to use. The computer systems at the Centre that are meant for staff members to use require upgrade as they are not connected to the internet due to unavailable components; and the systems are not of high performance even though they were newly supplied is a challenge. The ones in the Centre's library are of the same quality. As a result of this, they are not being used to access the website and perform other online tasks that require access to the internet. Besides, they have persistent issues including hard disk failure, keyboard failure, bad monitor etc. The poor quality of the systems is the reason for the frequent breakdown. Qualified ICT personnel for computer maintenance and troubleshooting would help in attending to the systems to prevent a complete breakdown.

Counseling

There is only one counselor to cater for the counseling needs of the learners. The total number of students is currently 14 (fourteen), and though the one counselor can adequately cater for the counseling needs of this number of learners, the learner population is expected to grow as more enroll. By the standard of the regulating body, there are supposed to be at least three counselors, one of whom should be an academic/teaching staff. The Centre has three counseling offices which is adequate as far as counseling offices are concerned but the offices require proper furnishing. For instance, the offices are supposed to be soundproof, with special chairs, mirrors and other items required of a counseling office and these are unavailable.

Conclusion and Recommendations

One great challenge to the Centre was confirmed to be the shortage of space for a proper e-library, conference rooms, computer labs and e-Tutors' offices. In the case of the e-library, the space currently used for e-library can sit only three persons at a time. A bigger space that would take more computer systems and other electronic devices are recommended to cater for both e-tutors and learners needs. The financial resources allocated for funding the daily operations of the Centre are grossly inadequate, resulting in some learner support services being given priority over other equally important ones. Lastly, it was found that there is a poor system of communication whereby students experienced several communication breakdowns. Periodic face-to-face sessions with the students are needed as suggested by the learners themselves. There is a lack of well-established provision of guidance and counseling service to students. This could adversely affect students' progress and confidence in learning since students were lacking daily contact with their tutors.

The study therefore recommends that:

1. Firstly, study materials in different formats should be adequately available and provided in a timely manner. This distribution of different formats can meet the needs of the learners who are likely to have different learning preferences. There is a standing arrangement with a courier company to handle the delivery of materials to learners, but this service was never used because hard copy study materials have so far not been produced by the Centre.
2. In ensuring easy access to library learning materials, the services provided should be upgraded with adequate and up-to-date equipment and materials for improving the learning process.
3. ICT services should be facilitated with equipment like high-powered computers systems, scanners, and printers. The missing internet components should be provided and the faulty systems be promptly fixed to facilitate learning for the learners who may want to visit the library to use its facilities. This would reduce students' dependence on their tutors.
4. A good system of guidance and counseling should be established where learners can freely reach out to their counselor when they have challenges. The Centre should have at least one academic counselor who should counsel them on challenges related to their academics while another counselor handles psychological and emotional challenges. The counselor should be able to reach out to the learners through the online learning platform. There is a counseling form online. Learners should be encouraged to make use of it at any time. Learners should be encouraged to make use of it at any time. With the online form, they have the option to send their messages or complaints without disclosing their identity.
5. Adequate financial resources should be allocated to the Centre for their daily operations to ensure the smooth provision of learner support services to the learners and other administrative functions.
6. The E-tutors need to be motivated to deliver effectively. One way of

doing this is to address issues raised by them which include providing payment for course material development, improving payments for tutoring, and enabling them to participate in distance learning education conferences and seminars.

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Student Evaluation of Blended Learning Implementation and Faculty Performance with Online Components: A Comparative Analysis Across Senior High School Grade Levels and Academic Strands

Stephen Jay Co[1]

[1]Director for Academic Affairs, FEU High School, Philippines, sjco@feu.edu.ph

Abstract

Blended learning, which combines face-to-face instruction with online learning components, has become increasingly prevalent in Philippine senior high schools. This study examines student evaluations of blended learning implementation, with a specific focus on the effectiveness of its online components. Additionally, it explores faculty performance in delivering these online aspects across various grade levels and academic strands in a Philippine senior high school. Using a mixed-methods approach, this study surveyed 1,450 students from various academic strands (STEM, ABM, HUMSS, and GAS) in Grades 11 and 12. Quantitative data were analyzed using t-tests, Mann-Whitney U tests, and Kruskal-Wallis tests, while qualitative data underwent constant comparative analysis. Results showed no significant differences between grade levels but revealed variations across academic strands. STEM students reported more positive evaluations of online learning implementation, while GAS students viewed faculty performance most favorably. Common challenges identified by the students included excessive workload, unstable internet connections, and mental health concerns. Opportunities focused on better time management, diverse learning tools, and independent learning. These findings underscore the need for strand-specific customization in blended learning implementation and targeted faculty development. The study contributes to research on blended learning in secondary education and offers insights for enhancing technology-enhanced learning in diverse academic contexts.

Keywords: *online learning, blended learning, evaluation, senior high school, academic strands*

Introduction

The integration of learning technology in Philippine senior high school education has witnessed significant growth in recent years, particularly in response

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to global educational trends and the challenges posed by the COVID-19 pandemic (Toquero, 2020). The Department of Education's implementation of the K-12 curriculum in 2013 set the stage for increased technology adoption, emphasizing 21st-century skills and digital literacy (Almerino et al., 2020). However, the rapid shift to online and blended learning modalities in 2020 accelerated this process, prompting schools to leverage various digital platforms and tools to ensure educational continuity (Joaquin et al., 2020). Despite these advancements, the effectiveness of technology integration and its impact on student learning outcomes remain subjects of ongoing research and debate (Rabacal et al., 2022). Furthermore, the diverse socioeconomic landscape of the Philippines presents unique challenges in ensuring equitable access to learning technologies across different regions and demographics (Bongco & David, 2020). As such, understanding the context of learning technology in Philippine senior high schools is crucial for informing policy decisions and improving educational practices in the digital age.

As a technological approach, blended learning has emerged as a promising pedagogical strategy in Philippine senior high schools, combining the benefits of traditional face-to-face instruction with online learning components (Bouilheres et al., 2020). This approach leverages various digital tools and platforms to create a flexible, student-centered learning environment that can adapt to diverse educational needs and contexts (Mercado, 2021). In the Philippine setting, blended learning has been particularly relevant in addressing challenges such as large class sizes, limited physical resources, and geographical barriers to education access (Oducado & Estoque, 2021). The implementation of blended learning models has facilitated the integration of multimedia resources, interactive simulations, and collaborative online spaces, enhanced engagement, and promoted active learning among senior high school students (Dumlao & Mengorio, 2019). Moreover, this technological approach has shown potential in developing students' digital literacy and self-directed learning skills, which are crucial for their future academic and professional success (Baluyos et al., 2023). However, the effective implementation of blended learning in Philippine senior high schools requires careful consideration of factors such as technological infrastructure, teacher training, and student readiness for technology-enhanced learning environments. This study specifically focuses on the online components within a blended learning model, recognizing how they interact with and complement traditional classroom instruction.

Objectives

Given the rapid adoption of blended learning in Philippine senior high schools, this study aims to address three key research questions:

1. To what extent do evaluations of blended learning implementation, specifically its online components, and faculty performance in these online aspects differ between Grade 11 and Grade 12 students?
2. How do evaluations of the online components of blended learning implementation and faculty performance in these online aspects vary among students from different academic strands (STEM, ABM, HUMSS, GAS)?

3. What key suggestions do students across grade levels and academic strands offer for improving the quality of the online components in the blended learning model?

While the study examines the online aspects, it is crucial to remember that these exist within the broader context of a blended learning environment. These questions seek to uncover the nuanced experiences of students in technology-enhanced learning environments, considering both grade level and academic specialization as potential factors influencing their perceptions and needs (Tamayao et al., 2020).

Literature Review

The implementation of blended learning in secondary education has gained significant traction globally, particularly in response to the challenges posed by the COVID-19 pandemic. Recent research in the Philippine context has explored various aspects of blended and online learning in senior high schools, revealing a complex landscape of opportunities and challenges. Poirier et al. (2019) conducted a systematic review of blended learning in K-12 education globally during non-emergency contexts. Their study indicated that blended learning approaches generally yield better learning outcomes compared to traditional face-to-face instruction in K-12. In the Philippines, Alibuyog et al. (2022) examined the effectiveness of a blended learning approach in teaching senior high school science during the transition period following the COVID-19 pandemic. Their study showed improved student performance and increased motivation in blended learning environments, particularly when incorporating interactive online simulations and collaborative activities. Moreover, well-designed blended learning experiences have been found to significantly enhance students' critical thinking skills, especially when leveraging online discussion forums and problem-solving activities in the Philippines during the post-pandemic period Orlanda-Ventayen (2023).

Studies on Filipino senior high school students' perceptions of online learning reveal mixed attitudes. While students appreciate the flexibility of online learning, they express concerns about internet connectivity issues and the lack of face-to-face interactions (Tadeo & Bacuyag, 2023). Rabacal et al. (2022) examined the implementation of project-based learning to develop 21st-century skills in Philippine senior high schools during the COVID-19 pandemic. Their study focused on fully online learning as an emergency response to school closures, providing insights into how digital tools can be leveraged for skill development in a remote setting. Their study found that students had positive perceptions of technology-enhanced learning activities, particularly those that promoted collaboration and critical thinking. However, Joaquin et al. (2020) investigated the rapid shift to fully online learning in Philippine higher education institutions as an emergency response to the COVID-19 pandemic. Their study highlighted the challenges of this abrupt transition from traditional face-to-face instruction to a completely online format. It also revealed variations in student experiences and preferences across different educational levels, emphasizing the need for tailored approaches to effectively implement online learning.

The transition to online and blended learning has had a significant impact on faculty roles. Toquero (2021) examined emergency remote education in Philippine higher education during the COVID-19 pandemic, finding that educators with adequate training and support performed better in fully online teaching. In a similar emergency context, Alvarez (2021) studied distance learning in Philippine universities, revealing a strong correlation between teachers' technological pedagogical content knowledge (TPACK) and their effectiveness in online instruction. Shifting to a post-pandemic setting, Mercado and Ibarra (2022) investigated blended learning in Philippine higher education institutions during the transition to the 'new normal'. They emphasized the importance of institutional support, including access to digital resources and collaborative planning opportunities, in enhancing faculty effectiveness in blended teaching environments.

The implementation of academic tracks in Philippine senior high schools has added another layer of complexity to the blended learning landscape. Studies have found variations in blended learning readiness across different academic strands. Tamayao et al. (2020) developed and validated a Blended Learning Readiness Scale for Filipino senior high school students during the transition to the 'new normal' in education. Their study, conducted in the context of the COVID-19 pandemic, found that STEM students generally demonstrated higher technological proficiency in blended learning environments. Guba et al. (2023) examined the effectiveness of online learning tools in developing financial literacy skills among senior high school students in the Accountancy, Business, and Management (ABM) strand in the Philippines. Their study, conducted in a post-pandemic context, highlighted the potential of specialized digital platforms in enhancing strand-specific competencies in a blended learning setup. Palaoag et al. (2021) investigated the online learning experiences of Humanities and Social Sciences (HUMSS) students during the COVID-19 pandemic, focusing on fully online learning as an emergency measure. They emphasized the importance of developing strand-specific online learning strategies to address unique challenges faced by HUMSS students in this context.

Grade-level differences in students' perceptions and readiness for online learning have also been observed. Alipio (2020) examined e-learning readiness among Filipino learners during the early stages of the COVID-19 pandemic, finding that Grade 12 students generally demonstrated higher levels of self-directed learning and technology self-efficacy compared to Grade 11 students in a fully online learning environment. Dangle et al. (2022) compared Grade 11 and Grade 12 students' perceptions of blended learning in Philippine public senior high schools during the transition back to face-to-face classes. They found that Grade 12 students showed more positive perceptions of blended learning, particularly in terms of its flexibility and potential for personalized learning. Rabacal and Alegato (2021) studied online learning engagement and academic performance of Grade 11 and Grade 12 students in the Philippines during the COVID-19 pandemic. They reported higher levels of motivation and self-regulation in fully online learning environments among Grade 12 students compared to Grade 11 students.

The studies reviewed span a variety of contexts in Philippine education,

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primarily focusing on the shift to online learning during the COVID-19 pandemic. While most of these studies center on fully online learning implemented as an emergency measure, our study contributes to this body of literature by investigating student evaluations of the online components within a blended learning model as schools transition to post-pandemic educational approaches. Notably, there is a lack of comprehensive research examining the interplay between grade levels, academic strands, and student evaluations of both blended learning implementation and faculty performance. This study addresses this gap by providing an integrated analysis of these factors, offering insights that can help inform targeted strategies for enhancing technology-enhanced learning in Philippine secondary education.

Theoretical Framework

With the use of an integrated theoretical framework, this study investigates the intricate interactions among variables that impact senior high school students' perceptions, evaluations, and experiences in online blended learning environments in the Philippines. At its core, the Technology Acceptance Model (Davis, 1989) elucidates how perceived usefulness and ease of use shape students' attitudes towards blended learning technologies, while the Community of Inquiry framework (Garrison et al., 2000) offers insights for assessing the quality of online learning experiences, focusing on teaching, social, and cognitive presences. These are complemented by the Self-Regulated Learning theory (Zimmerman, 2000), which provides a lens to understand students' ability to manage their learning in blended environments, and the Cognitive Load Theory (Sweller, 1988), which helps elucidate the mental effort associated with learning tasks in such environments.

Vygotsky's (1978) Social Constructivism underpins the role of social interaction in cognitive development within blended learning settings. By integrating these diverse theoretical perspectives, applied separately, this study aims to provide a holistic understanding of the blended learning experience in senior high schools. This comprehensive theoretical lens enables an examination of how technological acceptance, online learning quality, self-regulation, cognitive load, and social interaction collectively shape students' perceptions and experiences across different grade levels and academic strands. Through this approach, the study seeks to offer nuanced insights that can inform both theory and practice in the rapidly evolving landscape of blended learning in Philippine secondary education.

Conceptual Framework

Figure 1 presents the conceptual framework guiding this study on the evaluation of blended learning in a senior high school. The framework illustrates how the theories inform the study's context and shape the evaluation process. The Technology Acceptance Model (Davis, 1989) and Community of Inquiry (Garrison et al., 2000) provide insights into students' attitudes towards online learning technologies and the quality of their online learning experiences. The Self-Regulated Learning Theory (Zimmerman, 2000) informs the assessment of students' ability to manage their learning in blended environments, while the

Cognitive Load Theory (Sweller, 1988) helps in understanding the mental effort associated with online learning tasks. Social Constructivism (Vygotsky, 1978) underpins the examination of social interaction's role in the blended learning context. Within this theoretical framework, the study evaluates four key areas: (1) implementation of the online learning component, (2) faculty performance in online teaching, (3) challenges and opportunities faced by students, and (4) suggestions for improvement.

Figure 1
Conceptual Framework
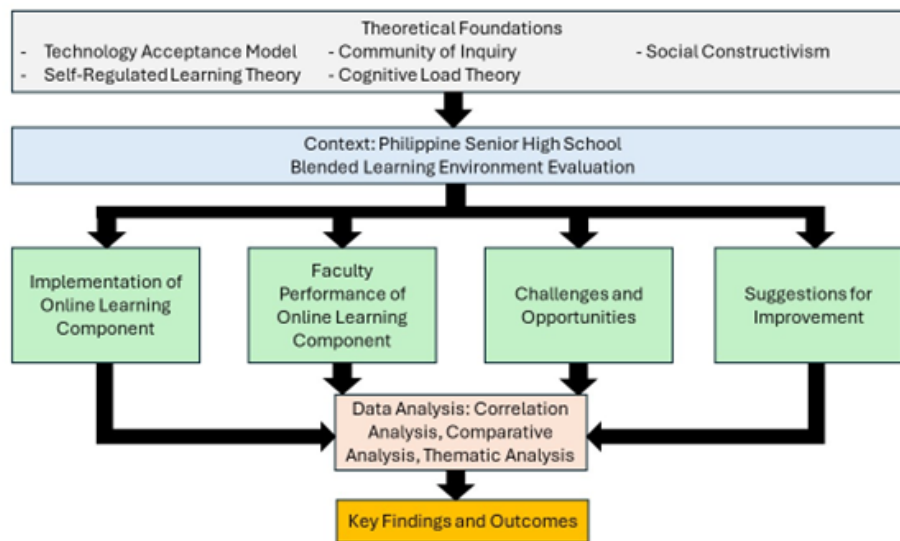
These areas are examined across different grade levels (11 and 12) and academic strands (STEM, ABM, HUMSS, GAS), reflecting the diverse student population of the senior high school. The data collected from these evaluations are subjected to rigorous analysis, including correlation analysis to explore relationships between variables, comparative analysis to identify differences across grade levels and academic strands, and thematic analysis to uncover patterns in qualitative data. This comprehensive analytical approach leads to key findings and outcomes, providing valuable insights into the effectiveness of blended learning implementation in Philippine senior high schools and offering actionable recommendations for improving this educational model in the future.

Methodology

This study employed a mixed methods approach to investigate student evaluations of blended learning implementation and faculty performance in the online learning component of the blended learning model across different grade levels and academic strands. By combining both quantitative and qualitative methodologies, the research provides a comprehensive understanding of the subject matter. The quantitative component utilized a cross-sectional survey design, allowing for the collection of a large amount of data at a single point in time and enabling comparisons between different groups. The qualitative

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component incorporated an open-ended question within the survey, allowing students to provide suggestions for improving the quality of the online components of blended learning which provide rich, descriptive data to complement the quantitative findings.

The study targeted senior high school students from a private school in the Philippines. This specific group was chosen for several reasons. First, the selected school has been implementing a comprehensive blended learning approach since 2020, making it an ideal setting to examine student evaluations of this learning model. Second, as a private institution, the school possesses the resources and infrastructure to rapidly adapt to blended learning, allowing for a more established and consistent implementation compared to many public schools.

The school's blended learning approach aligns with the Department of Education's definition, emphasizing a learner-centered approach that enhances the educational experience by providing a flexible and adaptive learning environment. The model combines face-to-face and online learning modalities, with 40% or less of class time dedicated to online activities and 60% or more focused on face-to-face interactions.

The blended learning environment experienced by the participants integrates three main components: (1) In-person classroom activities form the core of the learning experience, featuring class discussions, group engagements, and interactive exercises. These face-to-face sessions promote active learning and develop students' communication skills. (2) Online content delivery through a learning management system provides bite-sized learning materials, including recorded lectures, assigned readings, and interactive exercises. This component supports self-paced learning and reinforces understanding of complex concepts. (3) Structured independent learning emphasizes self-directed study through online modules, research assignments, virtual classrooms, and discussion forums. This aspect encourages students to take ownership of their learning, set goals, and manage their time effectively.

The school uses a robust learning management system to deliver online learning materials and activities. This user-friendly interface supports various multimedia formats, includes assessment features, and is mobile-friendly, making learning more accessible and convenient for students.

By selecting participants from this context, the study aimed to gain insights into student evaluations of a well-established and comprehensively implemented blended learning model. The private school setting also allowed for a more controlled environment to examine the effectiveness of blended learning implementation across different grade levels and academic strands.

This participant group offers valuable perspectives on blended learning in a setting where technological infrastructure and pedagogical approaches have been systematically integrated. Their experiences provide a unique window into the potential of blended learning when implemented with sufficient resources and institutional support, offering insights that could inform best practices for

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broader implementation in diverse educational settings.

The study targeted senior high school students from a private school in the Philippines, employing a combination of stratified and convenience sampling. The student population (N = 2,947) was stratified by grade level (11 and 12) and academic strands (STEM, ABM, HUMSS, GAS). Within each stratum, students were invited to participate voluntarily, subject to informed consent (and parental consent for minors). The final sample consisted of 1,450 students (49.5% of the population), with representation across all grade levels and academic strands.

Data were collected through an online survey administered using a secure web-based platform. The study was conducted during the third quarter of the 2023-2024 academic year, with participants of varying levels of exposure to the school's blended learning approach. Grade 11 students, all new to the school, had been engaged in the blended learning model for approximately one semester (half an academic year). In contrast, Grade 12 students had experienced the model since their Grade 11 year, resulting in about three semesters (one and a half academic years) of exposure.

This study focused specifically on students' evaluations of their blended learning experiences during the current academic year (2023-2024), specifically considering both the previous semester and the ongoing quarter at the time of data collection. This timeframe was chosen to capture students' most recent and relevant experiences with the blended learning model, ensuring that the data reflected the most up-to-date version of the blended learning approach, which had undergone refinements based on feedback and experiences from previous years. Additionally, this time frame allowed for a comparative analysis between students with different levels of exposure to the model. To ensure ethical standards were met, participants were provided with informed consent forms, and the data collection process adhered to ethical guidelines as approved by the school administration.

The survey instrument was developed based on a review of existing literature on blended learning and online education in secondary schools (e.g. Rasheed et al., 2020, Poirier et al., 2019). The survey instrument consisted of two main scales: an 11-item scale measuring student evaluations of blended learning implementation and a 14-item scale assessing faculty performance in online components of blended learning. Both scales utilized a 4-point Likert format. The initial item pool was reviewed by a panel of three experts including a dean of teacher education with a doctorate in education, a graduate school director with a doctorate in education, and a professor with a doctorate in curriculum and instruction. This expert review ensured content validity and alignment with current research in the field.

The instrument was then pilot-tested with a sample of 40 students, comprising five representatives each from the ABM, HUMSS, STEM, and GAS strands for both Grade 11 and Grade 12. Reliability analysis using Cronbach's alpha yielded coefficients of 0.861 for the blended learning implementation scale (M = 2.80, SD = 0.443) and 0.908 for the faculty performance scale (M = 3.14, SD = 0.375), indicating high internal consistency for both scales.

Exploratory factor analysis (EFA) was conducted using the maximum likelihood extraction method with promax rotation. The EFA revealed a single-factor structure explaining 36.2% of the variance. Factor loadings ranged from 0.358 to 0.778, with most items loading above 0.5, supporting the construct validity of the instrument. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity ($X^2(300) = 750$, $p < .001$) indicated that the data were suitable for factor analysis.

Model fit indices (RMSEA = 0.131, 90% CI [0.114, 0.156]; TLI = 0.506; BIC = -544) suggested that while the single-factor model provided a reasonable fit, there may be room for further refinement in future iterations of the instrument. Based on these results, minor revisions were made to improve item wording and scale performance. This rigorous development and validation process ensured that the final instrument was both reliable and valid for assessing student perceptions in the context of this study.

Data analysis involved both quantitative and qualitative techniques. The study employed both parametric and non-parametric statistical tests to ensure robust analysis of the data. Parametric tests (independent t-tests) were used to compare perceptions between Grade 11 and Grade 12 students when the data met assumptions of normality and homogeneity of variance. However, for comparisons across academic strands, non-parametric tests (Kruskal-Wallis) were employed due to unequal group sizes and potential violations of parametric assumptions. This mixed approach allows for appropriate analysis based on the specific characteristics of different subsets of the data.

Descriptive statistics were used to summarize demographic information and overall evaluations. Independent t-tests were employed to compare evaluations between Grade 11 and Grade 12 students, while the Kruskal Wallis test was used to examine differences across academic strands. Categorical frequency analysis was conducted to identify and rank the top three challenges and opportunities across grade levels and academic strands, with percentages calculated for between-group comparisons. Qualitative data from open-ended survey responses (N = 914) were analyzed using a constant comparative method, adapted from Boeije (2002). This iterative process began with the transcription and initial coding of survey responses. Codes were then systematically compared to identify emerging patterns and themes. Similar codes were grouped into broader categories, which were subsequently refined to develop overarching themes that captured the essence of student perspectives. This methodical approach allowed for a comprehensive analysis of qualitative data, maintaining the context and nuance of individual responses while identifying key themes in students' suggestions for improving online learning quality.

The constant comparative method proved particularly effective in synthesizing the diverse range of student feedback, providing rich insights that complemented the quantitative findings of the study. Categorical frequencies were quantified, and presented as percentages, both overall and by grade level and academic strand. Finally, theoretical insights were developed from the patterns observed.

Results and Discussion

This study examined blended learning implementation and faculty performance in online components of blended learning at a private senior high school in the Philippines. Findings revealed moderate to positive student evaluations across both blended learning implementation and faculty performance measures. Analysis of the implementation scale (Table 1) showed highest agreement for subject resource relevance (M = 3.22, SD = 0.538) and Canvas feature use (M = 3.07, SD = 0.589). Lower agreement was found for online mode suiting learning preferences (M = 2.62, SD = 0.758) and overall satisfaction (M = 2.66, SD = 0.717). Analysis of student evaluations revealed a notable pattern in the implementation of online components. While students strongly valued the relevance of subject resources and the learning management system's functionality, they expressed less enthusiasm about the alignment between online delivery modes and their personal learning preferences. This disparity suggests a potential mismatch between the technical infrastructure provided and students' learning needs. The moderate overall satisfaction scores further reinforce the need to bridge this gap between resource provision and learning preferences. This aligns with Almaiah et al. (2020), who emphasized tailoring e-learning systems to student needs. Rahiem (2020) also highlighted the importance of personalization in online learning environments.

Table 1
Students' Level of Agreement on the Implementation of Online Classes in the Blended Learning Model

	Mean	Median	SD
1. I find the school's online scheme strategic and convenient.	2.94	3	0.589
2. The online mode suits my learning preference and learning style.	2.62	3	0.758
3. All course requirements (learning modules, study guides, graded activities) are available online.	2.87	3	0.719
4. The course readings and other learning reources are relevant and useful.	3.22	3	0.538
5. The course requirements are reasonable/ doable (i.e., can be accomplished within the given time frame).	2.79	3	0.675
6. The different features of Canvas are used to provide varioous learning experiences.	3.07	3	0.589
7. The modules are well-planned, clear, and cohesive.	3.07	3	0.577
8. I am comfortable communicating online with my teachers.	2.80	3	0.725
9. I can discuss and collaborate on the activities with my classmates.	2.70	3	0.716

	Mean	Median	SD
10. I can discuss and collaborate on the activities with my classmates through Canvas.	3.01	3	0.649
11. I am satisfied with the overall implementation of online classes.	2.66	3	0.717

Note. N = 1450, Responses were measured on a 4-point Likert scale (1 = Strongly Disagree, 4 = Strongly Agree)

These results indicate a need for a more personalized approach to online components within the blended framework, potentially improving overall satisfaction and addressing diverse learning preferences.

Results from the students' evaluation of faculty performance in online components of blended learning (Table 2) showed generally positive evaluations, with most items receiving mean scores above 3.00.

The highest agreement was for teachers' accommodation of questions and feedback (M = 3.30, SD = 0.584) and use of criteria/rubrics (M = 3.28, SD = 0.565). Lower agreement was found for teachers having an exact schedule of activities (M = 2.99, SD = 0.658). Faculty performance evaluation revealed strengths in interactive and assessment aspects of online teaching. Teachers demonstrated particular effectiveness in fostering two-way communication and maintaining transparent evaluation criteria. However, the relatively lower scores in scheduling and activity organization point to potential areas for improvement in course structure and time management. These findings align with Rapanta et al.'s (2020) emphasis on clear communication in online environments, while highlighting specific areas where faculty development might enhance the online learning experience.

Table 2
Students' Level of Agreement on the Faculty Performance of Online Classes in the Blended Learning Model

	Mean	Median	SD
1. My teachers explained the modules, course requirements, and learning expectations early.	3.26	3	0.549
2. My teachers exhibit an encouraging/ positive tone during activities.	3.18	3	0.566
3. My teachers show expertise/mastery of the subject matter.	3.24	3	0.563
4. My teachers encourage both asynchronous and synchronous communication.	3.23	3	0.56
5. My teachers are considerate even during situations that disrupt learning.	3.27	3	0.63
6. My teachers accommodate questions, clarifications, consultations, and feedback.	3.3	3	0.584

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	Mean	Median	SD
7. My teachers clearly explain how I will be graded.	3.23	3	0.579
8. My teachers use criteria/rubrics and provide qualitative comments on my performance.	3.28	3	0.565
9. My teachers use different types of learning resources/instructional materials.	3.19	3	0.532
10. My teachers provide graded tasks that challenge me to create/apply concepts.	3.27	3	0.533
11. My teachers give timely feedback to my questions or clarifications.	3.1	3	0.588
12. My teachers have an exact schedule of activities (e.g., video conference, chat).	2.99	3	0.658
13. My teachers allow ample time for me to think and contribute during discussions.	3.05	3	0.598
14. My teachers' performance is satisfactory.	3.23	3	0.518

Note. N = 1450, Responses were measured on a 4-point Likert scale (1 = Strongly Disagree, 4 = Strongly Agree)

While faculty performance was well-received, moderate overall satisfaction levels indicate room for improvement. This echoes findings by Coman et al. (2020), who identified similar challenges in the rapid transition to online learning during the COVID-19 pandemic. Adedoyin and Soykan (2020) suggest addressing technological challenges, enhancing engagement, and providing additional support to refine blended learning approaches.

The findings regarding implementation reveal a complex interplay between technological acceptance and cognitive load, as explained through the study's theoretical framework. The higher ratings for course resource relevance (M = 3.22) and Canvas feature use (M = 3.07) align with Davis's (1989) Technology Acceptance Model (TAM) in terms of perceived usefulness. However, the lower satisfaction with online mode suitability (M = 2.62) suggests that perceived ease of use - another key TAM component - may be compromised by excessive cognitive load, as theorized by Sweller (1988). When viewed through Sweller's Cognitive Load Theory, these ratings suggest that students may be experiencing high extraneous cognitive load from the online delivery method itself, potentially interfering with the germane cognitive load necessary for actual learning.

Moreover, the findings connect to Garrison's Community of Inquiry framework, particularly regarding teaching presence. The high ratings for teacher accommodation of questions (M = 3.30) demonstrate strong teaching presence, yet the lower scores for activity scheduling (M = 2.99) suggest gaps in the structural component of teaching presence. This disconnect in teaching presence may indicate that while teachers excel in direct interaction with students, the structural elements of the online learning environment may not be optimally designed to support cognitive presence and social presence, two other critical components of the Community of Inquiry model. The moderate overall satisfaction scores (M = 2.66) further reinforce this interpretation, suggesting

that while individual components of the blended learning environment show strengths, the integration of these components may need refinement to better support the full spectrum of presence types described in the Community of Inquiry framework.

To examine potential differences between grade levels in evaluations of online components of blended learning, independent sample t-tests were conducted for both implementation and faculty performance. For the implementation of online components, no significant difference was found between Grade 11 (M = 2.88, SD = 0.42) and Grade 12 (M = 2.90, SD = 0.41) students; t(1448) = -1.11, p = 0.269, d = -0.058, 95% CI [-0.0696, 0.0194]. Similarly, for faculty performance in online component of blended learning, there was no significant difference between Grade 11 (M = 3.15, SD = 0.42) and Grade 12 (M = 3.14, SD = 0.42) students; t(1448) = 0.217, p = 0.828, d = 0.011, 95% CI [-0.0388, 0.0485]. The absence of significant differences warrants examination through multiple theoretical lenses. From a social constructivist perspective (Vygotsky, 1978), this finding suggests that despite different lengths of exposure to the blended learning environment, both grade levels have achieved similar levels of adaptation to the social learning context.

This similarity can be understood through Zimmerman's (2000) Self-Regulated Learning theory. AlthoughWhile Grade 12 students have had longer exposure to the blended learning environment, Grade 11 students may have developed comparable self-regulation strategies through their previous educational experiences, particularly given their exposure to emergency remote learning during the pandemic years. The findings challenge the initial expectation that greater experience with blended learning would lead to significantly different evaluations. This unexpected result might be explained by the Technology Acceptance Model's emphasis on perceived usefulness and ease of use—factors that appear to stabilize relatively quickly in the blended learning environment, rather than showing continuous improvement with extended exposure.

The Welch's t-test, which does not assume equal variances, yielded similar results for both implementation (t(1188) = -1.12, p = 0.263) and faculty performance (t(1168) = 0.219, p = 0.827). These findings suggest that students' evaluations of online components of the blended learning implementation and faculty performance in the blended learning model do not significantly differ between the two grade levels. The small effect sizes (Cohen's d) further support the practical insignificance of the observed differences.

The consistent evaluations across grade levels suggest a stable blended learning environment, aligning with Bouilheres et al.'s (2020) emphasis on well-structured approaches enhancing student learning experiences.

Differences in evaluations across academic strands were examined using Kruskal-Wallis tests for both online learning implementation and faculty performance. Table 3 presents the results of these analyses, including pairwise comparisons. Significant differences were found across academic strands for both online learning implementation ($X^2(3)$ = 28.3, p < .001, ε^2 = 0.0195) and faculty performance ($X^2(3)$ = 21.1, p < .001, ε^2 = 0.0145). The effect sizes (ε^2)

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indicate small but meaningful differences across strands for both variables.

For the online component of blended learning implementation, pairwise comparisons revealed that STEM students had significantly more positive evaluations than HUMSS students (W = 5.757, p < .001). ABM students reported significantly lower evaluations compared to both GAS (W = -4.373, p = .011) and HUMSS (W = -6.515, p < .001) strands. These findings suggest that STEM students may be more adept at or satisfied with the online learning components of the blended model, while ABM students may face more challenges or have less positive experiences.

Table 3
Kruskal-Wallis Test Results and Pairwise Comparisons for Evaluations Across Academic Strand

Variable	X	df	p	32	Pairwise Comparisons	W	p
Online Learning Implementation	28.3	3	< .001	0.0195	ABM vs HUMSS	-6.515	< .001***
					ABM vs GAS	-4.373	.011*
					ABM vs STEM	-2.215	.398
					GAS vs HUMSS	-0.0638	.969
					GAS vs STEM	3.487	.065
					HUMSS vs STEM	5.757	< .001***
Faculty Performance	21.1	3	<.001	0.0145	ABM vs GAS	-5.43	< .001***
					ABM vs HUMSS	-4.99	.002**
					ABM vs STEM	-2.55	.272
					GAS vs HUMSS	1.52	.706
					GAS vs STEM	4.15	.018*

Note. *p < .05, ** p < .01, *** p < .001

Regarding faculty performance, GAS students demonstrated significantly more favorable views compared to both ABM (W = -5.43, p < .001) and STEM (W = 4.15, p = .018) strands. Additionally, HUMSS students rated faculty performance significantly higher than ABM students (W = -4.99, p = .002). These results indicate that evaluations of faculty effectiveness in online teaching vary across academic strands, with GAS students being the most satisfied and ABM students the least satisfied.

The significant differences reveal distinct patterns in how different academic programs experience the blended learning environment. STEM students' higher satisfaction with implementation suggests an interplay between their technical curriculum orientation and their ability to navigate online learning platforms effectively. Meanwhile, viewing these differences through the Community of Inquiry framework reveals how academic context influences the three presences. The GAS students' higher satisfaction with faculty performance (W

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= 4.15, p = .018 compared to STEM) suggests that teaching presence may be more effectively established in their context, possibly due to the nature of their curriculum allowing for more flexible and varied online teaching approaches. Conversely, ABM students' lower satisfaction might indicate challenges in establishing effective cognitive presence in their practice-oriented subjects through online means.

Significant differences in evaluations across academic strands highlight the need for a more nuanced approach to learning technology implementation. The more positive evaluations among STEM students regarding online learning component implementation, and among GAS students regarding faculty performance, suggest that certain curricula or teaching approaches may be particularly well-suited to the blended learning model. This supports Mercado's (2021) finding that blended learning effectiveness can vary depending on subject matter and program-specific needs.

To gain deeper insights into students' experiences with the online component of blended learning, participants identified their top three challenges and opportunities. Categorical frequency analysis revealed consistency across grade levels and academic strands, with some variations in percentages found in Table 4.

Table 4
Top Three Challenges and Opportunities in Online Component of Blended Learning by Grade Level and Academic Strand

Category	Challenges	Opportunities
Grade 11 (n=809)	1. Too much workload/ assignment (76.5%)	1. Budgeting time and resources (76.8%)
	2. Unstable internet connection (71.3%)	2. Exploring multiple learning tools (71.9%)
	3. Mental health (43.1%)	3. Have more time with family (43.5%)
Grade 12 (n=641)	1. Unstable internet connection (73.9%)	1. Budgeting time and resources (76.1%)
	2. Too much workload/ assignment (73.3%)	2. Exploring multiple learning tools (69.9%)
	3. Mental health (43.1%)	3. Have more time with family (45.9%)
STEM (n=679)	1. Too much workload/ assignment (78.1%)	1. Budgeting time and resources (80.0%)
	2. Unstable internet connection (72.6%)	2. Exploring multiple learning tools (74.8%)
	3. Mental health (45.7%)	3. Have more time with family (43.3%)

Category	Challenges	Opportunities
ABM (n=399)	1. Unstable internet connection (73.4%)	1. Budgeting time and resources (74.7%)
	2. Too much workload/ assignment (72.9%)	2. Exploring multiple learning tools (69.2%)
	3. Mental health (41.9%)	3. Have more time with family (45.9%)
HUMSS (n=233)	1. Too much workload/ assignment (74.2%)	1. Exploring multiple learning tools (73.4%)
	2. Unstable internet connection (70.0%)	2. Budgeting time and resources (69.1%)
	3. Mental health (42.5%)	3. Have more time with family (44.2%)
GAS (n=139)	1. Unstable internet connection (71.2%)	1. Exploring multiple learning tools (71.2%)
	2. Too much workload/ assignment (69.1%)	2. Budgeting time and resources (69.8%)
	3. Mental health (36.7%)	3. Have more time with family (47.5%)
Overall (n=1450)	1. Too much workload/ assignment (75.2%)	1. Budgeting time and resources (76.5%)
	2. Unstable internet connection (72.4%)	2. Exploring multiple learning tools (71.0%)
	3. Mental health (43.1%)	3. Have more time with family (44.6%)

Primary challenges were: too much workload/assignment (69.1-78.1%), unstable internet connection (70.0-73.9%), and mental health concerns (36.7-45.7%). STEM students reported the highest percentage for workload concerns (78.1%). Grade 12 and ABM students ranked "unstable internet connection" as their top challenge, while other groups ranked "too much workload/assignment" first.

Key opportunities identified were: budgeting time and resources (69.8-80.0%), exploring multiple learning tools (69.1-74.8%), and having more time with family (43.3-47.5%). STEM students reported the highest percentage for budgeting time and resources (80.0%). GAS students showed a slightly different pattern, with "exploring multiple learning tools" (71.2%) ranking slightly higher than "budgeting time and resources" (69.8%).

Percentages across grade levels were similar, suggesting consistency throughout high school. However, Grade 12 students reported slightly higher percentages for "having more time with family" (45.9% vs 43.5% for Grade 11).

Analysis of student feedback revealed three distinct categories of challenges in the online learning environment. Workload management emerged as the predominant concern, particularly among STEM students who reported the

highest level of assignment-related stress. Technical infrastructure challenges manifested primarily through internet connectivity issues, with Grade 12 and ABM students being the most affected. Mental health emerged as a significant third-tier concern, though its impact varied notably across academic strands. These findings echo Tadeo and Bacuyag's (2023) study on Filipino senior high school students during the COVID-19 pandemic, particularly regarding workload management, internet connectivity, and mental health challenges.

The opportunities identified by students demonstrated a strong focus on skill development. Time management capabilities emerged as the primary benefit, particularly among STEM students who showed the highest appreciation for this aspect. The diversity of learning tools available created the second most recognized opportunity, though interestingly, GAS students uniquely prioritized this aspect over time management benefits. Family interaction opportunities, while consistently recognized across groups, showed subtle variations between grade levels that merit further investigation. These opportunities, especially in time management and self-directed learning, align with Baluyos et al.'s (2023) findings on digital literacy and self-directed learning readiness.

The identified challenges and opportunities across grade levels and academic strands particularly align with two theoretical frameworks. Through Cognitive Load Theory (Sweller, 1988), the predominant challenge of workload management suggests students are experiencing high extraneous cognitive load that may impede learning. However, the opportunities identified, particularly in time management and learning tool exploration, demonstrate Self-Regulated Learning Theory (Zimmerman, 2000) in action, as students develop strategies to manage their learning environment despite these challenges.

A constant comparative analysis of 1,450 student responses revealed nine key categories for improving online components of blended learning as seen in Table 5. The most prevalent category was Reduce Workload (30.1%), slightly more pronounced among Grade 11 students (31.2%) compared to Grade 12 (28.7%). A Grade 12 STEM student commented, "The amount of workload we have every week is not helpful at all, it's like we are being forced to do those just for the sake of passing and not learning."

Improve Time Management (17.4%) emerged as the second most common category, particularly among STEM students (18.3%). A Grade 11 STEM student suggested, "Plan well the schedules of tasks, so that students do not be (sic) confused by the deadline of their requirements."

Enhance Teacher Support (15.0%) was the third most frequent suggestion, with HUMSS students (17.3%) emphasizing this more than other strands. A Grade 11 HUMSS student noted, "Teachers should be more understanding and at least be nice while discussing the lessons."

Other categories included Improve Content Delivery (12.1%), Address Technical Issues (6.1%), Prioritize Mental Health (5.9%), Enhance Peer Interaction (3.0%), and Improve Assessment Methods (2.7%). ABM (7.2%) and HUMSS (7.3%) students emphasized mental health concerns more than STEM students

(4.5%). The category No Suggestion / Satisfied (7.8%) had a higher percentage in Grade 12 (9.1%) compared to Grade 11 (6.7%).

Table 5
Improvement Categories Identified Through Constant Comparative Analysis by Grade Level and Academic Strand

Categories	Overall	Grade 11	Grade 12	STEM	ABM	HUMSS	GAS
1. Reduced Workload	30.1%	31.2%	28.7%	31.5%	28.9%	29.1%	27.4%
2. Improve Time Management	17.4%	17.0%	17.8%	18.3%	17.4%	15.9%	15.1%
3. Enhance Teacher Support	15.0%	15.7%	14.2%	13.9%	15.2%	17.3%	15.1%
4. Improve Content Delivery	12.1%	12.8%	11.2%	13.0%	11.0%	11.8%	10.4%
5. Address Technical Issues	6.1%	5.8%	6.5%	6.9%	5.9%	4.5%	6.6%
6. Prioritize Mental Health	5.9%	5.2%	6.6%	4.5%	7.2%	7.3%	5.7%
7. Enhance Peer Interaction	3.0%	3.2%	2.7%	2.5%	3.7%	2.8%	3.8%
8. Improve Assessment Methods	2.7%	2.3%	3.2%	2.9%	2.4%	2.4%	2.8%
9. No Suggestion/ Satisfied	7.8%	6.7%	9.1%	6.4%	8.3%	9.0%	11.3%

These findings align with Therisa Beena et al.'s (2022) observations on workload challenges in online learning and Baluyos et al.'s (2023) findings on digital literacy and self-directed learning. The importance of teacher support echoes Joaquin et al.'s (2020) emphasis on teacher presence in online environments. The variation in mental health concerns across strands extends Tadeo and Bacuyag's (2023) work, while the "No Suggestion / Satisfied" category aligns with Martin et al. (2021) findings on high school students' adaptability to online learning. The improvement categories identified primarily reflect aspects of the Community of Inquiry framework (Garrison et al., 2000). The emphasis on enhanced teacher support and improved content delivery demonstrates students' need for stronger teaching presence, while suggestions for better peer interaction highlight the importance of social presence in the online learning environment. These elements together suggest that strengthening these presences could address many of the identified areas for improvement.

Conclusion

This study provides insights into blended learning, specifically online aspects

of implementation in a Philippine senior high school, with implications for global education, particularly in developing countries (Bozkurt et al., 2020). Findings highlight the need for customized approaches across academic strands, echoing international studies (Rasheed et al., 2020). Consistent challenges in workload management and teacher support reflect global concerns in online and blended learning (Zhang et al., 2021).

This study provides valuable insights into blended learning, specifically online aspects of implementation within the context of a well-resourced private senior high school in the Philippines. While the findings offer important perspectives on student experiences with blended learning, it is essential to acknowledge the study's specific context and limitations. The experiences documented here reflect those of students in an environment with established technological infrastructure and institutional support for blended learning online implementation.

Key findings regarding workload management, time management support, and student-teacher relationships in virtual environments may be particularly relevant for similar educational contexts. However, these findings should be interpreted within the specific parameters of the study: a private school setting with adequate resources and infrastructure to support comprehensive blended learning implementation.

Building upon these contextual findings, we recommend future research directions that address current methodological limitations: (1) integration of learning outcomes assessment to validate student perceptions, (2) incorporation of teacher perspectives through mixed-methods approaches, (3) examination of the interplay between online and face-to-face components, and (4) extension to diverse institutional settings, particularly public schools and resource-constrained environments. For institutions with similar resources, practical recommendations include optimizing online workload distribution, enhancing teacher support systems for online delivery, and developing strand-specific approaches to content delivery. These targeted improvements should be supported by structured faculty development programs and regular feedback mechanisms to ensure continuous enhancement of the blended learning experience.

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Learning Under the New Normal: Remote Learning Readiness among Students of a Philippine State University

Beverly R. Pabro[1] and Maria Ana T. Quimbo[2]

[1]University Extension Specialist, Center for the Advancement of Teaching and Learning
Office of the Vice-Chancellor for Academic Affairs, University of the Philippines Los Baños
Philippines, brpabro@up.edu.ph
[2]Professor, Institute for Governance and Rural Development, College of Public Affairs and Development, University
of the Philippines Los Baños, Philippines, mtquimbo@up.edu.ph

Abstract

With the outbreak of COVID-19, education shifted to a new norm with remote learning becoming the primary mode of instruction. This transition highlighted the need to understand students' readiness for this new educational set-up. This study was conducted to assess students' readiness for remote learning at a Philippine State University. It aimed to determine the expectations of the students on remote learning set-up, the challenges faced, and the assistance needed to propose recommendations and interventions to address the challenges and ensure an effective delivery of education through remote learning. The study was conducted through an online survey administered to 238 undergraduate and graduate students. The remote learning readiness survey was adapted from the Online Readiness Assessment by Vicki Williams (2014), which covers areas such as expectations, self-direction, learning preferences, study habits, learning strategies, language skills, technology skills, technology-mediated communication skills, and hardware/software requirements. Results showed that most of the respondents strongly agreed that remote courses are not easier than face-to-face courses. Moreover, a majority reported being self-directed to finish what they started and dedicated specific time to do their coursework. The majority also expressed confidence in navigating the internet and communicating via email and other synchronous platforms. Challenges encountered are poor or unstable internet connections, financial cost of study, heavy academic workload, time management difficulties, unavailability of gadgets and internet data, difficulty in managing distractions, and mental health issues concerns such as anxiety, In response to these challenges, the study proposes several interventions, including academic support, financial assistance, and mental health services.

Keywords*: online learning, quality assurance, remote learning, student engagement, student satisfaction*

Beverly R. Pabro and Maria Ana T. Quimbo

Introduction

With the outbreak of COVID-19 in China, which led the World Health Organization (WHO) to declare a global health emergency in March 2020, education has taken its new norm. The pandemic has disrupted education for millions of students worldwide, with the number of those affected growing daily (Ray, 2020).

Despite the many challenges brought on by the pandemic maladies, this pandemic disruption has also highlighted new opportunities in reviving the educational system and ushering the students to a more inclusive, flexible, and compassionate teaching and learning experience.

In response to the local confirmed transmission of COVID-19 in the Philippines, the University installed an academic contingency plan (OVPAA Memorandum No 2020-31) and resumed classes under the remote learning setup. Thousands of students across different University campuses nationwide began the school year not in classrooms but in the safety of their homes (Philippine Star, September 11, 2020).

Remote learning occurs when the learner and instructor, or source of information, are separated by time and distance and cannot meet in a traditional classroom setting (https://trainingindustry.com/glossary/ remote-learning). Information is typically transmitted via technologies (email, discussion boards, video conference, audio bridge) so that no physical presence in the classroom is required. This format provides an opportunity for students and teachers to remain connected and engaged with the content while working from their homes (Ray, 2020). Opportunities for remote learning are typically linked to emergency situations that pose a threat to student safety.

As cited by Yu et al. (2015), providing adequate support for learners is essential to enhancing their social competencies with instructors and classmates, as well as their communication and technical competencies so that they can have a better learning experience.

One way to accomplish this is by gauging students' readiness for online learning. Success in online education may be defined by students' readiness for online learning (Luu, 2022). Distance learners should be provided the opportunity to develop their competencies or readiness skills to avoid common challenges, particularly those unrelated to course content that could prevent their success in online learning. With this, the efficiency of transitioning to remote learning is dependent on factors such as readiness, technology tools, and overall support infrastructure.

In a new educational set-up, it is important to determine the readiness of the students and understand the challenges they face. A comprehensive understanding of their readiness can provide educators with the needed support and resources for more effective learning, increasing the chances of success among learners (members.aect.org).

Hence, this study addressed the following questions:

1. How ready are the students to transition from a conventional face-to-face learning to a remote learning set-up?
2. What strategies and interventions are necessary to create a remote learning-ready environment?

Objectives

The general objective of the study is to assess the readiness of students from a conventional face-to-face learning set-up to remote learning at the Philippine State University. Specifically, it aims to:

1. Describe the profile of the student-respondents;
2. Assess various aspects of remote learning readiness;
3. Examine the challenges encountered by the students in remote learning;
4. Discuss the assistance needed by the students for remote learning; and,
5. Recommend strategies and interventions to address the challenges toward a remote learning-ready environment.

Relevant Studies

Even before the onset of the COVID-19 pandemic, numerous studies have been published dealing with remote learning. The need for remote education, especially during crises such as the pandemic, necessitates the importance of evaluating its effectiveness, which has led to the increase of related research. Currently, there is increasing attention directed to remote learning in the context of a pandemic. Despite this attention, various factors continue to impact students in a remote learning set-up. This review explores studies on remote learning of students in general, and based on these findings, will assess students' readiness for remote learning.

Modes of Delivery

Transitions from face-to-face teaching to blended, online, or flipped classrooms as an alternate remote delivery mode due to crisis circumstances– happen suddenly and without much prior planning (Iglesias-Pradas, et al., 2021).

In terms of remote learning, two modes of delivery are recognized: synchronous and asynchronous learning. Synchronous learning is a method where learning is facilitated by media in the form of videoconferencing and chat (Hrastinski, 2008). Platforms such as Zoom and Google Meet are usually used for real time interaction between instructors and students. Asynchronous learning, on the other hand, is supported by media such as e-mail and discussion channels (Hrastinski, 2008; Owens et al., 2009). In an asynchronous set-up, learners and instructors are able to communicate at their own convenient time.

Moreover, another approach in remote learning that is gaining attention is blended learning. This concept was introduced by Graham (2006) and consequently described as the integration of both face-to-face and online learning elements.

A study by Hsiao (2010) on student's understanding of synchronous and synchronous learning found that while students acknowledge the flexibility of asynchronous methods, they are also well aware of the importance of real-time interactions. When compared to employing only one method of learning, a blended approach provides students an avenue for more effective learning (Zhao et al., 2005).

Blended Learning

Blended learning refers to a strategic and systematic approach that combines different times and modes of learning, integrating the best aspects of face-to-face and online interactions using appropriate information and communication technologies. In other words, it is a "thoughtful fusion of face-to-face and online learning experiences" (Garrison & Vaughan, 2008).

According to Graham (2013), as cited by Dziuban et al. (2018), "blended learning is the integration of face-to-face and online instruction now widely adopted across Higher Education". It is also referred to by some scholars as the "new traditional model" or the "new model" in course delivery.

As described in OVPAA Memorandum No. 2022-88, this refers to the "combination of conventional or traditional learning and modern learning methods using digital learning platforms and tools makes blended learning the ideal learning delivery mode for the post-pandemic era."

Bautista (2022) describes that blended learning improves the quality of teaching and learning by:

- Providing access to a wide range of learning resources in various media (text, video, audio, multimedia, interactive multimedia);
- Enhancing communication and interaction between teachers and learners and among learners, using various technologies;
- Fostering learner engagement and active learning online and face-to-face;
- Expanding opportunities for collaborative learning online and face-to-face;
- Enabling learning anytime and anywhere and developing independent learning skills; and
- Developing digital skills and, more broadly, digital citizenship. It also provides greater flexibility for institutions, as follows:
- Avoiding crowding on campus through careful scheduling of face-to-face sessions in different courses;
- Ensuring learning continuity in case of changes in public health alert levels and other disruptions, through a rapid shift to fully remote or online learning; and
- Optimal planning of the use of campus facilities and equipment, technology development, and support for teaching and learning to ensure access and learning continuity for all learners, especially those with limited means.

Models of Blended Learning

There are many models of blended learning, including the following models:

Model 1: Blended Online Learning
- a.k.a. Remote Learning Mode
- Used by most schools when the pandemic began
- No in-person or face-to-face sessions
- Utilization of a Learning Management System
- Synchronous + Asynchronous sessions

Model 2: Blended Block Learning
- Independent online study (1 block) + Intensive face-to-face sessions (another block)
- Commonly used by those classes with laboratory courses
- The class is divided into small groups with different schedules for intensive face-to-face sessions

Model 3: Classic Blended Learning
- Alternating or rotating face-to-face sessions + asynchronous online learning
- Used when attending face-to-face meetings on campus is not limited or just has a few restrictions
- Includes the flipped classroom approach

Barriers to Remote and Online Learning

Remote learning poses several challenges to both the learners and instructors, and this study acknowledges the importance of identifying these challenges. However, with the extensive scope of the existing literature on the topic, it is truly a hard task to come up with a substantial judgment. While numerous studies are focused on the instructor's experience, this specific study mainly investigates the learner's perspective. As such, the study utilized the remote learning readiness by Padilla (2020) as adapted from the Online Readiness Assessment by Vicki Williams. This framework considers the following facets in gauging learner's readiness: expectations, self-direction, learning preferences, study habits, learning strategies, language skills, technology skills, technology-mediated communication skills, and hardware/software requirements. In addition, this study reviews other relevant studies describing bottlenecks of students on remote learning which would later provide a solid foundation for the analysis and discussion section of this study.

Student learning is better facilitated if they actively take part in the process (Intrator, 2005). However, with the shift to remote or online learning due to COVID-19, their participation is much more affected. Many students experience anxiety that greatly affects them personally and academically. More demands are laid down on the learners in an online environment when compared to the traditional one (Wolfe, 2000). Some may also have other matters on their hand such as working part-time jobs and shouldering other tasks at home. These circumstances increase student's stress and anxiety making school work less

of a priority (Gillis & Krull, 2020).

In their pilot study on the student barriers to online learning, Muilenburg and Berge (2005), identified six factors that affect students when it comes to online learning. These are (1) time/interruptions which pertain to student's time spent on online learning as well as the disturbances they encounter; (2) infrastructure/support services which refer to matters within the instructor's control; (3) motivation that include psychological issues that students must overcome; (4) prerequisite skills which involve prior knowledge required for a course; (5) technical factors that constitute students' familiarity with software/ hardware system for online learning; and (6) social factors which relate to the favorable environment students should have. Later on, Muilenburg and Berge (2005) made some modifications and expanded this list to 47 barriers. Of these barriers, they pointed out that the most significant barrier to students in an online learning set-up is the lack of social interaction. Interaction is defined as "the learner's engagement with the course content, other learners, the instructor, and the technological medium used in the course" (Thurmond, 2003 as cited in Thurmond & Wambach, 2004). Chickering and Ehrmann (1996) further stated that interaction has crucial functions such as the promotion of contact between learners and instructors, initiation of collaboration, facilitation of active learning, and delivery of prompt assessment. Similarly, Gillis and Krull (2020) observed that students during the pandemic suffered considerable hurdles in their learning, including distractions, greater anxiety, and reduced motivation. They also noted that barriers related to the internet and technology were prevalent. The importance of student's interaction with their teachers and peers were mentioned as well. However, this did not necessarily mean the general approval of students when it comes to communication tools such as Zoom.

However, the study of Muilenburg and Berge (2005) only revolved around the "lacking" side concerning distance learning in general. The same goes with the study of Gillis and Krull (2020). According to Baticulon et al. (2021), among the barriers to online learning, the most frequently encountered were difficulty adjusting learning styles, balancing household responsibilities, and experiencing poor communication or a lack of clear directions from educators. Poor communication, whether due to personal reasons or lack of sufficient technology will inevitably lead to low student motivation. The studies were not able to address other substantial aspects such as learner's preferences and strategies for coping with this kind of learning set-up. Thus, this study helped close the gap by gauging the actions or plans of learners as they undergo remote learning.

Conceptual Framework

In assessing student's readiness for online learning, this study focused on the facets in learner readiness adapted from Vicki Williams in Padilla (2020). As shown in Figure 1, these facets include expectations, self-direction, learning preferences, study habits, learning strategies, language skills, technology skills, technology-mediated communication skills, and hardware/software requirements. Students transitioning from a conventional face-to-face learning

set-up often face various challenges that impact their readiness for online learning. Additionally, student profiles as well as their personal circumstances, likewise, play a significant role in their readiness for online learning.

One of the most cited e-learning readiness models by Chapnick (2000), as cited by Searle and Waugh (n.d.), support these facets, challenges, and learner's profile as crucial elements in assessing readiness for online learning. Chapnick (2000) identifies eight broad categories of factors that include psychological, sociological, environmental, human resources, financial, technology skill, equipment, and content readiness. These categories align with the factors considered in this study. Subsequently, the challenges faced by the students were closely examined to propose interventions and aimed at fostering a remote learning-ready environment.

Figure 1
Conceptual Framework of the Study
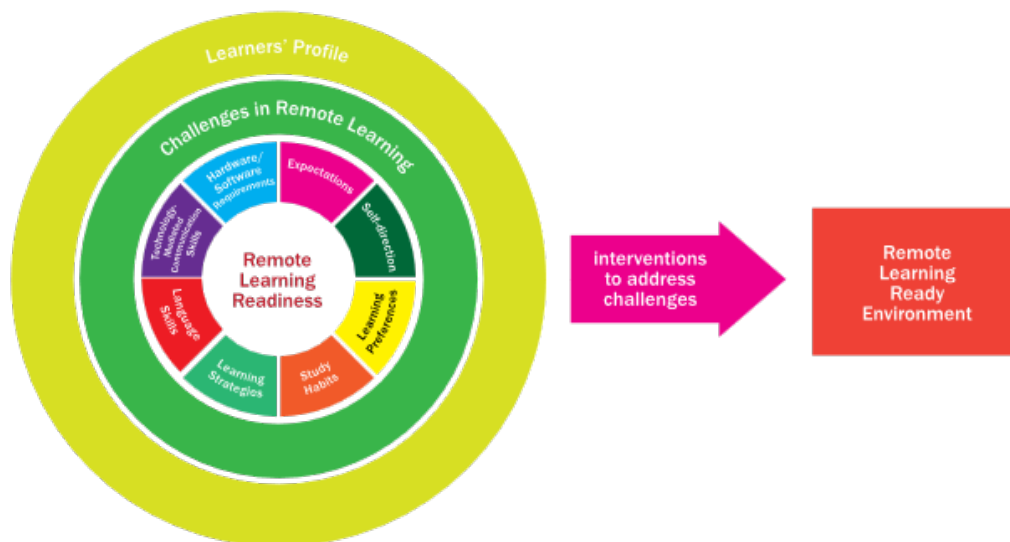
Methodology

The study employed an online survey via Google Forms to obtain the socio-demographic characteristics data of the respondents and to determine the readiness and challenges encountered in remote learning. A total of 238 undergraduate and graduate students participated in the survey.

The questionnaire included statements on various aspects of remote learning readiness by Padilla (2020) as adapted from the Online Readiness Assessment by Vicki Williams. These include expectations, self-direction, learning preferences, study habits, learning strategies, language skills, technology skills, technology-mediated communication skills, and hardware/software requirements. Using a 4-point Likert scale with 1 (strongly disagree) to 4 (strongly agree), the readiness of the students was determined. Also, the

student-respondents were asked about their preferred learning management systems (LMS), the challenges they encountered in remote learning, and the assistance they needed for remote learning.

The data were analyzed using frequency counts, percentages, and mean scores. To analyze student's comments on remote learning, qualitative responses were examined for recurring themes.

Results and Discussion

Profile of the student-respondents

Participants in this study were composed of undergraduate and postgraduate students studying at the Philippine State University. There were a total of 238 students who participated in the survey. As presented in Figure 2, there were 86 (36.1%) male and 152 (63.9%) female respondents.

Figure 2
Distribution of Respondents by Sex
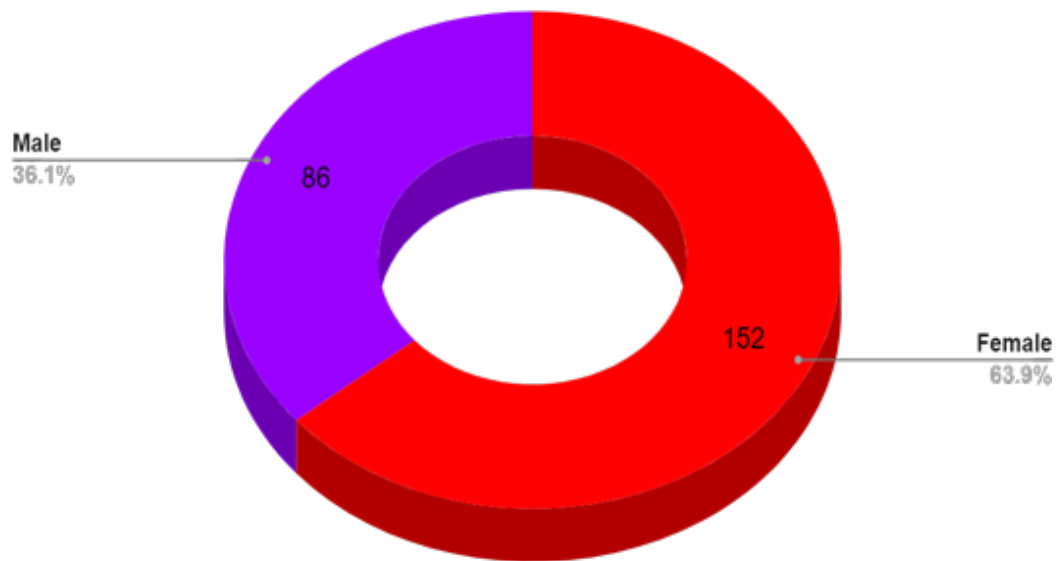
Meanwhile, Figure 3 shows that 140, or approximately 59% of the respondents have graduated from public high schools while 98, or 41% were from private high schools.

Figure 3

Distribution of the Respondents by Type of High School Graduated From
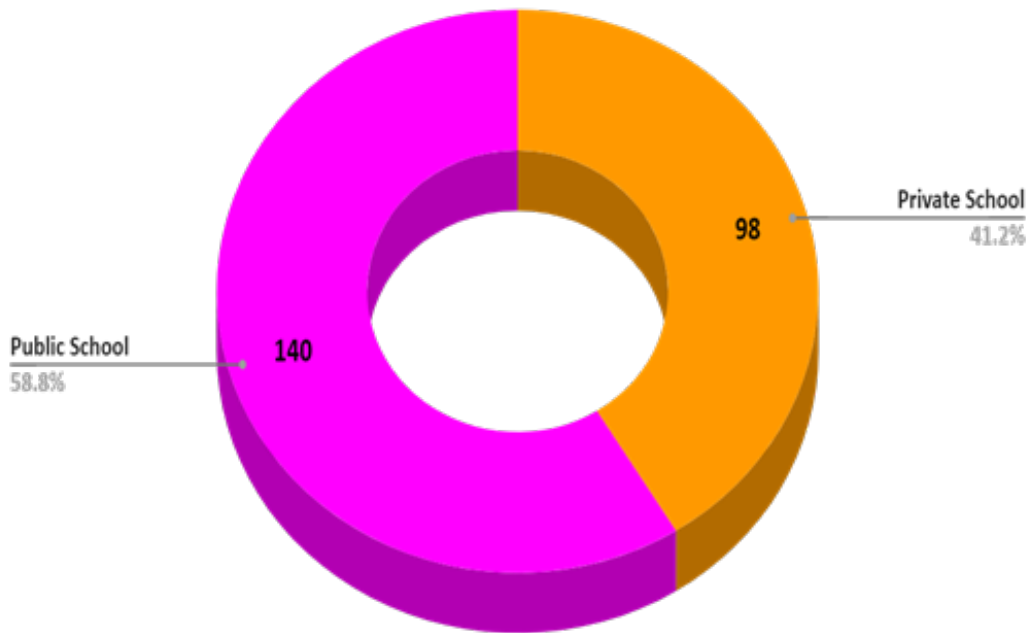
Table 1 also shows the socio-demographic information of the respondents. In addition, the level of education of the respondents was also obtained. There were a total of 203 (85.3%) undergraduate students while the remaining 35 (14.7%) were postgraduate students. For a further breakdown of the former, 44.5% were freshmen, followed by seniors (17.2%), juniors (16.9%), and sophomores (6.7 %).

Table 1

Socio-demographic Profile of the Respondents

Socio-Demographics	Total	
	No.	**%**
Sex		
Male	86	36.1
Female	152	63.9
Total	**238**	**100.00**
Level of Education		
Undergraduate	203	85.3
Freshman	106	44.5
Sophomore	16	6.7
Junior	40	16.9
Postgraduate	41	17.2
Total	**238**	**100.0**
High School Graduated From		

Public High School	140	58.8
Private High School	98	41.2
Total	**238**	**100.0**

Gauging the readiness of learners on remote learning helps the instructors and the institution identify the necessary approaches and adjustments to ensure effective education. Moreover, understanding their readiness can provide educators with the needed support and resources for more effective learning and greater chances of success among learners. Thus, this study aimed to determine student's readiness by employing the remote learning readiness framework by Padilla (2020) as adapted from the Online Readiness Assessment by Vicki Williams. Expectations, self-direction, learning preferences, study habits, learning strategies, language skills, technology skills, technology-mediated communication skills, and hardware/software requirements were the key aspects considered. A 4-point Likert scale was utilized to assess these aspects.

Figure 4

Percentage distribution of the level of agreement of the respondents on their expectations of remote learning
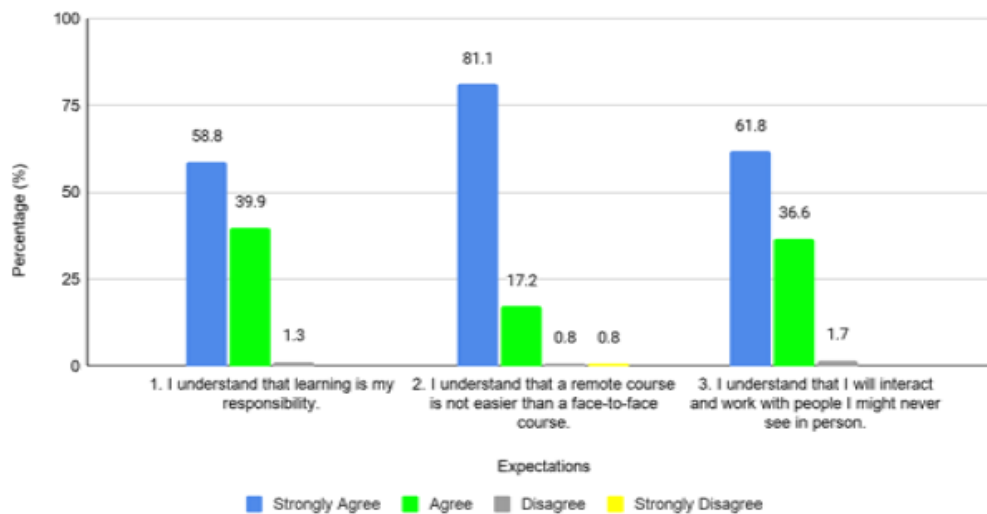
Self-Direction

Self-direction suggests independence but is further defined as the "capabilities of people to direct their own lives based on their understanding of themselves, others, and the world, and their skill in managing their own learning, motivation, and behavior". One subconstruct of self-direction is self-directed learning (SDL) which pertains to the "students' perceptions of their independent learning, their sense of responsibility in their learning and their initiative in learning" (Geng et al., 2019). When it comes to the learner's self-direction, the majority (71.9%) agreed that they are good at setting goals and deadlines for themselves (Figure 5). The majority (92.5%), likewise, said that they finished what they started. Lastly, more than half (64.3%) agreed that they could keep themselves on track

and on time. The result comprehensively implied that the majority of the students surveyed could undergo self-directed learning and could be considered self-sufficient when it comes to thinking and behavior.

Figure 5
Percentage distribution of the level of agreement of the respondents on their self-direction
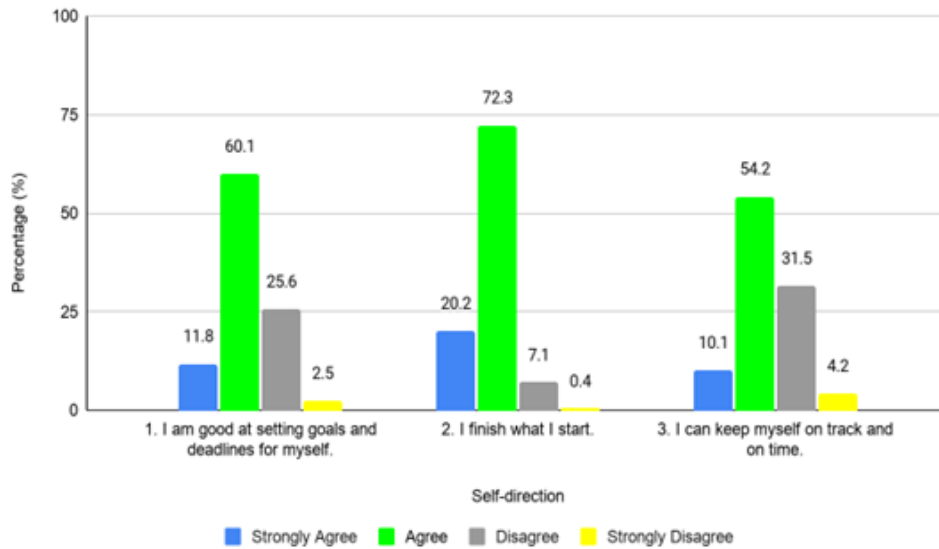
Learning Preferences

The learning preferences of the respondents were also assessed. Almost 65% of the respondents agreed that they could learn well by reading (Figure 6). In the same manner, 93.3% of the respondents claimed that they could learn well from auditory content such as lectures, recordings, or podcasts. The present study found that students surveyed generally have their own varied learning preferences. As noted in the study of Khan et al. (2019), college students are mainly inclined toward visual learning as their learning preference. Auditory comes only second. The last would be the combination of both visual and auditory. Even though more than half of the respondents (52.6%) said that they could learn well on their own and 60.9% of them relatively concurred in their ability to work well in a virtual classroom within a learning management system (such as Moodle in the ILC e-learning Based Instruction Site), it is important to first consider their learning preferences and eventually, their learning styles. Mkonto (2015) emphasized that students being aware of their learning preferences helps them develop learning potentials which enables them to decide on the most appropriate learning styles. Correspondingly, identifying the learning styles of students is especially crucial for instructors in determining the most suitable teaching styles in a remote learning set-up.

Figure 6

Percentage distribution of the level of agreement of the respondents on their learning preferences
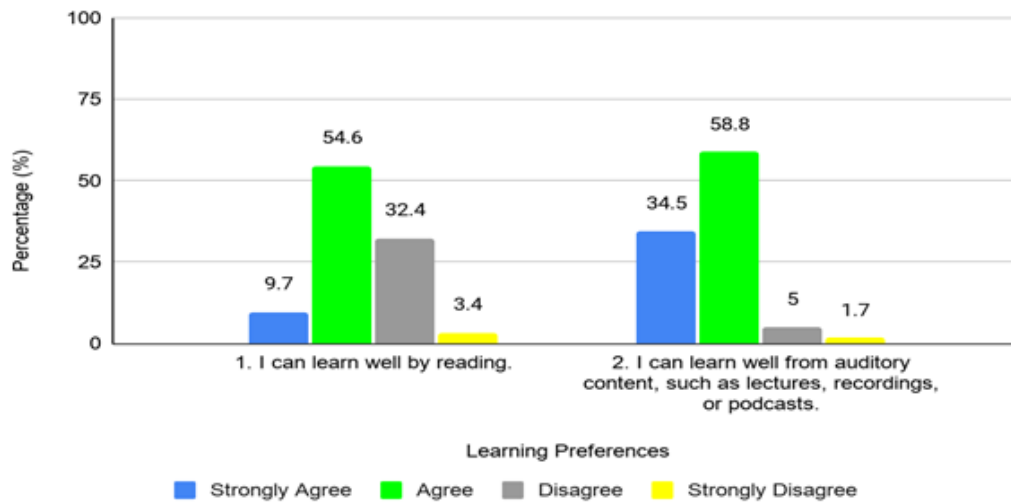
Study Habits

Gaining an insight into the student's study habits, the results of the study are presented in Figure 7. As one of the significant elements in assessing a student's readiness for distance learning, study habits include various activities such as time management. The results revealed that the majority of respondents (87.8%) asserted that they could dedicate a specific time of day or night to do their coursework and more than half (76.5%) also agreed that they are willing to spend 5-10 hours each week on a remote course. Study habits do not only refer to the student's manner of studying but are also connected to the student's learning preferences, learning styles, and learning strategies (Çakıroğlu, 2014). Considering the first two study habits mentioned in this study, the majority of the students surveyed could be seen to have positive study habits. As Çakıroğlu (2014) further stated, positive study habits have a significant relationship with average scores.

However, there are also negative study habits. Evidently, more than half of the respondents (63.5%) expressed that they could not ignore distractions around them when they study. Though this may not appear as an intentional bad study habit, this finding confirms the views of Muilenburg and Berge (2005) and Gillis and Krull (2020) who cited distractions as one of the barriers to student's remote learning. Distractions can come in different forms such as technology-based (gadgets and social media), work and family commitments (Winter et al., 2010), external (unexpected noise), and others.

In addition, Somuah et al. (2014) brought up in their study that distant education learners manifest other study habits such as "reading while lying in bed, not being able to study for a minimum of three hours in a day, do not look for additional materials from the internet as well as reading over their notes before their next face-to-face meetings".

Figure 7

Percentage distribution of the level of agreement of the respondents on their study habits
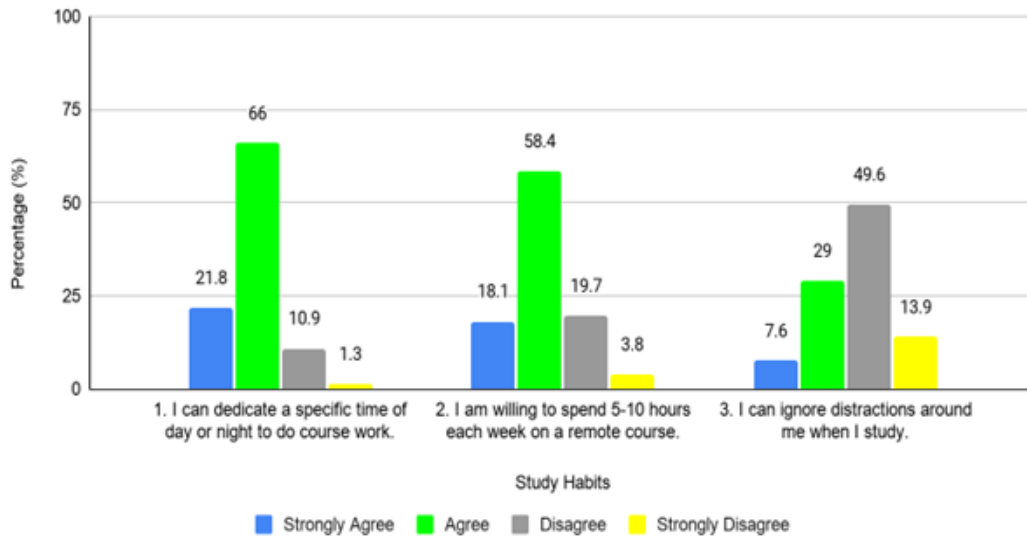
Learning Strategies

With regard to the learning strategies, A large majority (91.6%) of the respondents use strategies (e.g. note taking and summarizing) to help them learn (Figure 8). Similarly, the majority of them (82.3%) agreed that they reflect on what they learn in every lesson. As discussed previously, learning strategies are closely related to learning preferences and study habits (Çakıroğlu, 2014). Proctor et al. (2006) even mentioned that utilizing suitable note-taking strategies as well as carefully selecting a convenient environment for studying are considered activities relating to study habits. As evident from the results, it can be said that students who participated in the study employed adequate learning strategies.

Figure 8

Percentage distribution of the level of agreement of the respondents on their learning strategies
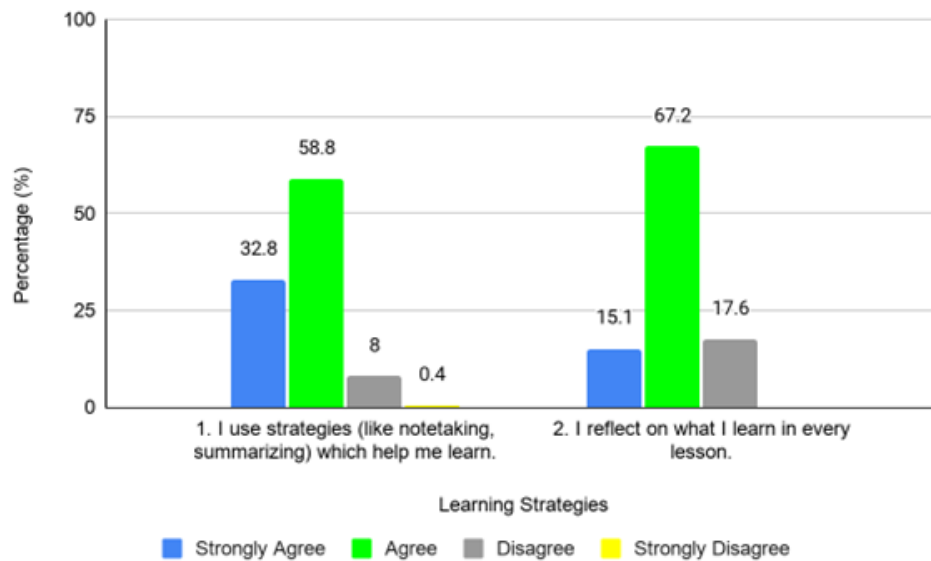
Language Skills

Language skills were assessed by examining the respondents' reading and writing skills. On the aspect of reading skills, more than half (79.4%) articulated a good confidence level regarding their reading skills (Figure 9). In the same fashion, 73.1% of the respondents expressed a good confidence level in terms of their writing abilities. Since all the respondents were either currently enrolled in or have completed tertiary-level education, it can be assumed that their language skills are satisfactory. However, some students may still encounter problems that challenge their language skills. As noted in the study of Milad (2017), some of the bottlenecks students face include the low proficiency level due to limited English language skills and restricted learning potential, which hinder their ability to develop reading and writing skills. Another reason contributing to the subpar output of students is time and task constraints from other courses that restrict the students' time to gather pertinent data for their essays. It is worth noting that these problems were encountered on a traditional set-up, and the situation could probably be different in a remote learning arrangement.

Figure 9

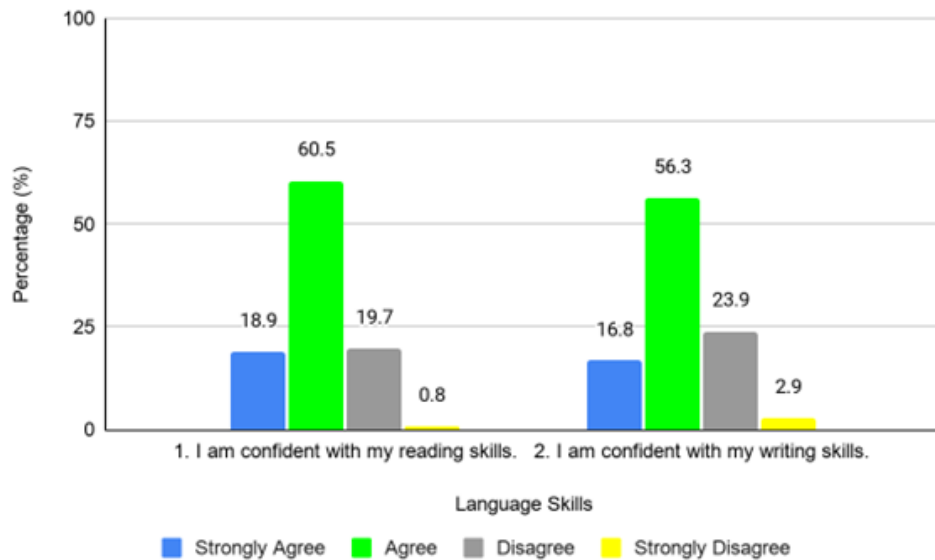*Percentage distribution of the level of agreement of the respondents on their learning strategies*

Technology Skills

As for the technology skills, Figure 10 shows that the majority of respondents (80.6%) expressed that they are comfortable working with different applications on a computer/laptop. Also, 89.9% of the respondents conveyed that they are comfortable navigating the internet. One distinct characteristic of the current learners, which are called the ilearners or the Generation Z learners, is their affinity and knowledge about a fast-evolving technology. This finding is also expected since these Gen Z representatives who are also a product of the K-12 program have never seen the world devoid of the internet and thus, have an affinity for texting and messaging on mobile apps or online platforms, sometimes even over in-person, face-to-face communication. According to the Generation Z facts sheet, 44% of teens use computers to do their homework. Furthermore, 48% of teens watch how-to videos that are related to school (Robertson, 2013). Fortunately, only a few respondents (3.8%) differed when it came to downloading files and adding attachments. Although it can be said that students surveyed in this study generally express confidence when it comes to using internet-related technologies, there are still those few who were not.

Figure 10

Percentage distribution of the level of agreement of the respondents on their technology skills
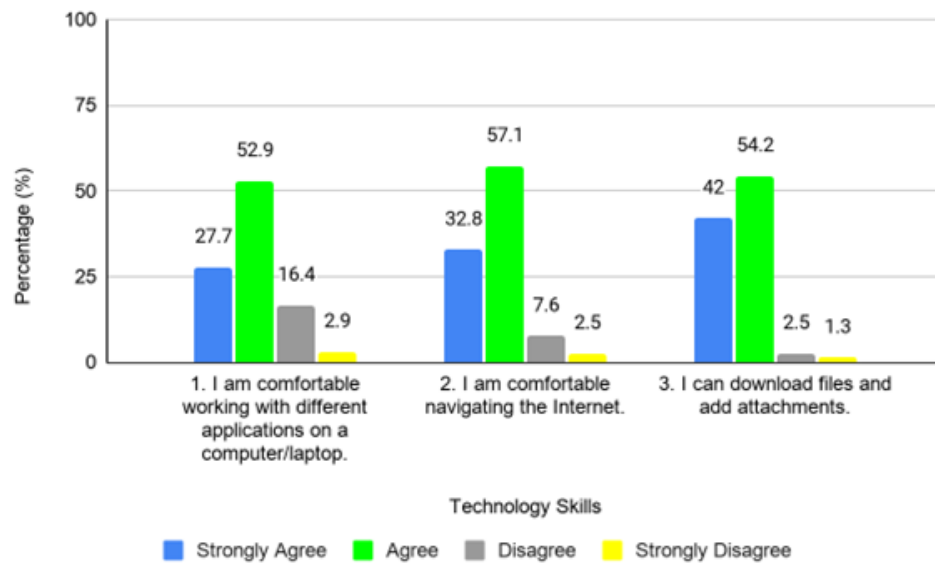
Technology-Mediated Communication Skills

In relation to the technology-mediated communication proficiency of the respondents, the majority (83.2%) said that they are comfortable communicating via email and/or other asynchronous means (Figure 11). Similarly, more than half (77.7%) indicated that they are comfortable with synchronous audio/video interactions using applications (e.g. Messenger and Viber) and platforms (e.g. Zoom). Despite these satisfactory results, just like with the technology-skills results, there were still a few students who were not comfortable in using the technology. These findings are in line with that of Owens et al. (2009). In their study which also included undergraduate and post-graduate students, students with limited knowledge of communication technologies were found to be the most dissatisfied. Nearly all students preferred printed materials as back-up. This may be because of the delays they encounter in getting connected due to technological difficulties.

Figure 11

Percentage distribution of the level of agreement of the respondents on their technology-mediated communication skills
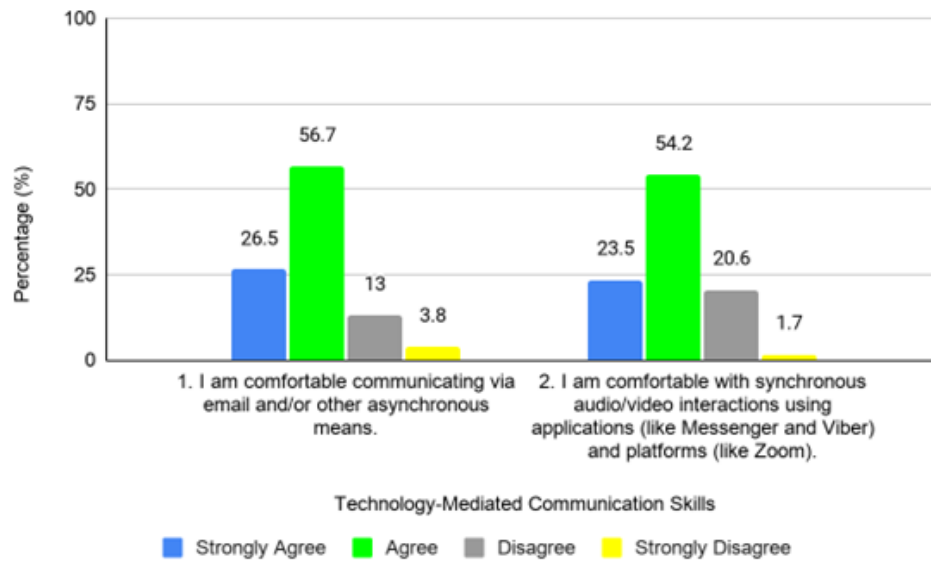
Hardware/Software Requirements

As seen in Figure 12, when it comes to the required hardware/software, most respondents (86.5%) claimed that they have a reliable computer that runs either on Windows or Mac OS. However, only 60.5% of the respondents indicated having a good, and reliable connection. This finding aligns with the study's results, revealing that many students experience issues with unstable internet access. Gillis and Krull (2020) noted that internet and technology barriers are the common struggles of students. With the demand of remote learning comes an unspeakable pressure on financial stability, particularly for students from low-income families. Additionally, the financial strain associated with remote learning, especially for students from low-income families, cannot be overlooked. Evidently, this study found that only 53.4% of the respondents have (access to) a printer, further indicating that some students struggle from accessing important technologies. This difficulty was exacerbated during the pandemic, as many internet shops and printing services are not able to operate.

Figure 12

Percentage distribution of the level of agreement of respondents on hardware and software requirements
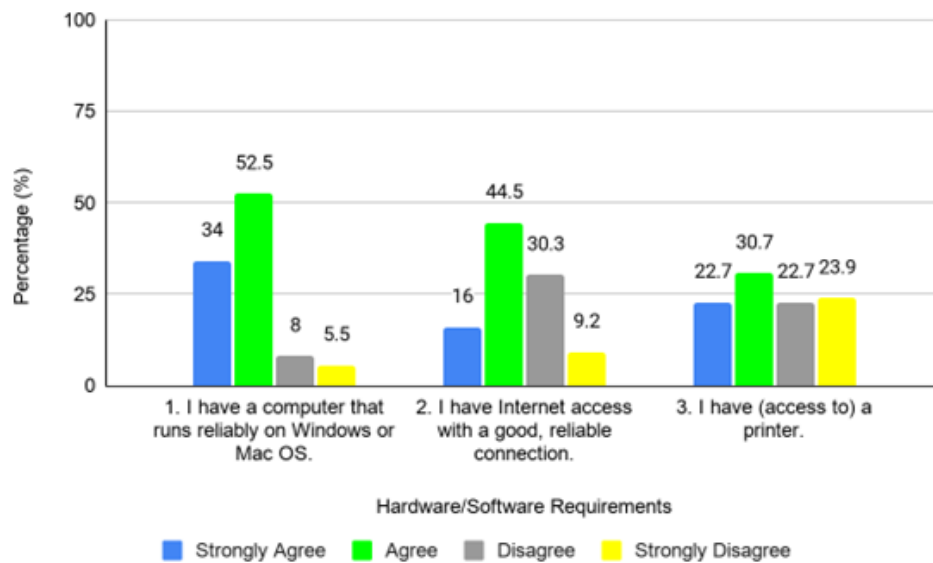
Preferred Learning Management System (LMS)

When the respondents were asked about their preferred LMS, more than half (68.5%) mentioned learning application software such as Google Classroom, Moodle, and Edmodo. Some also indicated video conferencing platforms such as Google Meet and Zoom. Meanwhile, 31.5% of the respondents gave other responses such as face-to-face as well as blended learning several times. Academic freeze was also included as a response. Moreover, quite a few said that they do not know what an LMS is while others answered, 'not applicable'. Based on OVPAA Memorandum No. 2022-88, there are three models of blended learning which are Model 1: Blended Online Learning or Remote Learning Mode; Model 2: Blended Block Learning and Model 3: Classic Blended Learning which make use of an LMS in the delivery of instruction.

Figure 13
Preferred Learning Management System (LMS)
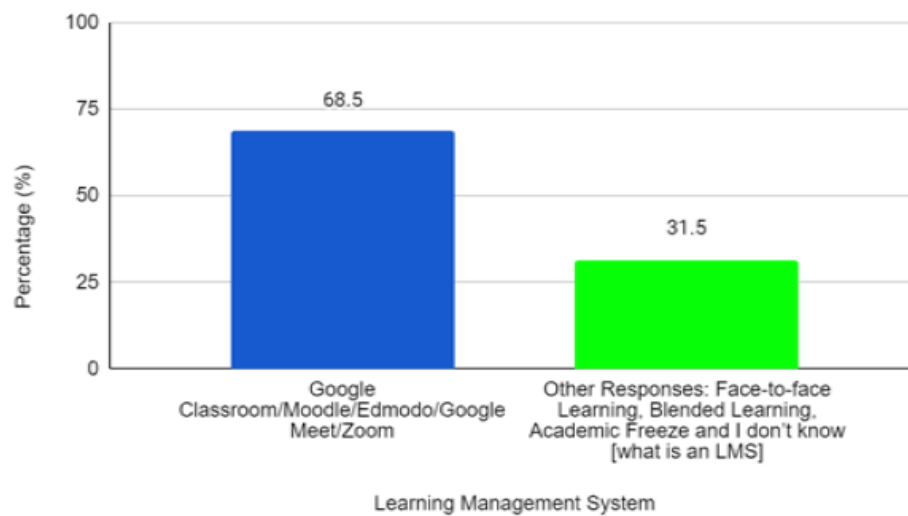
Challenges encountered by the Students in Remote Learning

The students were asked about the biggest challenges they encountered during remote learning, and a great deal of concerns emerged. Several recurring issues were highlighted, with inaccessible or unstable internet connection as the most prominent. This was particularly problematic for students in areas with limited or no internet access, or where power outages were frequent. Following other similar studies, another struggle mentioned which affects students in focusing on their online lessons is technological problems (Gillis & Krull, 2020; Owens et al., 2009). As also noted in the study of Geng et al. (2019), the technological readiness of students has a considerable impact on their learning effectiveness. Moreover, technological struggle is seemingly an overarching term which boils down to various specific concerns that were also brought up by the students. A few students mentioned that they were lacking in terms of technical skills as well as resources. Gadgets and internet data were particularly cited as barriers which could be attributed to their financial instabilities. Accordingly, the financial costs of studying put a substantial strain on students' psychological well-being, leading to experience an increased anxiety (Gillis & Krull, 2020) and stress. Adding to these are the numerous distractions such as noise from the neighbors, social media/gadgets, and personal and household responsibilities/ problems. These findings are further supported by that of Winter et al. (2010) who concluded that personal technologies such as mobile phones and non-learning applications cause unnecessary disturbances to students, negatively impacting students' academic performance. Besides lack of interaction or reduced communication with instructors and fellow students and preference for blended learning, other definite bottlenecks identified in the study include issues with time management (e.g. failing to meet deadlines), instructor's capabilities in handling remote learning courses, heavy workload and academic requirements, inadequate library and journal resources, and occurrence of natural calamities such as typhoons.

Assistance needed by the Students for Remote Learning

Consequently, the study noted several areas where students expressed the need for support. A primary concern was financial assistance. Being in a premier university does not necessarily mean that students are free from financial struggles. The ongoing economic crisis and widespread unemployment have made it even more difficult for students, particularly those from low-income families, to afford essential resources. Accessing stable internet connections and reliable devices, such as smartphones and laptops, became major hurdles to their participation in remote learning. Moreover, students mentioned the need for psychosocial support. Consistent with the challenges previously presented in this study, students experienced anxiety and stress throughout their remote learning experience. One student even commented, "Moral support/ encouragement from professors would be appreciated". This statement only proves that instructors play a crucial role not just in student's learning but also in their well-being, especially during uncertain times. Beyond these broader needs, students offered specific suggestions for improving their remote learning experience. These responses include flexibility on deadlines, academic ease, more asynchronous class, and less academic requirements.

In response to these, the University through its Office of Scholarships and Grants (OSG) under the Office of the Vice-Chancellor for Students Affairs (OVCSA) implemented various assistance programs under the Grants-In-Aid Program to bonafide and currently enrolled students. These include the Student Learning Assistance System (SLAS) Online and the Universal Access to Quality Tertiary Education (Free Tuition) Act.

With the Grants-in-Aid Programs, "students who are no longer covered by free tuition fees, in some cases, acquire additional financial assistance through monthly stipends. Starting academic year 2020-2021, the assistance has extended to providing students with learning assistance in support of the remote learning arrangement of the university as classes resumed during the ongoing COVID-19 pandemic. Students from vulnerable households are able to apply for assistance in the form of internet connectivity subsidies and gadgets", (Office of Student Financial Assistance, Student Learning Assistance System, University of the Philippines).

Furthermore, in support of remote learning, the university is providing academic support to college students who would apply for learning assistance through the SLAS. Students from low-income households shall receive monthly internet connection to support academic instruction and learning activities this academic year. Based on the student's updated application information, students from the most vulnerable families shall be offered gadgets on top of their internet connectivity subsidy. To expand the support to financially challenged students, the University launched a program to "mobilize the private sector to donate cash and in-kind gadgets that will be made available to those who applied for learning assistance", (Office of Student Financial Assistance, Student Learning Assistance System, University of the Philippines).

Conclusion

The study aimed to determine the remote learning readiness of students at the Philippine State University. The findings revealed that students generally recognize that learning is one's own responsibility, and that remote learning is not in any way easier than the face-to-face learning modality. Despite facing several challenges, they also showed confidence to undergo self-directed learning. However, the study also identified several barriers that prevent students from being fully prepared for remote learning. These barriers include technological problems, distractions, psychological burdens, financial struggles, reduced social interactions, and the challenge of balancing personal responsibilities. Subsequently, the study concluded that several students require financial/ technological assistance and psychosocial support. In support of remote learning, the University provided learning assistance through the Grants-in-Aid program. It includes financial support for internet connectivity subsidies and gadgets to students from the most vulnerable families.

For future research, it would be valuable to explore the perspectives of instructors and faculty members. This would help develop more effective teaching strategies and support mechanisms aimed at enhancing students' readiness for remote learning.

Recommendations

Based on the findings of this study, the following recommendations are forwarded:

1. In relation to the various challenges to remote learning, it is suggested that a regular assessment of the student's as well as the faculty's situation be done to create opportunities for possible interventions (i.e. improvement of learning/teaching methods, psychosocial support, financial/gadget assistance, technical support, among others).
2. Aside from the provision of financial assistance programs by the Office of Scholarships and Grants under the Office of the Vice-Chancellor for Student Affairs (OVCSA), the Office of Counseling and Guidance also under the OVCSA should continue to be proactive in providing guidance and counselling services (e.g. psychosocial and emotional support) as the cases of mental health issues on students have become more prevalent due to the challenges of remote learning. Support in the implementation of their programs and activities should continue to be provided, whether in the form of financial or human resources.
3. The Center for the Advancement of Teaching and Learning (CATL), which serves as a hub for improving learner-centered higher education academic practice in the University should continue providing technical assistance both to faculty members and students on the management of learning management systems particularly on Moodle, specifically, in the creation of an account and access to e-courses in the university. In the same manner, CATL should also continue providing regular online training workshops to capacitate the faculty members and other teaching personnel on e-learning practices, support innovative teaching

and learning strategies, and develop the digital skills and capabilities of participants in interactive teaching and learning. Additionally, access to interactive learning materials on various topics must be available online as supplementary learning materials that will help enhance student's learning. Support for the development and production of interactive learning materials must be also sustained and promoted actively to faculty members. Having adequately prepared faculty would redound to more efficient delivery of courses through remote learning.

4. The various student support services in the form of webinars and short talks, among others, provided by the Learning Resource Center (LRC) have been beneficial not only to the learning needs of the students but also to its various stakeholders. It is hoped that they will continue providing these services as a support mechanism in addressing the academic support requirements of the students and the professional needs of the faculty and other stakeholders.

5. As for the study itself, the identified barriers to remote learning were not further explored since the study only utilized a 4-point Likert scale. It would have been advantageous if each statement was followed by probing questions to obtain in-depth response from the students. Qualitative approaches such as online interviews or online focus group discussions could complement the quantitative survey conducted. This is an area that needs further exploration in similar studies in the future. A follow-up study by the authors is now under the conceptualization stage.

6. Future research may explore other online learning readiness measurement models. For instance, McVay Lynch (2000, 2001a, 2003) developed a 13-item instrument for measuring readiness for online learning. The instrument identified two factors, students' behavior and attitudes, as the potential predictors to online learner readiness.

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Disruption and the Quality of Instruction during the COVID-19 Pandemic: The Case of a Catholic School in Hermosa, Bataan, Philippines

Patrick C. De Leon[1]

[1]Associate Professor 7 and Business Economics Program Coordinator, University of the Philippines Diliman Extension Program in Pampanga, the Philippines, pcdeleon1@up.edu.ph

Abstract

This study determined whether there was a significant difference in the academic performance of students in a case Catholic school in Hermosa, Bataan, Philippines in the year immediately before the COVID-19 pandemic (SY 2019-2020) and during the first two years of the pandemic (SY 2020-2021 and SY 2021-2022). It also identified the strategies or measures implemented by the school which influenced the students' performance. Data were gathered through an online survey and interviews of the school's teachers, officials, and staff. The results of the paired samples t-test of weighted average grades revealed no significant difference in the academic performance of students between the first year of the pandemic and the year immediately before the pandemic. However, their academic performances in the year prior to the pandemic and during the second year of the pandemic were found to be significantly different. The school implemented several strategies or measures to mitigate the effects of the pandemic, including shifting to blended learning delivery mode, providing printed modules to students with poor or without internet connection, and close monitoring and following-up of students' learning. These strategies or measures were primarily guided by government memoranda during the said period. The instructions from the Catholic Educational Association of the Philippines and the Diocese of Balanga served only as secondary guides. The findings of the study highlight that in the case of a Catholic school under a pandemic context, the formal educational management model takes precedence over the cultural model of educational management.

Keywords*: COVID-19, cultural model of educational management, disruption, quality of instruction*

Introduction

The global health emergency status of the Coronavirus Disease 2019 (COVID-19) was finally ended by the World Health Organization (WHO) on 05 May 2023 (Rigby & Satija, 2023). Back in 2020, however, a total of 107 countries around

the world closed their schools as an initial response to the COVID-19 pandemic (Viner et al., 2020). In the Philippines, a maximum of 425 private elementary and high schools have closed since 2020 due to the pandemic. The said school closures had affected nearly 21,000 students across the country (Mateo, 2022).

These school closures and learning losses are expected to have a long-term negative impact on children. The learning losses, specifically, could affect these children's economic potential and productivity when they reach adulthood. Hence, the competitiveness of their countries could also be undermined (Cho et al., 2021).

Watkins (2022), meanwhile, reported that due to financial constraints, 860 out of 14,000 private schools in the Philippines closed down permanently. Over 700 of these private schools that closed down were Catholic schools. The school closures brought about by the pandemic not only disrupted the learning of the students, but also disrupted their lives.

Against this backdrop of school closures caused by the COVID-19 pandemic, this study determined whether there was a significant difference in the academic performance of students in a case Catholic school in Hermosa, Bataan, Philippines in the year immediately before the COVID-19 pandemic (SY 2019-2020) and during the first two years of the pandemic (SY 2020-2021 and SY 2021-2022). It also identified the strategies or measures implemented by the school which influenced the performance of the students.

Since the case educational institution is a Catholic school, the study assumed that the school was guided during the pandemic by the cultural model of educational management. The expectation was that it used Catholic beliefs, norms, traditions, and values in particular when it responded to the challenges of the pandemic. The study, hence, was an attempt to confirm the applicability of the cultural model of educational management to the case Catholic school under the pandemic context.

Objectives and Significance of the Study

This study was conducted to: (1) determine whether there is a significant difference in the academic performance of students in the year immediately before the pandemic (SY 2019-2020) and during the first two years of the pandemic (SY 2020-2021 and SY 2021-2022); and (2) identify the strategies or measures implemented by the school which influenced the performance of its students.

It was the hope of the case Catholic school's principal that an independent or external assessment of their performance during the pandemic be conducted. He recognized that such an exercise would help the school administration identify which of their strategies or measures were effective, offering valuable insights for future preparedness in case of another pandemic or disruption. This study aims to fulfill that objective. In addition, the study intends to provide the Department of Education–Bataan (DepEd–Bataan) with feedback on how the case Catholic school in Hermosa, under its jurisdiction, had complied with the

department's memoranda during the pandemic.

Review of Related Studies

To confront the disruption in basic education caused by the COVID-19 pandemic, the Department of Education implemented its Learning Continuity Plan (LCP) for School Year 2020-2021. Under the LCP, the learning modality to be implemented depended on the local COVID-19 situation and access to various learning platforms (Department of Education, 2020).

In October 2020, blended learning was adopted in schools across the country. Blended learning involves the conduct of online classes, distribution of printed materials or modules, and broadcast of lessons on television and social media (Childhope, 2021).

In higher education, the immediate response to the pandemic was the adoption of flexible learning. The flexibility in this learning modality applies to content, schedule, assessment, and access to digital and non-digital learning tools (Commission on Higher Education, 2020). Similarly, all constituent units of the University of the Philippines System responded to the disruption by adopting the remote learning modality (Office of the Vice President for Academic Affairs, 2020).

During the pandemic, business educators in Angeles City and Clark, Pampanga experienced several problems, including connectivity and device issues, sudden transition to remote learning, one-way stream of learning, difficulties in maintaining student interest, and the toll on their overall well-being. To solve these problems, educators recorded lessons in advance, conducted synchronous classes, adjusted assessment tools, and capacitated themselves through webinars and training (Felix, 2020). Despite these problems, De Leon (2022) found that the shift to remote or flexible learning modality was sound because the welfare of business economics students of a state university in Pampanga, as indicated by their consumer surplus, has not changed significantly after the transition from face-to-face to remote learning.

To ensure continuous learning during the pandemic, teachers across the country had to redesign their courses. These adjustments were guided by the policies of their educational institutions. However, students with limited or no internet access had difficulty complying with the redesigned courses (Dayagbil et al., 2021).

Kindergarten teachers were not exempted from the course redesign imperative. They had to translate activities into printed modules and prepare distance learning materials that were suitable for their target students. Some of the problems they encountered were the delay in the delivery of instructional materials due to long distances of houses, inadequate structural resources, inability of parents to guide their children, validity of assessment data, and children's poor performance (Cahapay et al., 2021).

During the COVID-19 pandemic, the learning quality or academic performance

of senior high school students was affected by the design and implementation of instruction as well as the support systems in place (Sarmiento & Callo, 2022). The learning of public elementary school students, on the other hand, was affected by the quality and implementation of the printed modular distance learning (PMDL) modality. In addition, teachers had difficulty in assessing their students' activities and outputs, parents were found not equipped to guide their children, and student participation was inconsistent (Talimodao & Madrigal, 2021).

All these strategies or measures implemented by school managers during the pandemic must have been guided by a theory or model of educational management. In general, school managers engage in implicit theorizing when formulating policies or responding to challenges such as the COVID-19 pandemic. Practice is always guided by theory. Theory provides the framework that helps managers understand the real meaning of events (Bush, 2002).

According to Bush (2003, 2007, 2010, 2020), there are generally six educational management models for the perusal of school managers, namely: (1) formal; (2) collegial; (3) political; (4) subjective; (5) ambiguity; and (6) cultural. The formal model views schools as hierarchical, uses rational means to achieve their goals, and is associated with the managerial leadership model. The collegial model, on the other hand, emphasizes shared power and decision-making among some or all members of organizations, which correspond to participative leadership model. The political model considers decision-making as a bargaining process, focuses on the distribution of power and influence in organizations, and is associated with the transactional leadership model. The subjective model, meanwhile, focuses on the perceptions of individual members of organizations rather than those of organizations or interest groups, associating it with the post-modern leadership model. The ambiguity model is primarily concerned with the uncertainty and unpredictability within organizations, where priorities are often unclear, and is linked to the contingency leadership model. Finally, the cultural model focuses on the values, beliefs, and norms of individuals which are expressed through rituals and symbols rather than formal structures of organizations, aligning with the moral leadership model (Bush, 2003).

A few studies have identified which educational management models are applicable to their schools. Skykes (2015), for instance, found a Southeast Asian language school not adhering to one particular model of educational management but predominantly used the formal model at the institutional level. Sepiriti (2021) found secondary schools in Lesotho using mostly the formal, collegial, and ambiguity models while Qutub (2021) found the formal model as the most dominant educational management model in a Saudi Arabian public university.

In summary, existing literature discusses the adoption of blended, remote, and flexible learning modalities as the primary strategies implemented by schools to cope with the pandemic. The implementation of these strategies as well as the support system influenced the academic performance of students. It was clear from the literature that any school strategy or measure is generally guided by an educational management theory or model.

However, no previous studies have identified the dominant educational management model in Philippine educational institutions, particularly in parochial or Catholic schools such as this study's case school. There are also no previous studies that investigated how Catholic schools in the Philippines, particularly in the Municipality of Hermosa or in the Province of Bataan overcame the disruption and ensured the quality of instruction during the COVID-19 pandemic. These gaps in the literature are what this study aims to address.

Conceptual/Theoretical Framework

The cultural model of educational management served as this study's framework. According to this model, the behavior of members of an organization such as a school, is shaped by certain beliefs, ideas, norms, rituals, symbols, traditions, and values (Bush, 2003; Ghasemy & Hussin, 2014). This model is closely associated with the moral or ethical leadership style and offers a framework that can be used by school officials in carrying out their functions.

In addition, there are five other educational management models for the perusal of school officials: formal, collegial, political, subjective, and ambiguity models. These models are associated with the managerial, participative, transactional, post-modern, and contingency leadership styles respectively (Bush, 2003, 2007, 2010, 2020). In particular, the formal model of educational management consists of the structural, systems, bureaucratic, rational, and hierarchical types (Bush, 2020).

Figure 1 presents the study's conceptual framework, which is based on the cultural model of educational management as previously explained by Bush (2003, 2007, 2010, 2020). It suggests that Catholic beliefs, ideas, norms, rituals, symbols, traditions, and values influenced the strategies or measures of the case Catholic school in overcoming the disruption and ensuring the quality of instruction during the COVID-19 pandemic. In turn, these strategies or measures affected the performances of students and the quality of their learning during the pandemic.

Figure 1
Elements of the Cultural Model of Educational Management and the Case Catholic School's Strategies or Measures to Overcome the Disruption and Ensure the Quality of Instruction during the COVID-19 Pandemic
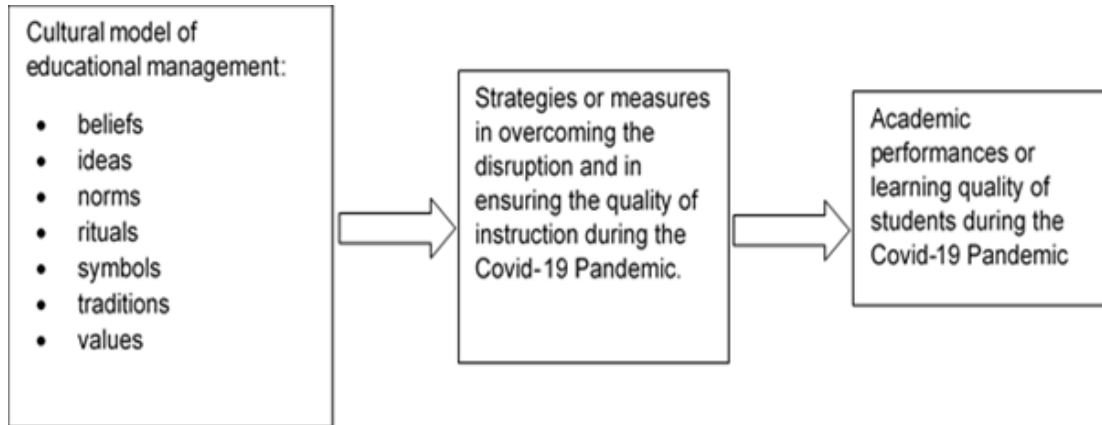
Methodology

Research Approaches, Research Designs, and Units of Analysis

The study used a combination of qualitative and quantitative research approaches through case study and survey research designs. The case Catholic school, a parochial school offers a complete K-12 program, spanning from kindergarten to grade 12. The units of analysis were teachers, officials, and staff members of the school.

Data Gathering Methods

Data for the study were collected primarily through an online survey and secondarily through interviews. The online survey was conducted on May 4-15, 2023, and responses from 35 respondents were received. They were the teachers, officials, and staff of the case Catholic school who had been in service in the year prior to the pandemic (SY 2019-2020) and during the first two years of the pandemic (SY 2020-2021 and SY 2021-2022). The participants were identified by the school principal.

In addition, the interviews were held on May 4, 2023. The school principal and the Grade 10 teachers served as the interviewees. The Grade 10 teachers were chosen because they handled students who experienced the year prior to the pandemic (SY 2019-2020) and during the first two years of the pandemic (SY 2020-2021 and SY 2021-2022), providing valuable insights into the impact of these different learning environments.

The online survey questions were the following:

I. Academic Performances of Students
    1. How would you describe the overall academic performance of your students before the COVID-19 disruption? Please click the appropriate

Likert scale score: 5 = excellent; 4 = very good; 3 = good; 2 = poor; 1 = very poor.
2. What is your basis or reason for your assessment in no. 1? Please state concisely.
3. How would you describe the overall academic performance of your students during the COVID-19 disruption? Please click the appropriate Likert scale score: 5 = excellent; 4 = very good; 3 = good; 2 = poor; 1 = very poor.
4. What is your basis or reason for your assessment in no. 3? Please state concisely.
5. What problems or challenges did your students face during the COVID-19 disruption? Please state concisely.

II. Strategies or Measures during the Pandemic
1. How did your school officials and teachers ensure the quality of instruction/teaching during the COVID-19 disruption?
2. What guided your school officials and teachers in implementing the measures for ensuring the quality of instruction/teaching?
3. How effective were those measures in ensuring the quality of instruction/ teaching during the COVID-19 disruption? Please click the appropriate Likert scale score: 5 = very effective; 4 = effective; 3 = neither effective nor ineffective; 2 = ineffective; 1 = very ineffective
4. What is your basis or reason for the Likert scale score that you gave? Please state concisely:
5. What problems or challenges did you encounter in ensuring the quality of instruction/teaching during the COVID-19 disruption?

The interview questions, on the other hand, were the following:
1. What strategies or measures did you implement to overcome the disruption caused by the COVID-19 pandemic?
2. What strategies or measures did you implement to ensure the quality of instruction during the COVID-19 pandemic?
3. What guided you in formulating and implementing those strategies and measures?
4. How would you describe the overall academic performances of your students in the year prior to the pandemic (SY 2019-2020) and during the first two years of the pandemic (SY 2020-2021 and SY 2021-2022)? Explain why they are similar or different.

The academic performance of 49 Grade 10 students in school years 2019-2020, 2020-2021, and 2021-2022 was assessed using their weighted average grades. These grades were obtained through the school principal. Grade 10 students were chosen as members of the sample class because they experienced the school year immediately before the pandemic (SY 2019-2020) and during the first two years of the pandemic (SY 2020-2021 and SY 2021-2022).

Data Encoding and Analysis

The data gathered from the online survey and interviews were encoded and summarized in a spreadsheet. The modal or most frequent responses were used

to answer the research questions on the strategies or measures implemented by the school officials to overcome the disruption and ensure the quality of instruction during the pandemic.

The weighted average grades of the students in the sample class were subjected to a paired samples t-test to determine whether the academic performances or learning quality of the students in the year immediately before the pandemic and during the first two years of the pandemic were significantly different.

A paired samples t-test was used because it compares the means of two measurements taken from the same group of individuals or objects. The purpose of the test is to determine whether there is statistical evidence that the mean difference between paired observations is significantly different from zero (Kent State University, n. d.).

A 5-point Likert scale was used by the respondents to assess how effective the school's strategies or measures had been in overcoming the disruption and ensuring the quality of instruction during the COVID-19 pandemic. The said Likert scale had the following numerical scores and adjectival equivalents: 5 = very effective; 4 = effective; 3 = neither effective nor ineffective; 2 = ineffective; 1 = very ineffective.

A 5-point Likert scale was also used to assess the respondents' views on the overall academic performance of students in the year immediately prior to the pandemic and during the first two years of the pandemic. The said Likert scale had the following numerical scores and adjectival equivalents: 5 = excellent; 4 = very good; 3 = good; 2 = poor; 1 = very poor.

The study adopted the following typology of learning delivery modes from the University of the Philippines System's OVPAA Memorandum No. 2022-88, issued on June 20, 2022. These modes included:

1. Face-to-face instruction–a learning delivery mode where both the teacher and students meet in a physical classroom, and when teaching and learning occur at the same time.
2. Distance education–a learning delivery mode where the teacher and students are geographically separated, and when teaching and learning are mediated by technology and do not necessarily occur at the same time.
3. Blended learning–a learning delivery mode that is a combination of face-to-face instruction and online distance education.
4. Hybrid flexible (HyFlex)–a learning delivery mode that requires simultaneously holding face-to-face instruction for one set of students and online synchronous instruction for another set of students who cannot attend their class in person. It requires appropriate information and communication technology (ICT) equipment, sufficient internet connection, and adequate technical support for the teacher and students.

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Ethical Considerations

A written permission to conduct the study was obtained from the school principal on April 20, 2023. All survey respondents were provided with detailed information about the study and gave their free prior and informed consent at the beginning of the online survey questionnaire. The name of the case Catholic school as well as the names or identities of the respondents and interviewees were kept anonymous. Finally, the author personally encoded the data from the online survey and interviews in a spreadsheet to ensure that they remain private and confidential.

Discussion

History and Organization of the Case Catholic School

The case Catholic school traces its roots to another Catholic school that was established in 1965 but unfortunately closed down in 1996. There was a clamor among the residents of Hermosa to reopen the school that had closed down in 1996. However, due to the government's cancellation of that school's permit or recognition and a pending legal case, the then Bishop of Balanga ordered the establishment of a new school.

The school's board is chaired by the Bishop of Balanga, with other members including the superintendent, the chief finance officer, the corporate secretary, the school director, and the school principal. The school's non-teaching personnel include the finance officer, the guidance advocate, the prefect of discipline, the record officer, the school librarian, the school nurse, and the school guard. The school also has three janitors and three canteen staff members.

The case Catholic school currently has pre-elementary, elementary, junior high school, and senior high school levels. Data from the school's record officer show a decreasing number of students during the first two years of the pandemic (SY 2020-2021 and SY 2021-2022). Table 1 compares the numbers of teachers, staff, and students in the year immediately before the COVID-19 pandemic (SY 2019-2020) and during the first two years of the pandemic.

Table 1
Number of Teachers, Staff, and Students of the Case Catholic School Before and During the First Two Years of the COVID-19 Pandemic

Units Compared	SY 2019-2020	SY 2020-2021	SY 2021-2022
Teachers	44	48	36
Staff	19	18	15
Students	1,597	1,422	1,291

Note. The values in this table are unique counts.

Socio-demographic Profile of Respondents

Six out of 35 survey respondents identified themselves as either officials or staff of the case Catholic school, while 29 identified themselves as teachers.

The respondents were 12 males and 23 females. Twenty-three respondents are single, while 12 are married. Seventeen respondents reside in Hermosa, while 18 reside in other municipalities within the Province of Bataan. Among the 35 respondents, only one has a master's degree, while the remaining 34 have bachelor's degrees. The years of service or employment with the school range from one to 25 years. Ten respondents have been in service for four years. The mean of the years of service of all 35 respondents is 6.5.

According to the school's call for applications to teaching positions posted at the Bataan Provincial Government's Public Employment Services Office (PESO), the minimum qualifications for applicants are: (1) bachelor's degree in education; (2) Licensure Examination for Teachers (LET) passer, in other words, a licensed professional teacher (LPT); and (3) preferably a Catholic. The preference for Catholic LPTs is expected and understandable since the school is a Catholic educational institution run by the Diocese of Balanga, Bataan.

Academic Performances of Students Before and During the Pandemic

The results of the paired samples t-test showed no significant difference in the weighted average grades of Grade 10 students in the year immediately before the pandemic (SY 2019-2020) and during the first year of the pandemic (SY 2020-2021) (M = -0.51020, SD = 2.03227, t = -1.757, p = 0.085). This result suggests that the academic performance of Grade 10 students in the year immediately before the pandemic was not significantly different from their academic performance during the first year of the pandemic.

However, there was a significant difference in the weighted average grades of Grade 10 students in the year prior to the pandemic (SY 2019-2020) and their weighted average grades during the second year of the pandemic (SY 2021-2022) (M = -1.38776, SD = 3.06741, t = -3.167, p = 0.003). This result of the paired samples t-test suggests that the academic performances of Grade 10 students in the first year prior to the pandemic and during the second year of the pandemic were significantly different. The school principal attributes this difference to the fact that not all of their students were able to adapt to the remote learning modality. About half of them do not have a stable internet connection and are often distracted at home.

Using a 5-point Likert scale, the respondents were asked to rate the academic performances of their students in the year immediately before the pandemic (SY 2019-2020) and during the first two years of the pandemic (SY 2020-2021 and SY 2021-2022). The Likert scale scores had the following adjectival equivalents: 5 = excellent; 4 = very good; 3 = good; 2 = poor; 1 = very poor. The means of the Likert scale scores given by the respondents were 3.9 and 3.7 respectively. Both would round off to a score of 4 and have an adjectival equivalent of very good. The respondents were unanimous in attributing this rating to the strategies or measures implemented by the school officials, especially during the pandemic.

According to 71.4% of the respondents, the "very good" academic performance of students before the pandemic was evident from their high grades, while

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28.6% of the respondents cited the active participation of students in class as evidence. On the other hand, 74.3% of the respondents thought that the academic performance of their students during the first two years of the pandemic remained "very good" primarily because of their high grades. Positive feedback from students and their parents was the basis of 14.3% of the respondents, while 11.4% of them cited active class participation. Based on the respondents' collective perception, the academic performances of students in the year immediately prior to the pandemic and during the first two years of the pandemic are similar. Both are "very good" due to the aforementioned reasons.

Strategies or Measures Implemented during the Pandemic

Nearly 66% of the respondents identified the shift from face-to-face to blended delivery model as the most noticeable effect of the COVID-19 pandemic. On the other hand, 34% of the respondents identified the decrease in enrollment as the pandemic's most obvious consequence. These effects of the pandemic were considered by all respondents as disruptions from the normal operations of their school.

The respondents identified the shift to the blended learning delivery mode as their main strategy for overcoming the disruption posed by the COVID-19 pandemic. Most of their classes during the first two years of the pandemic (SY 2020-2021 and SY 2021-2022) were conducted remotely. However, they also had to print and deliver modules for students with poor or no internet connection to ensure continued learning.

According to 45.7% of the respondents, these strategies or measures for overcoming the disruption caused by the pandemic were guided by government memoranda, particularly from the Department of Education. Only 28.5% of the respondents said that their strategies or measures were guided by the Catholic Educational Association of the Philippines, the Diocese of Balanga, and school officials. On the other hand, 25.7% of the respondents said that the needs of their learners served a significant role in their responses to the pandemic. Since the case school is a Catholic educational institution, one would expect its strategies or measures to be guided primarily by Catholic beliefs, ideas, norms, symbols, rituals, values, and traditions. However, in the case of the strategies or measures implemented by the case school to overcome the disruption during the pandemic, government memoranda served as the main guide. Regardless of the existence or occurrence of the pandemic, all public and private elementary and secondary schools in the country are expected to comply with DepEd memoranda. They are under the authority of the DepEd, and they simply had no choice but to comply with its orders. Failure to comply would result in suspension, or worse, revocation of their permit to operate.

Bush's (2003) cultural models of educational management focus on the values, beliefs, and norms of individuals which are manifested by rituals and symbols rather than through formal structures of organizations. In the pandemic context, however, all public and private elementary and secondary schools in the country are forced to follow the orders or memoranda of the DepEd. The school managers are expected to make sure that their respective schools comply with

DepEd orders. This contrasts with the more value-based approach typically found in Catholic education. In this situation, values, beliefs, and norms have very little chance to manifest through rituals and symbols. Only 28.5% of the respondents perceive that their strategies or measures during the pandemic were guided by the Catholic Educational Association of the Philippines and the Diocese of Balanga. During the pandemic, the values, beliefs, and norms of the Catholic church as well as the devotion to the school and the town's patron saint did not manifest in the strategies or measures implemented by the school (J. Mariano, personal communication, May 4, 2023). Instead of these cultural elements, formal structures such as the DepEd and school administrations dominated. This suggests that especially under a pandemic context, the cultural model of educational management may not be applicable to the case Catholic school. During a pandemic, the formal models of educational management may be more applicable since, according to Bush (2003, 2007, 2010, 2020) these models view schools as hierarchical and are behaving rationally to achieve their goals.

Using a 5-point Likert scale, the respondents were asked to assess the effectiveness of their strategies or measures in overcoming the disruption caused by the pandemic. The Likert scale scores had the following adjectival equivalents: 5 = very effective; 4 = effective; 3 = neither effective nor ineffective; 2 = ineffective; 1 = very ineffective. The mean score was 4, indicating that the respondents felt their strategies or measures during the pandemic were effective. Basically, they gave two reasons for the said rating. The first reason was that 71.4% of the respondents observed their students were able to adapt well to the blended learning delivery mode. The second reason, mentioned by 28.6% of the respondents, was the smooth implementation of both the blended learning delivery mode and the distribution of printed modules for students without internet connection.

The officials, staff, and teachers of the case Catholic school ensured the quality of instruction primarily through close monitoring and follow-up of students' learning, and secondarily through holding of webinars on remote or blended learning delivery modes. Close monitoring and follow-up of students' learning were mentioned by 57.1% of the respondents, while the holding of webinars on remote or blended learning delivery modes was mentioned by 22.8% of the respondents. The remaining 20.1% of the respondents said that they ensured the quality of instruction during the pandemic by conducting remedial classes for those students who were being left behind, following the memoranda of the Department of Education, and recalibrating the curriculum to better meet students' needs.

According to 62.9% of the respondents, their strategies or measures in ensuring the quality of instruction during the pandemic were guided by government memoranda, particularly from the Department of Education. Around 14.3% of the respondents said that they were guided by the webinars on remote or blended learning delivery modes. Around 11.4% of them said that they were guided by the needs of the learners, and finally, 11.4% of them were guided by the Catholic Educational Association of the Philippines, the Diocese of Balanga, and the school officials. It should be noted for the second time that bureaucracy,

hierarchy, and rationality, as embodied in government memoranda, played a bigger role in guiding the case Catholic school's strategies or measures for ensuring the quality of instruction during the pandemic than the elements of the cultural model of educational management, such as Catholic beliefs, ideas, norms, symbols, rituals, values, and traditions.

Using a 5-point Likert scale, the respondents were asked to evaluate the effectiveness of their strategies or measures in ensuring the quality of instruction had been during the pandemic. The Likert scale scores had the following adjectival equivalents: 5 = very effective; 4 = effective; 3 = neither effective nor ineffective; 2 = ineffective; 1 = very ineffective. The mean score was 4.2, implying that for the respondents, their strategies or measures in ensuring the quality of instruction during the pandemic were effective. Nearly 54.3% of the respondents attributed the effectiveness of their strategies or measures to positive feedback from students and their parents, while 45.7% of the respondents attributed it directly to the students' output.

Problems Encountered

Poor or no internet connection was the biggest problem encountered by students during the first two years of the pandemic. This was according to 57.1% of the respondents. This aligns with the findings previously reported by Dayagbil et al. in 2021. Another major issue, reported by 20% of respondents, was distractions at home, leading to a lack of focus and motivation among students. Meanwhile, failing grades, poor mental health state or depression, and dishonesty during examinations were the minor problems identified by the respondents. Each of these minor problems were reported by 5.7% of the respondents.

These problems are among the risks and opportunities identified previously by Winthrop in 2020. The said author highlighted the tendency for distance learning approaches, especially asynchronous online classes and modular delivery mode, to make learning solitary and passive. He also expressed concern for the teachers being overwhelmed with tasks.

According to the school principal, the moment he learned that almost half of their students have poor or no internet connection, he immediately ordered the printing of modules for these students. This solution, however, gave rise to another problem. Soon enough, the teachers reported that the parents were doing the required exercises in the printed modules. Hence, giving a fair or just assessment of students' outputs became a huge challenge for the teachers. This problem with printed modules and the corollary problem on assessment were also found by Cahapay et al. in 2021.

During the interview on May 4, 2023, the school principal also explained that online or remote classes yielded mixed results. Students who were able to adapt to this new learning delivery mode saw improvements in their grades. In contrast, those students who were distracted at home or felt depressed due to the absence of interaction with friends and classmates saw a decline in their grades. Hence, it is difficult to conclude whether online or remote learning is appropriate for all the students of the case Catholic school.

Conclusion

This study concludes that the academic performance of students during the first year of the pandemic was not significantly different from their academic performance in the year immediately before the pandemic. However, a significant difference was found between their academic performances in the year prior to the pandemic and during the second year of the pandemic.
The shift to the blended learning delivery mode, provision of printed modules to students with poor or without internet connection, and close monitoring and follow-up of students' learning were the strategies or measures implemented by the school during the pandemic.

The school was mostly guided by government memoranda during the said period. The instructions from the Catholic Educational Association of the Philippines and the Diocese of Balanga served only as secondary guides. Only 28.5% of the respondents perceived that their school's strategies or measures during the pandemic were guided by these Catholic institutions. The interview with the school principal confirmed that Catholic beliefs, values, and norms did not manifest in their strategies or measures during the pandemic. This suggests that the cultural model of educational management is largely inapplicable in a pandemic context.

The main problems identified by the respondents of the study were poor internet connection and their students being distracted at home, or lacking motivation or focus.

Recommendations

This study recommends continuing the printing and distribution of modules to students with poor or no internet connection. It also recommends maintaining the teachers' efforts to closely monitor and follow-up on students' learning progress.

Since a reliable internet connection remains unaffordable to most students and distractions at home are beyond the teachers' control, this study recommends designating a spacious room in the school as a learning common. This room can be equipped with internet and wireless fidelity connections for the benefit of students with poor or no internet connection. The room's layout should be designed to follow physical distancing and other COVID-19 protocols. In case the school faces a budget constraint to implement such a measure, it can solicit donations from the members of the parish and alumni of the school that had closed down in 1996. After all, these alumni consider the present Catholic school as the successor of their high school. Very recently, these alumni launched a fund-raising campaign to support the construction of comfort rooms near the school's covered court.

In the future, this study can be replicated to include other Catholic and diocesan schools in Bataan such as the Saint John Academy in Dinalupihan, the Holy Rosary Parochial School in Orani, and Saint Catherine of Siena in Samal. It

is interesting to investigate whether Catholic beliefs, ideas, norms, symbols, rituals, values, and traditions indeed influence not only the hiring policies of these schools but also their strategies or measures for ensuring the quality of instruction during and after the pandemic.

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An Investigation into Learners' Satisfaction in an Online Learning Environment

Oluniyi Oyeleke[1] and Kayode O. Owoade[2]

[1]Academic Unit Head, Centre for Distance Learning, Obafemi Awolowo University, Nigeria, oluniyioyeleke@gmail.com

[2]Professor, Department of Physics, Obafemi Awolowo University, Nigeria, oowoade@oauife.edu.ng

Abstract

The study aimed to ascertain if learners are satisfied with the school online program at the Obafemi Awolowo University, Nigeria. The university is a dual-mode institution, combining distance education with the conventional face-to-face delivery model. The Centre for Distance Learning (CDL) is a unit in the university with a mandate to provide open and flexible education available "anywhere anytime beyond borders". This study examined the level of satisfaction of 200 and 300 levels of online nursing students, on the indices of online presence, factors considered critical to success, learning materials, and learning activities. A survey-based data collection procedure was employed, using an adapted questionnaire to gather relevant information. The indicators for level of satisfaction are categorized as highly satisfied, moderately satisfied, and not satisfied. The data obtained were coded and analyzed with the SPSS software with frequency distribution, percentage distribution and mean statistics applied for analysis. In this study, the lowest mean value indicated the most preferred and highly satisfying e-learning program. The frequency and percentage distribution of each of the e-learning programs were also examined across different student levels. A proportional data analysis using frequency and percentage distribution technique was employed to compare the level of satisfaction of each component of e-learning programs across different program levels among learners. The results showed learners were satisfied with the open and distance learning program ($\bar{x}$ = 2.046). The breakdown of all the variables investigated online presence and online community ($\bar{x}$ = 2.174); factors for online success ($\bar{x}$ = 1.89); learning materials ($\bar{x}$ = 1.798); frequency of learning activities ($\bar{x}$ = 1.963) shows the degree of satisfaction across the variables. However, the aspect of prompt feedback shows disapproval ratings among the respondents. In conclusion, the study shows the aspects of the program where the learners are highly satisfied, moderately satisfied and not satisfied at all. This provides information for further programme development especially in the aspect of prompt feedback where learners were dissatisfied.

Keywords: learner satisfaction, online learning environment, e-learning program, online presence, online community

Oluniyi Oyeleke and Kayode O. Owoade

Introduction

Migrating to online education is no longer an uncertain option, but the norm in 21st century higher education, accentuated by the evolution of ICT and COVID-19 pandemic. Factors behind the drive energizing the adoption have been well reported through a plethora of research. These forces are not limited to the relevance and utility derived from online learning, but adoption has been attributed to the limit of the conventional, traditional education system (Buzkurt, 2015).

Nonetheless, uneasiness and apprehension still pervade among the stakeholders. Instructors trained in a face-to-face paradigm, with a long period of instructional delivery in traditional face-to-face instructional delivery mode could be a justifiable cause for their concerns. It is natural for novel ideas to face initial resistance given the tendency to preserve comfort zones. Robust studies have investigated significant differences between face-to-face and online delivery models. Arguably, the focus needs to shift from significant no difference to assessing factors that improve online learning, of which learners satisfaction is meaningful and critical.

Learners' satisfaction is of utmost concern in face-to-face and online delivery. However, satisfaction in face-to-face delivery is taken for granted and often assumed. This cannot be the case in an online environment, where for many learners, online learning "may be alien" or even "threatening" (Peacock et al., 2020) and characterized by a high sense of isolation (Illeris, 2014). One study also supported the sense of belonging in campus-based programs, where self-motivation and self-confidence is reportedly high (Peacock et al. 2020). The study linked a sense of belonging to satisfaction, which at face value, are assumed to be related. This notion of relatedness may not only be vague but could be deceptive owing to various perceptions and orientations – what brings satisfaction to a group may bring rejection to others.

With respect to online learning programs, discourse in learning satisfaction reportedly focus more on undergraduate programs (Andoh et al., 2020), and on variables such as quality, accessibility of learning materials, and demographic factors (Azarcon et al., 2014; Farahmandian et al., 2013; Fosu & Poku, 2014; Keelson, 2011; Malik et al., 2010; Mansor et al., 2012).

In Obafemi Awolowo University online program, the transition to online learning has been approached with caution. Guided by the National Universities Commission (NUC), only a few programs were migrated online: Nursing Science, Accounting, Economics, and lately, Agricultural Extension. Learning materials were provided in multimedia formats, including video, PowerPoint, and text documents, all domiciled in the university's Learning Management System eZone (https://ezone.oaucdl.edu.ng). While these materials were online in the LMS, offline versions were also provided. By this arrangement, time spent on the LMS is considerably limited to responding to forum discussion, answering quizzes, and submitting assignments.

The Centre for Distance Learning (CDL) is an administrative structure of the university dedicated to administering open and distance learning. At the Centre, there are structures to support the smooth running of the programs, namely program units for administrative support, academic unit for tutoring and quality assurance committee for program evaluation and development. It is the statutory function of the quality assurance unit to periodically assess the various components of the program, with the goal of providing summative indices for development. This raises the question: How satisfied are learners with degree of online presence, factors of success in eLearning, learning materials and learning activities?

In a study on students' satisfaction with eLearning and its usefulness for teaching by Bahramnezhad et al. (2016), three factors influencing satisfaction were identified: factors related to learners, factors related to instructors and factors related to the management and technical support. The researchers adopted a review of literature approach and searched through the databases of Medicine, Elsevier, ProQuest, Google, Google Scholar, SID and Magiran. A total number of 123 related articles were found between 2003 – 2013, but only 16 articles met the inclusion criteria of how e-learning promotes students' satisfaction.

Harandi (2015) investigated the strength of the relationship between e-learning and students' motivation. The research was conducted at Tehran Mzahre University, employing a survey form of data collection. Pearson's Correlation Coefficient was used for data analysis. The findings showed that when teachers applied e-learning, students were more motivated.

The work of Johnson et al. (2000) on comparative analysis of learner satisfaction and learning outcomes in online and face-to-face methods revealed that the students in the face-to-face course displayed a slightly more positive perception of the instructor and overall course quality than the online course. However, there was no difference between the two course formats in several measures of learning outcomes.

Objectives

The goal of the study is to examine if learners are satisfied with the administration and delivery of programs on the indices of online presence, factors considered critical to success, learning materials, and learning activities. The specific objectives are to:

1. Determine the extent of learners' satisfaction with the instructors' online presence in the virtual learning environment;
2. Examine how learners are satisfied with critical factors for learning success;
3. Examine if learners are satisfied with the learning materials for learning activities; and
4. Investigate if learners are satisfied with learning activities designed to ensure mastery of learning outcomes.

Methodology

The study adopts a descriptive survey design. Validated questionnaire items were used as a data collection instrument, using a modified Likert-scale of highly satisfied, moderately satisfied and not satisfied. The respondents were selected using purposive sampling based on predetermined inclusion criteria. The data obtained were coded and analyzed with the SPSS software, using frequency distribution, percentage distribution, and mean statistics. The lowest mean value indicated the most preferred and highly satisfying e-learning program. The questionnaire items were used to collect data on the general satisfaction of the respondents to the program, the rate of engagement through the creation of online presence by facilitators, the quality of the learning materials, and the frequency of learning activities. Respondents were also compared across the level of the program, specifically, 200-level courses and 300-level courses.

Data Analysis and Discussion

Research Objective 1: Determine the extent of learners' satisfaction with the instructors' online presence in the virtual learning environment.

The section examines how learners are satisfied with the degree of online presence in the virtual environment. The indices measures relate to instructors' presence online and VLE as a learning community.

Table 1
Rating of Satisfaction of Online Learning Experience Based on Online Presence in a Virtual Learning Environment

Perception of Satisfaction with Online Presence	Rating of Satisfaction of Online Learning Experience Based on Online Presence and Community of Learners				Total	Mean
	1	**2**	**3**	**4**		
	n(%)	**n(%)**	**n(%)**	**n(%)**		
It makes me feel like a real person.	75 (34.4)	44 (20.2)	26 (11.9)	73 (33.5)	218 (100.0)	2.445
It is easier to form meaningful relationships among peers online.	43 (19.7)	50 (22.9)	63 (28.9)	62 (28.4)	218 (100.0)	2.661
It makes me feel the presence of my instructor and other students.	57 (26.1)	58 (26.6)	53 (24.3)	50 (22.9)	218 (100.0)	2.44
It makes me feel as if the online environment is a community.	67 (30.7)	64 (29.4)	28 (12.8)	59 (27.1)	218 (100.0)	2.362

Note. 1 is highly satisfied, 2 is moderately satisfied, 3 is not satisfied while 4 is no response. The level of satisfaction is given below the mean value of 2.5. Any mean above 2.5 indicates that learners are not satisfied with the variable.

Table 1 presents the online learning experience and computer-mediated communication of the students. Among the learners, 34.4% are highly satisfied that being online makes them feel more like a person, while 20.2% were moderately satisfied. In contrast, 11.9% were not satisfied and 33.5% indicated no response. It was reported that 19.7% easily relate with their co-learners, and 22.9% indicated a moderate sense of relationship. A total of 28.9% of students expressed that they were least satisfied with the level of relationship, while 28.4% indicated no response. Regarding instructor presence, 26.1% of students reported a high level of engagement, 26.6% indicated a moderate presence, 24.3% indicated a low presence, and 22.9% did not indicate any option. When it comes to having a sense of community in the VLE, 30.7% indicated that they are highly satisfied with feeling part of a learner community, 29.4% indicated a moderate sense of community, 12.8% indicated a low level, and while 27.1 % indicated no option. The study reveals that there was a sense of online presence even though it was difficult for learners to easily make meaning out of the relationships that exist online.

Table 2 presents the results comparing the level of satisfaction with the online learning experience based on online presence and the sense of community of learners across 200 and 300 levels.

Table 2
Rating of Satisfaction of Online Learning Experience Based on Online Presence in Virtual Learning Environment by Program Level

Perception of Satisfaction with Online Presence	Rating of Satisfaction of Online Learning Experience Based on Virtual Learning Environment by Level of Student									
	1		2		3		4		Mean	
	200	300	200	300	200	300	200	300	200	300
It makes me feel like a real person.	17.9	16.5	10.6	9.6	6.0	6.0	13.8	19.7	2.324	2.554
It is easier to form meaningful relationship among students.	9.2	10.6	12.8	10.1	14.7	14.2	11.5	17.0	2.59	2.726
It makes me feel the presence of my instructor and other students.	11.5	14.7	11.0	15.6	14.7	9.6	11.0	11.9	2.524	2.363
It makes me feel as if the online environment is like a community.	11.5	19.3	16.5	12.8	6.4	6.4	13.8	13.3	2.467	2.265

Research Objective 2: Examine how learners are satisfied with critical factors for learning success.

The factors considered for online success according to the literature are content, interactivity of the learning materials, quality and delivery of learning materials, structure of the program, degree of learning styles, learning platforms, and quality of facilitator.

Table 3
Level of Satisfaction of Factor Responsible for Success in Online Learning

Factors Responsible for Success in Online Program	Level of Satisfaction			Total	Mean
	Highly satisfied	Moderately satisfied	Not satisfied		
Content	134 (61.5)	15 (6.9)	69 (31.7)	218 (100.0)	1.702
Interactivity	76 (34.9)	53 (24.3)	89 (40.8)	218 (100.0)	2.06
Quality	95 (43.6)	67 (30.7)	56 (25.7)	218 (100.0)	1.821
Structure	73 (33.5)	53 (24.3)	92 (42.2)	218 (100.0)	2.087
Learning Styles	105 (48.2)	52 (23.9)	61 (28.0)	218 (100.0)	1.798
Platform (LMS)	79 (36.2)	49 (22.5)	90 (41.3)	218 (100.0)	2.05
Instructors	81 (37.2)	53 (24.3)	84 (38.5)	218 (100.0)	2.014

Table 3 highlights the factors that motivate the students to assess online programs and their level of satisfaction for each factor. Analysis revealed that more than half of the students (61.5%) were highly satisfied with the content of online programs while very few (6.9%) were moderately satisfied and about 32% were not satisfied. Almost half of the students (48.2%) were highly satisfied with the learning styles offered by online programs, 28% were not satisfied while 23.9% were moderately satisfied. In addition, more than one quarter of the students (43.6%) were highly satisfied with the quality of the online program, 30.7% were moderately satisfied while a quarter (25%) were not satisfied with the quality of the online program. The mean level of satisfaction indicated that most of the students mostly consider content ($\bar{x}$ = 1.702), quality ($\bar{x}$ = 1.821) and learning style ($\bar{x}$ = 1.798) as the most highly satisfying factor responsible for online program while interactivity ($\bar{x}$ = 2.06), instructors ($\bar{x}$ = 2.014) and structure ($\bar{x}$ = 2.087) are considered as the least satisfying factors responsible for the students to access online programs.

Research Objective 3: Examine if learners are satisfied with the learning materials for learning activities.

Table 4
Level of Satisfaction of Learning Materials of Online Program

Learning Materials of Online Program	Level of Satisfaction			Total	Mean
	Highly satisfied	Moderately satisfied	Not satisfied		

Overall program	68 (31.2)	51 (23.4)	99 (45.5)	218 (100.0)	2.142
Video content	142 (65.1)	15 (6.9)	61 (28.0)	218 (100.0)	1.628
Handout	109 (50.0)	34 (15.6)	75 (34.4)	218 (100.0)	1.844
Discussion forum	40 (18.3)	41 (18.8)	137 (62.8)	218 (100.0)	2.445
Release of result	9 (4.1)	33 (15.1)	176 (80.7)	218 (100.0)	2.766

Table 4 measures the average level of satisfaction of the students based on the learning materials of online programs. The analysis of the level of satisfaction of the students on learning materials of online programs shows that the students irrespective of their level were averagely more satisfied with the video contents and handout materials. In addition, the analysis indicated that they were least satisfied with the released results and a little bit satisfied with the overall online program.

Table 5
Level of Satisfaction of Learning Materials of Online Program by Program Level

Learning Materials of Online Program and Feedback	Level of Satisfaction with Online Learning Materials by Student Level						Mean	
	Highly satisfied		Moderately satisfied		Not satisfied			
	200	300	200	300	200	300	200	300
Overall program	35 (16.1)	38 (17.4)	24 (11.0)	24 (11.0)	46 (21.1)	51 (23.4)	2.105	2.115
Video content	68 (31.2)	74 (33.9)	7 (3.2)	8 (3.7)	30 (13.8)	31 (14.2)	1.638	1.619
Handout	51 (23.4)	58 (26.6)	18 (8.3)	16 (7.3)	36 (16.5)	39 (17.9)	1.857	1.832
Discussion forum	18 (8.3)	22 (10.1)	16 (7.3)	25 (11.5)	71 (32.6)	66 (30.3)	2.505	2.389
Release of result (feedback)	4 (1.8)	5 (2.3)	15 (6.9)	18 (8.3)	86 (39.4)	90 (41.3)	2.781	2.752

Table 5 indicates that 200-level students ($\bar{x}$ = 2.105) were on average more satisfied than 300-level students ($\bar{x}$ = 2.115) based on overall learning materials of online program, in terms of video content, analysis indicated that 300-level students ($\bar{x}$ = 1.619) were more satisfied than 200 level students ($\bar{x}$ = 1.619), and also 300-level students were on average more satisfied ($\bar{x}$ = 1.832) than 200-level students ($\bar{x}$ = 1.857) using handout. In addition, analysis also shows that 300 level students were averagely more satisfied ($\bar{x}$ = 2.752) with the release of results or feedback than 200 level students ($\bar{x}$ = 2.781) of the online program.

Research Objective 4: Investigate if learners are satisfied with learning activities designed to ensure mastery of learning outcomes.

Table 6
Learners' Satisfaction with Learning Activities

Learning Activities	Level of Satisfaction			Total	Mean
	Highly satisfied	**Moderately satisfied**	**Not satisfied**		
Quizzes	104 (47.7)	67 (30.7)	47 (21.6)	218 (100.0)	1.739
Assignment	100 (45.9)	67 (30.7)	51 (23.4)	218 (100.0)	1.775
Discussion forum	66 (30.3)	92 (42.2)	60 (27.5)	218 (100.0)	1.972
Feedback	45 (20.6)	81 (37.2)	92 (42.2)	218 (100.0)	2.216

Table 6 indicates that close to half of the students were highly satisfied with quizzes (47.7%) and assignments (45.9%) while less than one-fifth were highly satisfied with discussion forums (30.3%) and feedback (20.6%). 30.7% and 42.2% were moderately satisfied with quizzes and discussion forums and 37.2% were moderately satisfied with feedback. In addition, feedback has the highest percentage of not satisfied students (42.2%) while quizzes have the lowest percentage of not satisfied students (21.6%). However, the students were averagely more satisfied with the frequency of quizzes ($\bar{x}$ = 1.739) and assignments ($\bar{x}$ = 1.775) learning activities than any other frequency learning activities.

Table 7
Learners' Satisfaction with the Learning Activities by Program Level

Learning Activities	Level of Satisfaction of Frequency of Learning Activities by Level of Student						Mean	
	Highly satisfied		Moderately satisfied		Not satisfied			
	200	**300**	**200**	**300**	**200**	**300**	**200**	**300**
Quizzes	58 (26.6)	46 (21.1)	21 (9.6)	46 (21.1)	26 (11.9)	21 (9.6)	1.695	1.695
Assignment	56 (25.7)	44 (20.2)	24 (11.0)	43 (19.7)	25 (11.5)	26 (11.9)	1.705	1.841
Discussion forum	34 (15.6)	32 (14.7)	36 (16.5)	56 (25.7)	35 (16.1)	25 (11.5)	2.01	1.938
Feedback	26 (11.9)	19 (8.9)	34 (15.6)	47 (21.6)	45 (20.6)	47 (21.6)	2.181	2.248

Table 7 compares the level of satisfaction between 200 and 300-level students on frequency of learning activities. The analysis indicates that the student has the same level of satisfaction ($\bar{x}$ = 1.695) on the frequency quizzes activities respective to their level. While 200-level students ($\bar{x}$ = 1.705) were averagely more satisfied than 300-level students ($\bar{x}$ = 1.841) on the frequency of assignment activities. In addition, 300-level students ($\bar{x}$ = 1.938) were averagely more satisfied with the frequency of discussion forum activities than 200-level

students ($\bar{x}$ = 2.01) while 200-level students were ($\bar{x}$ = 2.181) on average more satisfied than 300 level students ($\bar{x}$ = 2.248) on the frequency of feedback activities.

Table 8

Summary of Learners' Satisfaction with All the Variables Investigated

Level of Satisfaction	Online Presence and Online Community	Factors for Online Success	Learning Materials	Frequency of Learning Activities	Overall Program
Highly satisfied	4 (1.8)	60 (27.5)	58 (26.6)	52 (23.9)	48 (22.0)
Moderately satisfied	172 (78.9)	122 (56.0)	146 (67.0)	122 (56.0)	112 (51.4)
Not satisfied	42 (19.3)	36 (16.5)	14 (6.4)	44 (20.2)	58 (26.6)
Mean Statistics	2.174	1.89	1.798	1.963	2.046

Table 8 shows the overall components of each of the e-learning programs. Analysis of the online presence and online community indicated that very few (1.8%) were highly satisfied while the majority (78.9%) were moderately satisfied and only 19.3% were not satisfied. For factors for online learning success, 27.5% were highly satisfied, 56% were moderately satisfied, and 16.5% were not satisfied. In terms of learning materials, 26.6% were highly satisfied, 67% were moderately satisfied, and 6.4% were not satisfied. For the frequency of learning activities, 23.9% were highly satisfied, 56% were moderately satisfied, and 20.2% were not satisfied. For the overall program, 22% indicated that they were highly satisfied, 51.4% were moderately satisfied, and 26.6% were not satisfied.

Table 8 also shows the mean statistics of each of the e-learning components, comparing the mean, analysis indicated that online presence ($\bar{x}$ = 2.174) and overall program ($\bar{x}$ = 2.046) has the highest mean in the order of one to three, while the effectiveness of learning materials ($\bar{x}$ = 1.798) and factors of online success program ($\bar{x}$ = 1.89) has the lowest mean. This suggested that very few were highly satisfied with the online presence and overall program compared to learning materials and factors for online success.

Conclusion and Recommendation

The findings showed that most of the respondents were highly satisfied with the indicators of online delivery. However, the level of moderate satisfaction and non-satisfaction are still considered high. The frequency of learning activities has a percentage of 20.2%, online presence has 19.3%, learning materials has 6.4%, and a staggering proportion of 26.6% are not satisfied with the university online program. The data reveals areas where the Centre needs to focus its

efforts and add value to improve the quality of the program. Training on online presence will need to be conducted for instructors to speed up the degree of online presence, create a sense of community of learners, and stimulate learners for engagement with instructors, learning content, and colleagues. The frequency of online activities such as the administration of quizzes, assignments and discussion forums need more attention. Providing training will improve the quality of facilitation and online interaction. The frequency of online presence, or the degree to which the program fosters a community of learners are vital in enhancing the quality of online programs. This factor minimizes the feeling of isolation which is common to online learning environments which can lead to reduced attrition rate among online learners. Online presence is characterized by being in a virtual environment and being ready for interpersonal interaction between learners and instructors and among learners (Keihrwald, 2008); It is the sense of being a "real" person for all parties involved in teaching and learning in online environment (Gunawardena & Zittle, 1997), as well as the willingness to engage in communication exchanges (Lehman & Concercao, 2010). Social presence is affected by several factors such as social context, online communication and interactivity (Tu & Mclsacc, 2002) immediacy and degree of awareness (Kehrwald, 2008). From the findings, learners were satisfied by the level of activities and learning materials which are constructing interactivity. Moore's (1993) theory of transactional distance explains the importance of interactive, increased dialogue which by implication can make physical distance inconsequential. Presence, according to Lehman and Concercao (2010) is the result of "dynamic interplay of thought, emotion and behavior in the online environment, between the private world (that is, the inner world) and the shared world (that is the outer world)." Presence can be viewed from three dimensions, namely social, psychological and emotional. Social presence connotes that learners have feelings of connecting to instructors and other learners. In psychological presence, technology becomes 'transparent' to users in such a way that a sense of togetherness has been cemented among people who are geographically separated. They relate as if they are together physically. For emotional presence, learners can "genuinely show feelings through words, symbols and interactions with others in the online environment."

As Lehman and Conceicao (2010) put it, learners have "become psychologically comfortable with the online environment and feelings are as if they are interacting as in the face-to-face". Online presence helps learners to break the feelings of isolation and get involved in the learning process. This is central to the creation of effective online learning by creating a comfortable learning environment which makes learners become more active (Caspi & Blau, 2008).

Presence is different from and deeper than engagement in the teaching-learning process. Instructors should actively engage learners for effective teaching; however, engagement is an integral aspect of presence. While engagement is "the participation of the instructor with learners or learners with other learners as they interact, presence includes "dynamic interplay of thought, emotion and behavior in the online environment" (Lehman & Concercao, 2010). Presence creates a social atmosphere in online environment and capacity to stimulate high level dialogue between the instructors and learners, and as well inspire critical thinking in the instructional process (Garrison et al., 2001).

Another critical area of concern is the timely release of results or feedback. It is an aspect of the program that has the highest disapproval rate. Feedback constitutes a critical component of the quality assurance framework in online learning, and as such be accorded importance in program delivery.

Given the results of the study, it is recommended for facilitators to receive regular training to create "a group of individuals who collaboratively engage in purposefully critical discourse and reflection to construct personal meaning and confirm mutual understanding" (Garrison et al., 2000). A facilitator should be able to create social presence where learners develop the ability to become contributing members of the class community, with active participation and interaction with course content, colleagues and instructor for meaningful learning; cognitive presence for learners to construct and confirm meaning through sustained reflection and discourse; and teaching presence through effective design, facilitation, and direction of cognitive and social processes towards worthwhile learning outcomes (Garrison et al., 2000). The relevant agencies should investigate the cause of untimely release of student results as a critical step to improve the satisfaction among learners. This challenge can demoralize learners and consequently, lead to dropping out of the program. In conclusion, the articulation of the online delivery policy by the institution will address the issues that are responsible for dissatisfaction. For example, a policy could outline the frequency of feedback provided to the learners, the frequency of facilitators' online presence, the nature and schedule of online activities, along with the time limit for completion. An assessment model can also be developed in the form of a checklist of activities, to be monitored and supervised by designated personnel.

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Student Perception of Learning, Engagement, and Confidence in Research Skills Using Mobile Devices as an Active Learning Strategy in a Science Course

Reina R. Irinco[1] and Reiza R. Irinco-Salinas[2]

[1]College Librarian, University of the Philippines Diliman, Philippines, rririnco@up.edu.ph
[2]Faculty, San Beda University, Philippines, rsalinas@sanbeda.edu.ph

Abstract

This study aimed to determine how tertiary students use their mobile devices for academic in-class activities and learning tasks. Specifically, it examined the students' perceptions of their learning, engagement, and confidence in research skills in relation to their use of mobile devices. This study used an online survey which consisted of a four-point Likert scale and verbal interpretation. Data analysis was performed using frequency distribution, mean, and standard deviation to assess respondents' views on the influence of mobile devices in their learning and confidence in conducting research. The findings showed that students agreed with the positive impact of mobile devices in their education. In addition, students reported greater confidence in their research skills when using mobile devices. Overall, the students felt that mobile technology improved their knowledge and engagement. Moreover, the study showed that gadgets and applications should only be used as learning tools because the outcomes should still depend on the pedagogical strategy and learning objectives. As the research used convenience sampling, the results may only partially represent undergraduate students' perceptions of engagement, learning, and confidence in their research skills using their mobile devices. However, the research's findings still provide insights on the potential benefits of integrating mobile devices in the classroom. These results can guide the development and formulation of more effective instructional methods and materials to enhance the students' learning experience.

Introduction

Technology is quickly evolving in every aspect of our society, including education. Consequently, information technology is increasingly utilized as a tool for

learning. Like other learning organizations, higher education institutions closely monitor these advanced technologies to enhance their educational processes. Furthermore, mobile learning has appeared as a significant advancement, offering educators and learners numerous opportunities (Mohammadi et al., 2020).

The potential of gadgets has significantly increased due to rapid advancements in computation power, internal storage, and screen size with its resolution. Mobile application developers can leverage these improvements to create more sophisticated and valuable applications, enhancing mobile device users' personal and professional lives (Krawczyk & Nykiel, 2017). Mobile devices are particularly effective for teaching and learning, especially given their popularity among adolescents and undergraduates. Data indicates that many students own them and consider them a necessity rather than a luxury. Essential uses of smartphones or gadgets, such as for communication, instant messaging, social media, gaming, and texting, underscore their importance in personal and professional contexts (Wang et al., 2015).

Although numerous studies have examined smartphones, few have delved into the current use of mobile devices as an active learning strategy in science courses, specifically biology. This research aimed to ascertain undergraduate students' perceptions of using smartphones for educational purposes, including in-class engagement, learning activities, and their confidence in research skills. The findings may help develop instructional strategies that integrate smartphones or similar technologies to increase student knowledge, especially laboratory settings and provide insights on the benefits of incorporating mobile devices into classroom instruction.

Objectives

This study aimed to determine how tertiary students use their mobile devices for academic reasons, including in-class activities and learning tasks. Specifically, it examined the students' perceptions of their engagement, learning, and confidence in research skills regarding their mobile devices.

Review of Related Literature

Despite the educational benefits that mobile devices offer, many instructors need to prepare effectively for their integration into courses. Bose and Lowenthal (2016) developed a program to aid college professors in creatively using mobile devices in the lecture room. This research reports college professors' experiences and perceptions regarding incorporating mobile devices into their teaching practices. The findings indicate that college professors utilized mobile devices for digital creation, communication, information storage, and sharing. Deb and Fuad (2014) examined the mobile devices used in the classroom, focusing on their role in interactive problem-solving to increase the engagement of college students and promote active learning.

In the same way, Power (2013) established learning theories and analytical frameworks frequently cited in written works on mobile learning. One such

framework, Collaborative Situated Active mLearning (CSAM), provides a new perspective on instructional systems design, contemplative practices, and self-assessment of mobile learning practices. In addition, Mayberry et al. (2012) investigated the use of instructional technology among faculty, highlighting several creative, active learning strategies for integrating the iTouch device inside and outside the lecture room.

Science during Pandemic

Middle and senior high school students inevitably study science. They engage in science learning by being allowed to test their hypotheses and muster understanding. Therefore, a teacher needs to be able to provide authentic experiential activities, educate and assist students' learning, and support students in engaging in hands-on and mind-on learning to aid in their comprehension. Practical experience, or job experience, is but one of the situations they must face (Ambawati et al., 2021).

According to recent data exhibited at the American Educational Research Association conference, students hardly struggle to learn science during the pandemic. However, they find it more challenging, intriguing, and applicable to daily activities. (Sparks, 2021).

Using Mobile Apps in Online Science Courses

Sprong et al. (2022) elaborated that pedagogy encompasses teaching methods and practices, particularly in educational topics or academic concepts. During the COVID-19 pandemic, online science teaching faced numerous obstacles and challenges, including integrating technology in the classroom. When used mindfully, along with careful pedagogical consideration, technology can serve as a valuable tool to provide students with learning content, minimize interruptions, and enhance shared experiences accompanied by peers and professors. However, students should remain cautious, as devices and apps are tools; their effectiveness depends on the pedagogical approach and the established learning goals. Relevant studies conducted by Mohammadi et al. (2020) indicate that mobile phones offer several benefits as teaching tools, such as increasing individual contribution to educational activity, serving as helpful supplemental resources, aiding in management and planning, and shaping students' perceptions of mobile apps as essential learning tools. While Gallegos et al. (2019) emphasized that science educators should prioritize pedagogy in their teaching practices. Countless academic work has focused on the part of mobile devices in advancing active learning (Bose & Lowenthal, 2016; Deb & Fuad, 2014; Mayberry et al., 2012; Power, 2013).

Theoretical Framework

Figure 1
Kearsley and Schneiderman's Framework for Technology-Based Teaching and Learning

(Kearsley & Shneiderman 1998, adapted and extended)
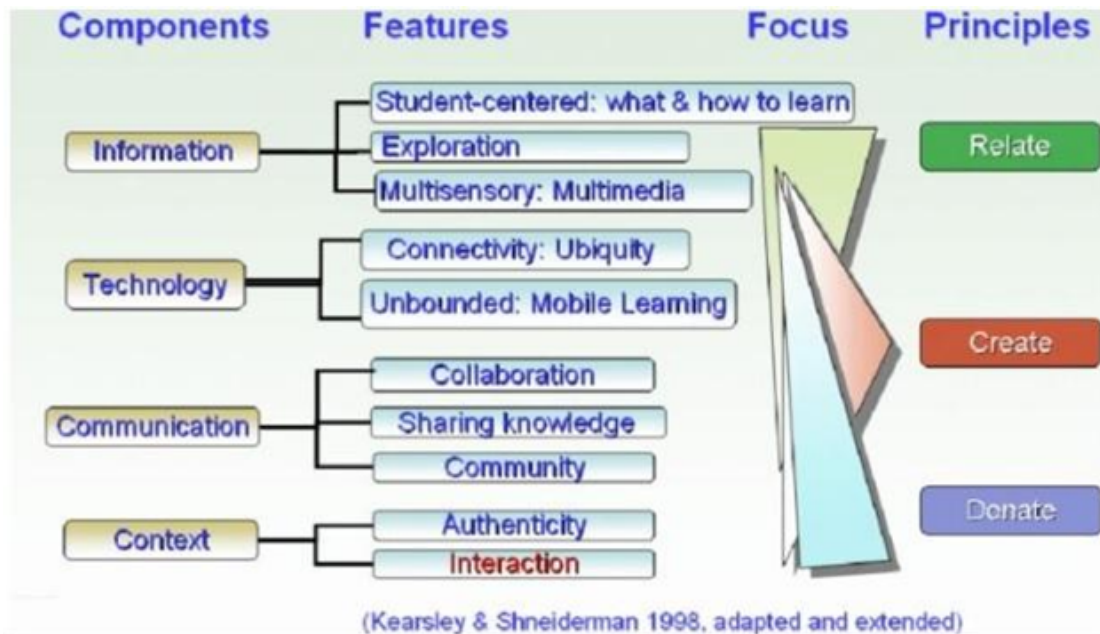
Kearsley and Schneiderman's Framework for Technology-Based Teaching and Learning emphasizes active learning with technology and applying concepts in real-world settings. The key principles of this framework suggest that students should be relevantly engaged in pedagogical scenarios through interaction with others and work on meaningful tasks. In addition, technology can enhance this participation in ways that are often difficult to reach through traditional methods.

Kearsley and Schneiderman's theory promotes interaction through collaborative activities as technology is used more as a communication tool than a media delivery service and project-oriented learning because technology is a tremendous resource for quickly uncovering an abundance of information about any topic and provides an easily accessible source to share with others (Gallegos et al, 2019).

Methodology

The authors sent a permission letter to the Chairman of the Biology Department, University of the East Manila (UEM) for this research. The online survey was conducted from January 20 to 27, 2023, during the start of the academic semester when student enrollment was still ongoing. It was the resumption of face-to-face classes which had been suspended since March 10, 2020, due to the Covid-19 pandemic. Consequently, only eighteen (18) undergraduate students responded to the online survey.

The survey questionnaire was based on Gallegos et al. (2019), with some items modified to fit the study objectives within the Philippine context. Data were

analyzed using the Jamovi output format and statistical measures such as the mean and standard deviation were computed to assess student-respondents' engagement, learning, and confidence in research skills. The survey data analysis applied a four-point Likert scale and verbal interpretation for the first and second categories, i.e., perceptions of engagement and learning: 4 (4.00-3.00) = strongly agree, 3 (2.99-2.0) = agree, 2 (1.99-1.0)- disagree and 1 (1.0-0.99) strongly disagree. For the third category, confidence in research skills, the ratings were 4 = very confident, 3 = fairly confident, 2 = slightly confident, and 1 = not confident.

Due to the limited time, the research survey used convenience sampling of the UEM biology students. Therefore, the result may only be conclusive in UEM and other similarly situated institutions.

Results and Discussion

The sample consisted of eighteen (18) respondents with 10 (55.6%) males and 8 (44.4%) females. Twelve respondents were between the age of 18 to 19 years old (66.7%), five from 20 and 21 years old (27.8%), and one from 22 and 23 years old (5.6%). Out of the 18 respondents, 6 (33.3%) were in their first year college, 10 (55.6%) in the second year, and 1 (5.6%) each in the third and fourth year.

Table 1 shows survey results of the Student Perceptions of Engagement as described in three descriptive variables.

Table 1
Student Perceptions of Engagement (N=18)

Categories	Descriptive Variables	Mean	SD	Verbal Interpretation
Student Perceptions of Engagement	Using a mobile device increased the student's overall engagement in lecture discussions.	2.67	0.907	Agree
	Using a mobile device helped the students pay more attention to the instructors during lectures.	2.33	0.970	Agree
	Using a mobile device motivated the students to learn the course material.	2.61	0.979	Agree
	Overall weighted mean	2.54	0.952	Agree

On the first descriptive variable, "using a mobile device increased the student's overall engagement in lecture discussions," the survey response of the student respondents indicates a statistical mean of 2.67. Based on the Likert scale, the mean value falls under a verbal interpretation where the students agree. Edmodo (2017) discusses how technology can significantly enhance students' ability to seek help. Texting, for example, facilitates class participation by allowing students to ask questions discreetly, empowering shy individuals to engage more confidently. Not all students can articulate their ideas and questions effectively in a traditional classroom setting, but mobile devices can support those who struggle with verbal communication. Teachers can leverage SMS in their classrooms to gauge student comprehension and identify those who require additional assistance. The data also indicates that "students believe using mobile devices helps them pay more attention to instructors during lectures," as evidenced by a computed mean of 2.33.

Bose and Lowenthal (2016) highlight how instructors have utilized smartphones or gadgets to produce content, communicate, store, and partake in information. Exercises were adapted to incorporate handheld or portable technology, enhancing technological competency and modifying appraisal strategies. Professors give an account of improvements in students' technological competency, conveying skills, and active learning due to merging smartphones or similar technologies into the learning process.

The last variable, "using a mobile device motivated the students to learn the course material," has a computed mean of 2.61, indicating that the students agree. Mayberry et al. (2012) explored the incorporation of mobile devices in the lecture room. Their study highlights a creative, active learning approach for using the iTouch inside and outside the lecture room and the gadget's strengths, weaknesses, and prospective applications for future courses. Consequently, incorporating the iTouch in the classroom enhances student motivation to engage with the course material.

Table 2 shows the survey results of Student Perceptions of Learning as described in five descriptive variables.

Table 2
Student Perceptions of Learning (N=18)

Categories	Descriptive Variables	Mean	SD	Verbal Interpretation
Student Perceptions of Learning	The mobile device helped the students participate in activities that enhanced their learning.	3.06	0.639	Strongly agree
	Using the mobile device develops skills that apply to the student's academic career and professional life.	2.61	0.979	Agree
	Using the mobile device helped the students apply course content, solve problems, and connect ideas in a new way.	2.72	0.958	Agree
	Using the mobile device helped the students develop confidence in a subject area.	2.44	1.042	Agree
	Using a mobile device helped connect ideas in a new way.	2.94	0.802	Agree
	Overall weighted mean	2.54	0.884	Agree

The first descriptive variable, "using the mobile device helped the students participate in activities and enhanced their learning," yielded a statistical mean of 3.06 from the student respondents. Based on the Likert scale, the mean falls under a verbal interpretation where students strongly agree. This is consistent with Mayberry (2012) who stated that mobile technology tools attract students and assist in learning. Darko-Adjei (2019) discussed how smartphones or similar technologies are slowly becoming compelling learning tools used to enhance teaching in distance learning. Its usage ensures that training sessions are administered and allows learners to access the e-learning environment and instructional materials and interact automatically. Therefore, mobile devices help students participate in activities that enhance learning. The second variable, "using the mobile device develops skills that apply to the student's academic career and professional life," has a computed mean of 2.61, indicating that the students agree. Kim et al. (2020) discussed the

scholarly use of handheld and portable devices that engage students beyond face-to-face education conditions. Over the past few years, higher education institutions have encouraged students' learning and growth by aiding their use of handheld or portable technology. Mobile technology offers intellectual prospects to increase students' growth in university education. Therefore, mobile devices help strengthen skills that apply to the students' scholarly life and later in professional careers. The third variable, "using the mobile device, helped the students apply course content to solve problems and connect ideas in a new way" has a computed mean of 2.72, indicating that students also agree. Deb and Fuad (2014) discussed that authorizing the students to answer problems on their preferred handheld or portable devices will create an amiable educational setting where they want to retain knowledge and be agile and skilled. Therefore, mobile devices allow students to put in an application course content to answer problems. The fourth variable, "using the mobile device helped the students develop confidence in a subject area," has a computed mean of 2.44, indicating that the students agree.

Lexia (2024) stated that today's students have various apps and platforms on their smartphones and gadgets. In many cases, this flexibility enables students to produce results that professors may not have initially envisioned when designing the project. The last variable, "using a mobile device helped connect ideas in a new way," has resulted in a computed mean of 2.94, indicating that students also agree. Lexia (2024) discussed that students will go above and beyond expectations if they can choose the subject matter. Given various circumstances, suppose they are allowed to incorporate any relevant material, the students can make research outlines with just five minutes of research time at the beginning of class. This approach allows them to share or work in teams to account for students without phones.

Table 3 shows the survey results of Student Confidence in Research Skills as described in five descriptive variables.

For the online component of blended learning implementation, pairwise comparisons revealed that STEM students had significantly more positive evaluations than HUMSS students ($W = 5.757$, $p < .001$). ABM students reported significantly lower evaluations compared to both GAS ($W = -4.373$, $p = .011$) and HUMSS ($W = -6.515$, $p < .001$) strands. These findings suggest that STEM students may be more adept at or satisfied with the online learning components of the blended model, while ABM students may face more challenges or have less positive experiences.

Table 3
Student Confidence in Research Skills (N=18)

Categories	Descriptive Variables	Mean	SD	Verbal Interpretation
Confidence in research skills	The mobile device helped the students become confident using references at the end of research articles to find more resources to review.	3.22	0.808	Very Confident
	The mobile device helped the students use an electronic bibliographic database.	3.17	0.924	Very Confident
	Using a mobile device helped the students access the research literature through internet search engines such as Google.	3.33	0.840	Very Confident
	Using mobile devices helped the students understand and apply the theory.	3.11	0.900	Very Confident
	Using mobile devices helped the students use research results from conference posters or podium presentations.	3.11	0.963	Very Confident
	Using mobile devices helped the students follow how a theory leads to specific research questions.	3.22	0.878	Very Confident
	Overall weighted mean	3.19	1.17	Very Confident

On the first descriptive variable, "using the mobile device helped the students become confident in using references at the end of research articles to find more resources to review," the survey response of the students has a computed statistical mean of 3.22. Based on the Likert scale, the mean falls under a verbal interpretation where students are very confident. Dias and Victor (2017) discussed that mobile devices have introduced a new generation of learning

strategies that afford innovative use and prompt access to rich resources. These handheld or portable devices hold onto outstanding learning perspectives. Therefore, using this wealth of resources helps the students become more confident using references at the end of their research articles. The second variable, "mobile device helped the students use an electronic bibliographic database," has a mean of 3.17, indicating that students are also very confident. Chakre and Ghante (2022) discussed that electronic resources play a significant role as information sources. The very benefit of electronic information is that it can be accessed by any tool available on the Internet. It could be smartphones, laptops, tablets, or other electronic gadgets. Therefore, mobile devices help students use electronic resources. The third variable, "using a mobile device helped the students access the research literature through internet search engines such as Google," has a mean of 3.33, indicating that students are also very confident. Apuke and Iyendo (2018) asserted that students turned on their smartphones or gadgets to access cyberspace through subscriptions from other Internet providers and have become overly dependent on Google, Yahoo, and open-access e-journals.

Nevertheless, tertiary students believed that the Internet enabled them to carry out research ahead of time, address numerous assignments, broaden the extent of reading and learning, encourage self-education, motivate and increase collaborative learning, and improve student examination preparation. The fourth variable, "using mobile devices helped the students understand and apply the theory," has a mean of 3.11, indicating that students are also very confident. Fitzula (2019) stated that digital literacy is a life skill (i.e., creating presentations, differentiating reliable vs. unreliable content, and online etiquette). Therefore, using mobile devices helped the students understand and apply the theory by being digitally literate. Fifth, "using mobile devices helped the students use research results from conference posters or podium presentations." It has a resulting mean of 3.11, with the verbal interpretation of very confident. Fitzula (2019) discussed the correlation between using mobile devices and increasing student motivation to learn both inside and outside the classroom. Therefore, mobile devices help students apply research results in conferences and presentations. The last variable, "using mobile devices helped the students follow how a theory leads to specific research questions," has a mean of 3.22, indicating that students are also very confident. Ahmad (2020) discussed that students were keen on mobile devices' usage as a social connectivity and collaborative tool, which they can use for flexible and personalized learning activities. Therefore, mobile devices help the students understand how a theory leads to specific research questions that can help them daily.

Findings

The findings derived from the first category, Student Perception of Engagement, show that students agree that using mobile devices increases their overall engagement in lecture discussions, helps them pay more attention during lectures, and motivates them to learn course materials. The second category, Student Perception of Learning, presents that students also agree that using mobile devices helped them participate in activities that enhanced their learning. The devices also supported the development of skills that can be

applied to their academic and professional lives, helped them to apply course lessons to answer problems, allowed creatively linking ideas, and boosted their confidence in a subject area. The last category, Confidence in Research Skills, reveals that students are very confident in using mobile devices, especially in using cited references at the end of research papers or articles to find additional resources. Mobile devices allow access to electronic bibliographic databases, enable students to look for research literature through internet search engines such as Google, help the students in understanding and applying theoretical concepts, aid the use of research results from conference posters or podium presentations and help the students follow how a theory leads to specific research questions.

Based on the results of this study, students' mobile devices help them in engaging, learning, and enhancing research skills, most notably in science courses like biology.

Conclusions and Recommendations

Mobile technology offers a positive impact on students' engagement and learning. However, educators must consider pedagogy when integrating technology in the classroom. Caution should still be exercised as the devices and apps are only tools, and the results should still depend on the pedagogical approach and learning goals. When used thoughtfully and with careful pedagogical considerations, technology can be a valuable tool to increase students' engagement with course content, limit off-task interruptions, and enhance collaborative learning experiences with peers and professors. It may be helpful for future studies to compare students' self-perceived skills and knowledge with their actual proficiency and application of such skills in real-life context. Additionally, studying the adverse effects of handheld or portable technology in the classroom will be a relevant research area especially in non-science courses. The study results can also serve as reference to develop and formulate adaptable and suitable instructional theories and materials to help and improve students' learning process.

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Call for Papers

We call on colleagues, such as academics, researchers, technology developers, and open distance e-learning experts to submit their articles for publication in the International Journal on Open and Distance e-Learning. The IJODeL is a bi-annual journal, hence it comes out every June and December of the year.

The preferred articles are those reporting original research, articles based on critical analyses of e-learning undertakings, book reviews, evaluation studies, and original think pieces such as concept papers.

Please visit the IJODeL website to familiarize yourselves with the author's guide and submission guidelines.

Template for Quantitatively-Oriented Articles

Title of Article

Author 1[1]and Author 2[2]

[1]Position, Institutional Affiliation, Country, Email address

Abstract

Abstract in 150-250 words.

Keywords: No more than five (5) keywords.

Introduction (Center Heading 1)

This section contains a clear historical background of the study, showing why the research had to be undertaken. In this section, the author(s) shall have the opportunity to expound on what the research says about the research problem, and show clear support for the need to undertake the research, through appropriate research gap analysis.

Objectives (Center Heading 2)

This section provides a clear statement of the goals and objectives of the research.

Conceptual/Theoretical Framework (Center Heading 3)

The conceptual or theoretical framework would be expected for research studies that dealt with empirical procedures and methodologies. A framework of this nature would provide for clear interrelationships and direction of interactions of variables which the researcher expects to show by his/her data and data interpretations. It should be noted that variable interactions may be easier to understand if they were to be presented in illustrated model formats.

Methodology (Center Heading 4)

This section includes brief discussions of data collection procedures and analyses. Data must be presented in appropriate tables.

Results and Discussions (Center Heading 5)

Analytical discussions must present possible relationships of the results of the study and the findings from other studies specifically reviewed for this purpose. Post analysis data may be presented in both statistical tables and appropriate models and figures.

Include subheadings as are necessary.

Conclusions and Recommendations (Center Heading 6)

Conclusions must be according to the objectives of the study.

Recommendations must reflect the objectives and conclusions of the study.

References

General format must follow the suggestions for authors, but generally must follow the APA Style for publications. (As of writing, APA's publication manual is in its 7th edition.)

Template for Qualitatively-Oriented Articles

Title of Article

Author 1[1] and Author 2[2]

[1]Position, Institutional Affiliation, Country, Email address

Abstract

Abstract in 150-250 words.

Keywords: no more than five (5) keywords

Introduction (Center Heading 1)

This section contains the historical background of the study, including specific reports and studies that provided direct support to the research problem. Some relevant part of the literature shall be included in the discussion of the research problem to establish more strongly the need to undertake the study.

Objectives of the Study (Center Heading 2)

This section contains both the research over-all goal and the specific objectives to be attained.

Relevant Studies or Review of Related Studies (Center Heading 3)

Review of studies that are highly related to the current study. After the relevant studies have been presented, a synthesis of these may be presented and the relationship of such synthesis must be related to the study under consideration.

Subheading may be determined as necessary. In these subheadings, specific observations may be noted and statistical tables presented as well as figures and models.

Discussions (Center Heading 4)

In this section shall be inserted full discussion of results and finding, discussed

more deeply in relation to the related studies already reviewed. Subheads may be determined and included in the discussions.

Conclusions (Center Heading 5)

The conclusions of the study must reflect the objectives of the research.

Recommendations (Center Heading 6)

All recommendations must appropriately correspond to the conclusions, and therefore the objectives of the study.

References (Center Heading 7)

Follow the APA Style Guide (As of writing, APA's publication manual is in its 7th edition.)

Style Guide for Full Paper Submission

The paper should be 15-25 pages long (including tables, figures, and references) and prepared preferably in Microsoft Word format. The author(s) should provide a title, the name(s) of the author(s), position(s), institutional affiliation(s), institutional address(es), email address(es) and key words (no more than five). You may make use of the template for preparing your paper: Journal Article Template (Qualitatively-Oriented); Journal Article Template (Quantitatively-Oriented). Detailed guidelines are as follows:

1. **Font type**
   The whole text should be in Arial.

2. **Margins**
   The paper should be A4 size (21 x 29.7 cm). All margins (top, bottom, left, and right) should be 1 inch.

3. **Line Spacing**
   The whole text should be single-spaced.

4. **Title**
   The title of the paper should be 14-point, bold, in capital and lower case letters, and centered.

5. **Author Information**
   Use 12-point and centered for the author name(s). The Western naming convention, with given names preceding surnames, should be used.

   The author name(s) should appear below the title, with one blank line after the title.

   Use 10-point for author(s)' position(s), institutional affiliation(s), country, and email address(es).

   The author(s)' position(s), institutional affiliation(s), institutional address(es), and email address(es) should appear below the author name(s), with one blank line after the name(s).

6. **Headings**
   - Heading font (with the exception of the paper title and the abstract) should be 14-point Arial and in bold.
   - Headings should be centered and in capital and lower case letters [i.e. nouns, verbs, and all other words (except articles, prepositions, and conjunctions) should be set with an initial capital].
   - There should be two blank lines before each heading and one blank line after it.

7. **Subthemes**
   - Subtheme(s) should be 14-point Arial, in bold capital and lower case letters, and flushed left.
   - There should be one blank line before and after each subtheme.

8. **Abstract**
   - The abstract heading should be 14-point Arial, bold, centered.
   - The abstract should be in **150-250 words.**
   - The main text of the abstract should be 12-point Arial, italicized.
   - Alignment of the main text of the abstract should be justified, no indent.

9. **Key Words**
   - Include **at most five** keywords.
   - Use 12-point Arial. The keywords should appear below the abstract, with one blank line after the abstract.

10. **Main Text**
    - In general, paragraphs should be separated by a single space.
    - All paragraphs must be in block format.
    - Text font should be 12-point Arial, single-spacing. Italic type may be used to emphasize words in running text. Bold type and underlining should be avoided.
    - The first line of each paragraph should not be indented.

11. **Tables and Figures**
    - Tables and figures should be numbered and have captions which appear above them.
    - Graphics and pictures should not exceed the given page margins.
    - Captions should be 14-point centered.
    - The tables and figures of the paper should follow the APA citation style.
    - There should be no space between the caption and the table/figure.

12. **Footnotes**
    - Footnotes may be used only sparingly. A superscript numeral to refer to a footnote should be used in the text either directly after the word to be discussed or – in relation to a phrase or a sentence – following the punctuation mark (comma, semicolon, or period)
    - Footnotes should appear at the bottom of the page within the normal text area, with a line about 5 cm long immediately above them.
    - Footnotes should be 10-point and aligned left.

13. **References**
    - The author-date method in-text citation should be used. Following the APA format, the author's last name and the year of publication for the source should appear in the text.
    - All references that are cited in the text must be given in the reference list. The references must follow the latest edition of the APA Style Guide (as of writing, APA's publication manual is in its 7th edition) and

arranged alphabetically at the end of the paper.

Sample:

Surname, A. A. (year). Article title. *Title of Journal, volume number*(issue number), inclusive page numbers. URL/doi link

Surname, A. A. (year). *Title of book.* Publisher location: Publisher Name.

Surname, A. A., Surname, B. B., & Surname, C. C. (2000). Title of article. *Title of periodical, volume number*(issue number). URL/web address.

Surname, A.A. (Year, Month). *Title of paper.* Paper presented at name of conference, city, country.

14. **Length**
    The paper should be **3,000-7,000 words** including tables, figures, and references.

Author Guide

The International Journal on Open and Distance e-Learning (IJODeL) welcomes original research articles, book reviews, theories, and best practices pertaining to ODeL worldwide. Articles should be 3,000-7,000 words including tables, figures, and references.

A publishable quantitatively-oriented paper should contain the following:
1. Abstract
2. Objectives
3. Conceptual/Theoretical Framework
4. Methodology
5. Results and Discussions
6. Conclusions and Recommendations
7. References

Go to: Quantitatively-Oriented Journal Article Template

A publishable qualitatively-oriented paper should contain the following:
1. Abstract (with keywords)
2. Introduction
3. Objectives of the Study
4. Relevant Studies or Review of Related Studies
5. Discussions
6. Conclusions
7. Recommendations
8. References

Go to: Qualitatively-Oriented Journal Article Template

To submit an article, the IJODeL website and follow the steps in the online submission system.