Online Learning Challenges of Education Students Amidst the Pandemic

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Abstract

This case study examined the impact of limited access to technological gadgets and reliable internet connection on students' academic performance during the pandemic. Data were collected through interviews with six education major students from a public higher education institution in the Philippines. Employing a descriptive single case study design, the study revealed that students faced challenges in attending online classes, submitting assignments on time, and keeping abreast with important class and school announcements. Financial constraints and marginalized backgrounds exacerbated these difficulties resulting in unequal educational opportunities. The findings emphasize the critical need for equitable access to technology and support mechanisms to enhance online learning experiences. This study contributes valuable insights for educational institutions and policymakers in addressing the challenges faced by students in the digital learning environment.

Keywords: online learning challenges; hybrid learning; Covid-19 pandemic; Philippine education; case study

I. Introduction

During the COVID-19 pandemic, the educational domain has witnessed a notable revolution requiring a departure from conventional in-person teaching to online learning. This paradigm shift has necessitated education major students to embrace a novel learning approach predominantly reliant on digital platforms in acquiring knowledge and in engaging in collaborative activities. However, the effectiveness of online learning is contingent upon access to vital technology resources, including laptops and Wi-Fi connectivity.

Recent studies exploring the online learning journey of students amidst the COVID-19 pandemic have brought to the forefront noteworthy challenges encountered by these individuals. A common concern highlighted in these studies is the issue of internet connectivity which has been identified as a major barrier to effective online learning (Agung et al., 2020; Basuony et al., 2020). Insufficient or unstable internet connections hinder students' capability to access educational materials, attend virtual classes, and interact in online discussions. Additionally, technological equipment has emerged as another key challenge for students lacking access to essential devices like laptops and computers (Baczek et al., 2021; Niemi & Kousa, 2020). The absence of adequate technological equipment further exacerbates the difficulties students face in fully engaging with online learning platforms and completing their academic tasks.

The impact of limited access to laptops and Wi-Fi extends beyond the immediate challenges of participation and connectivity. Education major students without these resources may experience a digital divide which obstructs opportunities to fully engage with the digital content and develop essential digital literacy skills (Azubuike, et al., 2021). This divide adds to existing educational inequalities and may further marginalize students who are already at a disadvantage.

To address this pressing issue, it is crucial to delve deeper into the challenges faced by students without access to laptops and Wi-Fi during online learning. By understanding the specific barriers they encounter, educational institutions, policymakers, and stakeholders can devise targeted interventions and initiatives to ensure equitable access to technology resources. Moreover, exploring the impact of these challenges on students' academic performance and learning outcomes will provide valuable insights for designing effective support systems and policies.

Therefore, this study sought to assess the difficulties encountered by undergraduate students taking up an education degree who lack access to laptops or computers and Wi-Fi during online learning. The findings of this study are endeavored to add to the current knowledge base concerning digital inclusion in education and offer empirically supported recommendations to improve the online learning experience for undergraduate students.

1.1 Review of Related Literature

The COVID-19 pandemic has highly affected the field of education, leading to the disruption of conventional teaching methods and necessitating the adoption of alternative approaches. This global health crisis, which emerged towards the end of 2019 and was declared a pandemic by the World Health Organization (WHO) in March 2020, resulted in the widespread closure of schools as a precautionary measure to limit the transmission of the virus (WHO, 2020). These closures, combined with the need for physical distancing, led to a significant shift towards remote learning and the reorganization of learning spaces (Sahu, 2020; Yamin, 2020).

One of the immediate effects of the pandemic was the abrupt halt to in-person classes, affecting students at all levels, from primary schools to universities (Nicola, et al., 2020). Educational institutions were faced with the challenge

of ensuring continuity of education while safeguarding the health and safety of students and educators (Dayagbil, et al., 2021). In light of the demand for inventive educational practices in higher education, educational institutions globally have adopted diverse approaches such as distance education, online teaching, remote learning, blended learning, and mobile learning (Cullinan et al., 2021). These emergency remote education methods represent a provisional adjustment of instructional strategies in response to unexpected crises, rather than a complete departure from conventional educational systems. Instead, they provide a temporary and pragmatic alternative for educators to deliver instruction and meet the learning requirements of students (Hodges et al., 2020).

The effective utilization of communication technology, platforms, and devices is of utmost importance in the context of hybrid or online learning as highlighted by Di Pietro et al. (2020). As traditional classrooms transitioned to virtual or blended environments, educational institutions relied on various tools and technologies to ensure smooth communication and active participation between educators and students. However, this shift in learning modality introduced its own set of challenges. Not all students had equitable access to technology and reliable internet connections, leading to a digital divide that disproportionately impacted disadvantaged communities and students (Di Pietro et al., 2020; Engzell et al., 2021; UNESCO, 2020). The digital divide refers to the inequality in access to technology and digital resources among different groups of individuals (Rogers, 2016). In the context of online learning, this divide becomes particularly significant as it can impede students' ability to fully participate and engage in digital educational activities. One of the primary factors contributing to the digital divide is the lack of access to appropriate equipment such as laptops or desktop personal computers (PCs). Many students from disadvantaged backgrounds may not have access to these devices at home, making it difficult for them to participate in online classes or complete digital assignments. This disparity in access to devices can create a significant barrier to their educational opportunities (Silva et al., 2018).

In addition to device access, the quality of the home learning environment is another factor that influences the digital divide. Some students may lack access to an appropriate study environment or the necessary resources for participating in online classes such as a quiet space, consistent electricity, or a reliable internet connection (Suryaman et al., 2020). These environmental limitations can impede their ability to effectively engage with online learning materials and activities, placing them at a disadvantage compared to students who have more conducive learning environments (Di Pietro et al., 2020; Friedman, 2020; Silva et al., 2018). Another critical aspect to consider in relation to the digital divide is the quality of broadband connectivity. Students residing on campus often have access to high-speed internet connections which are vital for seamless participation in online classes, video conferencing, and accessing multimedia resources. However, students living in rural or underserved areas may face limited or unreliable internet connectivity, leading to challenges in accessing online learning materials and participating in synchronous online activities (Rasheed et al., 2020). The pandemic has expedited the integration of technology into the field of education, compelling educational institutions to rapidly shift towards online learning and remote teaching methods. Organizations across various sectors adopt new technologies to facilitate interactions and operations without the need for face-to-face interaction (Mark & Semaan, 2008). However, challenges arise when technological infrastructure and connectivity are inadequate, especially in remote or underserved areas. Limited internet access or unreliable signals can impede students' ability to participate fully in online classes, access learning materials, and engage in collaborative activities. This disparity in internet connectivity further exacerbate existing inequalities in educational opportunities. Hence, it is crucial to provide comprehensive technical and logistical implementation plans to support alternative models of learning during the pandemic (Edizon, 2020).

In the Philippine setting, numerous studies have been undertaken to investigate the impact of online learning on students' educational experiences. A notable research conducted by Fabito et al. (2020) delved into the obstacles and difficulties encountered by students in this particular educational modality. The research findings highlighted that a significant hurdle for students was the lack of a reliable internet connection and access to a suitable device for online learning. These two factors were identified as crucial prerequisites for effective engagement in remote education. The study highlighted the significance of tackling these challenges to guarantee fair and inclusive access to quality education for all students, particularly in the Philippines where issues of internet connectivity and device availability persist as substantial concerns. According to Casillano's (2019) study, a limited proportion of students had the means to access the internet, presenting a notable barrier for them when attempting to utilize e-learning platforms. The limited internet access created a barrier that hindered these students from fully engaging with online educational resources and activities. According to a study of Cleofas and Rocha (2021), students from economically disadvantaged backgrounds frequently encounter obstacles in acquiring personal laptops and desktop computers, as well as reliable internet connections. These financial constraints compound the difficulties experienced by these students in accessing online learning platforms and participating in remote education.

When considering the broader perspective of online learning, the lack of access to devices and internet connection is just one aspect of a more complex issue. The most compelling problem lies in the effects of this situation on students' academic performance and the quality of education they receive. A study by Almaiah et al. (2020) highlights that delivering quality education in an online learning environment poses significant challenges. Implementing robust systems and frameworks necessary for effective online learning, as well as adapting to the latest technologies, are critical aspects that educational institutions need to address. In a study conducted by Kapasia et al. (2020) focusing on understanding the impact of Covid-19 measures on students' learning performance, it was revealed

that the implementation of the measures resulted in significant disruptions to students' learning experiences. During this period, students encountered various challenges while attending online classes. The challenges encompassed a range of factors, including heightened levels of anxiety and depression, obstacles arising from unreliable internet connectivity, and an unfavorable home learning environment. The lack of reliable internet service further impedes students' access to educational resources, virtual classrooms, and interactive learning activities limiting their ability to actively participate in the online learning process, thus affecting their overall academic performance. Notably, these challenges were further exacerbated for marginalized students and those residing in remote areas. Addressing the disparities and providing targeted assistance to these students is essential to ensure that they have equal opportunities for quality education and can effectively navigate the challenges brought about by the lockdown measures.

1.2 Research Questions

Informed by prior research in online learning, the primary objective of this study was to gain a comprehensive understanding of the experiences encountered by undergraduate students taking up an education degree amid the COVID-19 pandemic. By delving into their first-hand experiences with online learning, the study aimed to augment the existing scholarly discourse on this subject matter. Specifically, this study was guided by the following research questions:

1. What are the online learning challenges encountered by undergraduate education students during the pandemic?
2. How did the students cope with the online learning challenges encountered?

2. Theoretical Framework

The theoretical foundation of this study was rooted in the Digital Divide Theory which examines the discrepancy between individuals who have adequate access to information and communication technologies (ICT) and those who encounter limitations or lack access to such resources (Rogers, 2016). The idea of the digital divide highlights the unequal distribution of ICT access and its implications on various aspects of society including education, communication, and socioeconomic opportunities. This theory explores the disparities in access to and use of digital technologies, resulting in unequal opportunities for individuals and communities. Despite the rapid progress in technological advancements, the digital divide continues to persist, creating disparities in various aspects of society (Centeio, 2017). This gap is particularly noticeable within educational contexts where access to digital resources and connectivity plays a crucial role. The COVID-19 pandemic further exacerbated these inequalities as the shift to online learning became a necessity (Asher, 2021).

In the context of the study, the Digital Divide Theory helped analyze the unequal distribution of resources specifically laptops and Wi-Fi, among education major students. It recognizes that not all students have equal access to these essential tools for online learning which creates a digital divide. This divide can further exacerbate existing social and economic inequalities as students from disadvantaged backgrounds are disproportionately affected.

The theory provides insights into the impact of the digital divide on students' educational experiences. Students without access to laptops and Wi-Fi may face numerous challenges in engaging with online learning platforms, participating in virtual classes, accessing digital resources, and submitting assignments. They may struggle to keep up with their peers, leading to potential gaps in learning outcomes.

3. Methodology

Adhering to the framework presented by Baxter and Jack (2008), a descriptive single case study design was employed in this research. The main objective of this study was to examine the first-hand experiences of students taking up an education degree in one public higher education institution in the Philippines at the height of the pandemic. The participant pool consisted of six (6) carefully selected education major students who voluntarily agreed to participate. Each participant was assigned an identification label, ranging from Student 1 (S1) to Student 6 (S6) to ensure anonymity and confidentiality.

Purposive sampling, a non-probability sampling technique, was utilized to choose participants who met specific criteria for inclusion in the study. Data saturation was also considered in determining the sample size. This approach ensured that enough participants were included to gather rich and comprehensive data, while also allowing for the identification of common themes and patterns that emerged from the participants' experiences. To triangulate, proofs of their experiences were likewise presented during the interview.

4. Findings and Discussion
Importance of Wi-Fi and Laptop in Online Learning

Education students have stressed the significance of possessing a laptop and access to Wi-Fi for their education during the pandemic.

*"For me, yes, because per my experience, it is hard for me to use my cellphone during online classes especially in terms of encoding a lesson plan and answering my activities. Also, in terms of class discussion, using mobile data was not easy and is not applicable all the time because of the poor internet connection. It is better to use wi-fi to easily communicate during an online class." [*S1]

"Whether it is an online set-up or face-to-face set-up, it is really important to have an access because of class reporting and the preparation of instructional materials. Especially now that we have blended learning, there are requirements and answer sheets that need to be submitted online. It is a crucial in today's century to have a laptop and a wi-fi because after all this generation is all about technology." [S5]

Online Learning Challenges for Education Students
Digital woes during the pandemic

When students were asked if the lack of access to a laptop and Wi-Fi hindered their ability to obtain a quality education, the participants overwhelmingly stressed that it did indeed impede their learning experience. The absence of these essential resources posed numerous obstacles making it difficult for them to fully engage in online classes, access educational materials, collaborate with peers, and communicate effectively with teachers.

"I am affected as a future educator. Having insufficient load to gather references and information became hard affecting how we accomplish our research thesis." [S3]

"Yes, because I always experience having a poor internet connection and would then miss my online classes." [S4]

"This era is all about gadgets and technology. It is more convenient to make instructional materials this way than in a traditional way. But I am not saying that traditional teaching materials are not applicable. It is just that this is more convenient for teachers." [S5]

"I would have a hard time finishing my assignments and tasks *in the academe if I don't own a laptop and a wi*-fi at home especially that today, professors require their students to do certain tasks using technology." [S6]

"I*t's difficult for me to enter* and join in our synchronous class *if we don't have* a wi-fi and a laptop." [S2]

"The first challenge I had as an education student is having a poor internet connectivity. Second, I miss important announcements. And third, is about having a hard time to finish my PowerPoint presentations and lesson plans." [S4]

"The most challenging thing in this online set-up is the internet connectivity. Not having a laptop is still bearable since we can attend online classes through our phones but the slow connection here in our country is one of the reasons that hinders me and the other students." [S5]

"Poor internet connectivity, not being able to afford a laptop, and trying to finish my academic tasks using my phone." [S6]

Digital divide's impact on students' academic performance

When students were asked about their opinion on whether the absence of laptops and Wi-Fi affects their academic performance during the implementation of online learning, their responses revealed a strong consensus: it significantly and adversely affected their academic performance. Students demonstrated a strong belief that the lack of these essential resources hampers their ability to attend virtual classes, access learning materials, submit assignments, and actively engage in online discussions. These are some of the interview snippets:

"*I usually pass* my activity late because of lack of resources." [S3]

"It affects me in a sense because I would constantly be late in submitting my answers to the activities." [S4]

"This online set-up has a big negative impact on my academic performance. I could not do adequate research because I cannot use our shared desktop at home sometimes and *I couldn't submit th*e requirements within the deadline." [S5]

"I *sometimes don't* attend classes *because I don't have enough load and* sometimes, I have low connectivity." [S4]

"I was not able to pass my requirements on time since I was only able to do my school works using my phone. However, there are times when my relative would make me borrow her laptop if she is not using it so it kind of helps me with my workload." [S6]

Students' Coping Strategies with Online Learning Challenges Amidst the Pandemic
Application for aids, grants, and assistance offered by government and non-government agencies

Some of the participants' responses shed light on their attempt to avail of the different support systems provided by the government and non-government agencies. Some students reported reaching out to government initiatives that aimed to provide laptops and internet connectivity to students in need. However, a few of the students were not fortunate enough to be selected as beneficiaries of the assistance.

"*Yes, but suddenly (waray kadara) I didn't get it.*" [S1]

"I tried to apply for assistance in our municipality and was lucky to be chosen, though it was near the end of the term already." [S3]

Some students displayed considerate behavior by choosing not to avail the assistance, opting to give way to those who are more in need of it.

"I did not apply for this assistance offered in our place because I know that there are so many students out there who are financially struggling a little bit more than me so I stepped back to give an opportunity to them." [S6]

Prudent planning and family support

For students who lack access to a Wi-Fi connection, they often rely on the use of data promos to attend their classes. Facing the challenge of limited connectivity options, these students strategically allocate and manage their load data promos to last for a week to ensure that they can actively participate in virtual classes and submit their assignments. They carefully plan and optimize their data usage, prioritizing their educational needs despite the constraints.

"I avail a data promo which is good for one week and try to manage this load so I'll be able to attend my online classes.*" [*S1]

*"*This online class setup requires an internet connection *but since I don't own a personal wi-*fi I need to buy load to have a data connection. Every week there is a hundred pesos allotted for my data load with a limited data connection. I do not waste this by surfing through Facebook or watching nonsense videos but instead I prioritize it for academic purposes.*" [*S5]

*"*Luckily for me, my mom works overseas. So during the pandemic, my mom would send me an additional allowance. In that way, I can afford my monthly load expense *without having to worry on how I'll be able to* attend my online classes.*"[*S6]

The emergence of the novel COVID-19 virus, first identified in December 2019 in Wuhan, China, rapidly spread across various countries. As a result of this global health emergency, governments worldwide implemented measures to curb its transmission, leading to the temporary closure or localized shutdowns of educational institutions. These closures had a significant and far-reaching impact, affecting a substantial proportion of the global student population, as reported by UNESCO (2020a) with estimates indicating that over 60% of students were affected.

Acknowledging the vital significance of education and the imperative need to maintain uninterrupted learning, around 155 nations globally implemented diverse tools and learning platforms as remedies during the pandemic (UNESCO, 2020b). These initiatives aimed to provide alternative methods of education delivery, enabling students to continue their studies remotely while adhering to social distancing measures. While these measures aimed to mitigate the impact of school closures, challenges such as unequal access to technology, reliable internet connectivity, and adaptability to online learning arose.

The results of this study, based on the responses from education major students, underscore the crucial role of technology, particularly laptops and reliable Wi-Fi internet connections, in sustaining education during the ongoing pandemic. Several participants emphasized the significance of having a laptop for various academic tasks, such as creating assignments, reports, and PowerPoint presentations. These insights align with the research of Di Pietro et al. (2020) which highlights the importance of using gadgets in the online learning setup. The ability to access and utilize laptops enables students to actively participate in virtual classrooms, engage with digital learning materials, and complete their academic requirements effectively.

The students' recognition of the importance of laptops in their educational pursuits reflects the increasing reliance on technology in the current learning landscape. Laptops provide students with the necessary tools and resources to navigate the online learning environment, facilitating efficient communication with instructors and peers, and enabling the creation and submission of assignments in various digital formats. However, it is important to acknowledge that many students have expressed their concerns about the challenges they face due to their lack of access to gadgets and reliable internet connections. These challenges encompass issues such as challenges in attending virtual classes, meeting assignment deadlines, and in keeping abreast with important announcements from instructors. Several studies including those by Di Pietro et al. (2020), Friedman (2020), and Silva et al. (2018), and Suryaman et al. (2020) have also highlighted these issues concluding that the lack of access to devices and internet connections poses significant barriers to educational opportunities for students.

The results from these studies underscore the inequities that arise when students do not have equal access to necessary technologies. The digital divide, where some students have access to gadgets and reliable internet connections while others do not, creates a significant disparity in educational opportunities (Silva et al., 2018). Students without access to these resources often struggle to fully engage in online learning, leading to potential gaps in knowledge acquisition and participation in virtual classrooms (Edizon, 2020).

The study of Fabito et al. (2020) emphasizes the significance of internet connectivity and suitable gadgets as prerequisites for the effectiveness of online education or hybrid learning. The findings of the current study align with the conclusions drawn from this study as students' responses highlight the challenges they have encountered during the full implementation of online learning. Fabito et al.'s study indicates the importance of having a reliable internet connection and appropriate devices to ensure seamless participation in online education. The current study's findings resonate with this perspective as students express their struggles and obstacles faced while navigating the online learning environment.

To cope with the challenges arising from the lack of gadgets and reliable internet connections, students have sought assistance from both government and non-government agencies. Financial constraints particularly impact marginalized students exacerbating the effects of online learning. Cleofas and Rocha (2021) delve into this topic highlighting that economically disadvantaged students often lack access to laptops and internet connectivity. In

response, Edizon (2020) suggests that alternative learning models during the pandemic should be carefully designed to adapt to students' unique situations. The efforts of students to seek aid from relevant agencies reflect their determination to overcome the barriers hindering their access to technology and reliable internet.

The lack of gadgets and reliable internet connections has a profound impact on the overall academic performance of students. Silva et al. (2018) explained that without access to these essential resources, students' academic performance is significantly compromised. The absence or limited availability of gadgets and internet connectivity hinders the learning process, impeding students' ability to fully engage with online education. According to Kapasia et al. (2020), the consequences of inadequate access to technology and internet connections extend beyond academic challenges. Students may experience increased levels of anxiety and depression, further exacerbating the negative impact on their overall academic performance. These findings of the study indicate the critical role that gadgets and reliable internet connections play in supporting students' academic performance. The lack thereof poses significant obstacles to their learning journey and overall educational outcomes.

5. Implication and Recommendation

The findings of this study carry important implications regarding the role of technology in education and the imperative need of ensuring equitable access to resources. The challenges experienced by students who lack access to laptops and dependable internet connections during the pandemic have resulted in adverse consequences for their academic performance. Financial limitations and marginalized backgrounds have further exacerbated the impact, perpetuating existing educational inequalities.

These findings highlight the urgent need for collaborative efforts from educational institutions, policymakers, and relevant stakeholders to address the digital divide. Equitable access to technology and internet connectivity is crucial for ensuring inclusive and effective online learning experiences. To bridge this divide, initiatives such as fundraising campaigns, partnerships with technology providers, and government support programs should be implemented. Additionally, comprehensive support mechanisms need to be developed to assist students in navigating online learning challenges. This includes providing technical assistance, digital literacy training programs, and accessible learning materials.

This study opens avenues for future research on the challenges faced by education major students during online learning. Further investigations can delve deeper into the specific experiences of marginalized student groups and explore the long-term effects of digital disparities on educational outcomes. Furthermore, research can focus on evaluating the effectiveness of interventions aimed at mitigating the impact of limited technology access. Such research can contribute to the development of evidence-based strategies and policies that foster more equitable and inclusive educational environments.

By addressing these challenges collectively, educational opportunities can be enhanced for all students. It is essential to prioritize bridging the digital divide, promoting equitable access to technology, and implementing support mechanisms that cater to the diverse needs of students. Through collaborative efforts, the educational landscape can be transformed to create a more inclusive and effective online learning environment.

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