

Technology as an Educational Dilemma: Disparities in Access to Quality Internet Connectivity and their Implications on Students' Academic Performance

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ABSTRACT

This study aimed to learn about the implications of disparities with regards to internet access to students' academic performance. To achieve this objective, the researchers conducted exclusive interviews with select Senior High School students of Letran-Bataan to gather information on their experiences with the internet during the online set-up. Their responses showed that the majority of students are actively experiencing internet difficulties. They believe that these hindrances have been negatively affecting how they perform during the classes, meaning that the issue of internet disparity has a direct impact to their academic performance. In general, this study seeks to serve as a basis to present the experiences of the students when it comes to their use of the internet that can assist in implementing new policies and considerations for the online learning approach.

Keywords: *students, internet, technology, academic performance, implications*

INTRODUCTION

Background of the Study

In a time of a global pandemic where online classes are the norm, the demand for quality internet connections has only been higher than ever. The crisis has forced people all over the world to turn to their smartphones, laptops, and other devices for society to still be able to function without direct interactions. Educational institutions have cancelled face-to-face teaching, closed school facilities, and moved towards remote learning that is done online. According to Cullinan et al. (2021), because of this drastic change in educational approach driven by the COVID-19 pandemic, there are concerns being raised about the differences in access of students to quality broadband connectivity. Since the classes are online and heavily rely on internet speeds for both synchronous and asynchronous learning, this has now compromised the quality of education students are receiving, and some are deprived of it entirely (Hernando-Malipot, 2020).

Ever since its development, the internet has served as a technological breakthrough that changed how the world functions. It serves as a tool for communication, social interaction, business, as well as a platform where people worldwide in today's era get involved in creating and exchanging both academic and social life. It has transformed people's lives through education by creating a

new culture of learning and accessing information. Within today's new set-up, teachers use online materials to prepare lessons in which the students can utilize to extend their range of learning. Interactive teaching methods, supported by the internet, allow teachers to give more attention to individual students' needs. However, in the current state of society, the use of the internet in education can be considered a dilemma as it causes disparity and inequality due to the "gatekeeping" nature of online learning (Jee-Ho, 2020).

Students with poor internet connectivity experience difficulties focusing on class as they would encounter low-quality audio, video, and frequent disconnections throughout synchronous sessions. Having high latency in these online sessions puts some students at a disadvantage not only in listening to the lessons but also in recitations. These difficulties often cause students to accumulate stress and frustration as they fail to keep up with the norm just because of connectivity problems that are beyond their control (Dhawan, 2020). More often than not this would cause the affected students to lose focus and a decline in performance, while those who have the privileges in access to quality internet would have little to no inconveniences in their learning.

Internet speeds must be fast and cheap as the "new normal" will see more Filipinos relying on digital platforms for work, school, and everyday needs (Lopez, 2020). In the Philippine

economic update, the multilateral lender said, the government should act fast in allowing more service providers and focus on improvement of the connection. Citing data, only 70% of the population are active broadband subscribers, and 72% have 4G or LTE. As more Filipinos work from home, millions of students rely on online learning, and individuals resort to e-commerce to buy food and supplies despite stay-at-home laws, better internet will be critical. Connectivity can be blamed on three things: an outdated regulatory framework for telecommunication companies, underinvestment in the sector and lack of competitors.

With the sudden rise in demand, the lack of competition in the industry has played a significant role in contributing to the inadequate internet services in the country. Today, there are only two companies that are running the telecommunications scene - Globe Telecom and the Philippine Long Distance Telephone Company (Natividad, 2021). These two powerful and long-established conglomerates own most, if not all, of the broadband services offered locally. Since the competition is limited, there is little incentive for them to improve infrastructure and services. The citizens in the country are blatantly forced to avail of their services, even if they are substandard, just because they do not have any other choice. In order for a company to provide telecommunications as a public service, they would need to follow the requirement of building hundreds and thousands of telephone lines. Investing in this industry would be unbelievably expensive to the point that only the richest companies can afford it. And in the first place, going through this rigorous investment would not be that profitable as you are challenging a duopoly that has long been established for decades.

According to Globe Telecom's Chief Sustainability Officer Yolanda Crisanto, what stifles the growth and improvement of telecom infrastructure are the notorious standards imposed by local government units (Natividad, 2021). In order to build one cell tower in a town or a city, it takes 29 to 35 permits before it goes through. Currently, there are only around 18,000 cell towers built across the country, which is far from the number of 50,000 needed for optimal and stable coverage for the population. Many places in the country are still deprived of these telecom towers, especially the rural areas, as there are conflicts that happen in the signing of permits and/or the location where they will be built. This issue generates a significant gap in quality of life between citizens in urban and rural areas, which is exacerbated by the fact that the epidemic has brought much of the world online.

There are cases of students living in rural areas that are coerced into studying atop a mountain or climbing a tree, in the hopes of securing a strong internet signal to attend classes or submit assignments (Bueno & Pacis, 2020). Families in the middle and lower classes are making sacrifices to accommodate this new normal. Especially since the pandemic has caused numerous people

to lose their jobs, having to account for connectivity while worrying about the food they eat is plainly too much. Most of the money that is supposed to buy food and other needs is allocated to pay for children's mobile data or Wi-Fi just so they can continue their education. Although blended and modular learning is available, some still believe that these are inferior to an online setting as there are no direct interactions between students and teachers.

The Department of Education (DepEd) acknowledges that slow internet connectivity is a problem that they cannot address; this is a job for the telecommunications stakeholders (Hernando-Malipot, 2020). While it is being worked on, what the department did was develop and establish alternatives. In public schools, they have implemented blended and modular learning to maintain equity among students. It was found that in the school year 2020-2021, 85% of public school enrolled chose the modular, less than 10% chose online, and 5% chose the blended approach. However, most private schools only offer classes that are strictly online which is where internet problems are most prevalent.

Using the internet as an educational platform is indeed a major factor in keeping society stable during this crisis. Maintaining consistent learning for the students is crucial to ensure that their knowledge and behavior remains intact. Depriving them of education due to the pandemic is detrimental to their competence and might compromise their future careers. However, this method of teaching can still be considered a dilemma as varied accessibility to quality internet is also a compromise to the quality of education students are receiving. This disparity is the main reason why face-to-face learning is still deemed as most effective by the majority of the population. The United Nations Children's Fund (UNICEF) calls out countries all over the world to reopen schools as soon as possible as children have already suffered enormous setbacks in their learning journey due to the challenges of online learning. But unfortunately for the Philippines, education is not ready to go back to the old normal as the pandemic situation has grown past the government's control.

The Objectives of the Study

This study seeks to identify how common the differences in access to quality internet connections take place in Letran-Bataan. Its purpose is to find out the related concepts about why these disparities exist and how they relate to different socioeconomic backgrounds. This will also determine society's expectations when it comes to online education.

Moreover, the researchers intend to find out how the varying accessibility to the internet corresponds to students' academic performance. There will be an evaluation of how different the students perform in this online setting in comparison to face-to-face learning through analyzing their previous and current

backgrounds. The data collected here will serve as the different factors to be considered in constructing the study.

Lastly, the researchers opt to determine in what way online learning can be utilized without promoting inequality between students. This will indicate how effective is this teaching method when compared to its alternatives, and how educational institutions can amend it to meet the current expectations. An analysis will be done to validate the potency and significance of the said method.

Statement of the Problem

Due to the pandemic caused by the COVID-19 virus, internet connectivity remains a problem all around the world. The establishment of an online method of learning has resulted in a significant increase in internet demand. Students are currently stressing the importance of addressing their difficulties concerning internet connections to ensure that they can continue acquiring knowledge and quality education amid this crisis. Businesses and government agencies celebrate the availability of digital options as an alternative to the traditional or physical ways of learning. Yet what these do not capture is the substantial disparity between those who have access to the internet and those who have slow and no access to it in the unserved and underserved parts of the community. A vast number of students and learners get excluded and left behind because of this newly introduced method of education. Specifically, this study aims to answer the following questions:

1. How many Senior High School students of Letran-Bataan are currently experiencing internet difficulties with their online learning?
2. In what way can these internet access disparities affect their academic performance?
3. What possible amendments can be made to make online learning equitable and more effective?

Contribution of the Paper

The significance of this paper lies within its purpose of addressing the issues that society, particularly students, face when it comes to their access to internet connections. By evaluating how common this disparity happens locally, the data gathered would be of great benefit to students, teachers, and administrators.

For students, this study could help them understand more about how unequal internet access affects their academics. Perhaps that knowledge can be used for them to advocate a method of learning that is equal and accessible to all without the implications for inequality.

For teachers, this can assist them in better understanding the reality that, in this online setting, the circumstances of students are different which means that they should be sensitive and considerate in the ways they teach. Assessments that rely on fast internet speeds such as online quiz bees would become less frequent and focus more on individual learning tasks.

For administrators, this study allows them to determine what changes could be made to enhance students' online learning experience. The findings would raise awareness about how detrimental these disparities in internet access are to students, prompting an immediate response from the higher-ups.

THEORETICAL FRAMEWORK

The Human Capital Theory by Gary Becker (1964) is based on the notion that formal education is both beneficial and necessary for improving a population's productivity potential. On the other hand, the Theory of Social Constructivism by Lev Vygotsky (1978) suggests that effective teaching and learning rely significantly on interpersonal interaction and discussion, with the primary focus on the students' comprehension of the discussion.

Contextualization

Human Capital Theory

There is a relationship between socioeconomic status and accessibility; the lower a family's social status, the less likely they are to have access to education. Such mechanisms, according to human capital theory, influence students' academic achievement. The success of children from low-income homes is often limited by their family's socioeconomic situation; they are constrained by their families' limited financial means. Education is a significant human capital investment, according to the human capital theory, and disparities in children's educational attainment are mostly influenced by differences in family educational investment (Li & Qiu, 2018).

For this study, this theory helps in assessing how much does socioeconomic status and lack of resources affect the academic performance of students. Since education is deemed as necessary for productivity, the researchers were able to evaluate how does this necessity equate to the disparities caused by this online set-up.

Social Constructivism

Because of the COVID-19 pandemic, teaching and learning methods had to rapidly shift. Whether in online or modular modalities, the Department of Education (DepEd) primarily mandates a constructivist approach in teaching (Bada & Olusegun, 2015). Numerous educational innovations such as problem-based

learning, project-based learning, inquiry-based approach, and design thinking are just a few examples that were influenced by principles of constructivism. It is proven that these new educational approaches have a significant and positive impact on the performance of students as they give room to more social and interpersonal interactions. However, in this situation where schools are forced to accommodate learning online, issues arise whether the new educational techniques start to become disadvantageous to some (Funa & Talaue, 2021).

As social constructivism promotes interactions in teaching, there is now an inequality among the students as their access to proper internet connectivity are not ensured. A number of students are not able to participate in online discussions due to weak signals and connections; thus, hindering their means to study. This remains a dilemma of how constructivist learning does not account for students' circumstances, limiting the country's potential to achieve equal and universal education with or without the pandemic. Analyzing the paradigm of social constructivism in learning is beneficial for this study because it provides a probable cause for why the online methods of education are not as effective as society would like them to be. This acts as the foundation on which the rationale of questions will be based on.

REVIEW OF RELATED LITERATURE

Though the intention is good, many countries admit that implementing distance learning will be difficult, with access to technology being the most obvious issue. The issue is rooted in the broader social issue of digital inequality since more often than not, only the wealthy can continue their education without being jeopardized (Aldama, 2020). In the United States, for example, there is a term coined "homework gap" to describe the barriers students face in their education when they do not have access to a high-speed connection at home (Kelly, 2020). This has been a constant problem for their country for many years, even before COVID-19, and will become more prevalent during the pandemic. Even in the United Kingdom, another first-world country, approximately 1.9 million households lack internet access and rely on pay-as-you-go services. This was true even before COVID-19 struck their country. If these developed countries face a digital gap, the least developed countries will be more vulnerable to it. They will lag far behind in terms of digital readiness, and the education gap will widen further (UNCTAD, 2020).

The availability of resources, as in the Philippines, has a significant impact on the students' learning paths, and potentially even their future. Some students from low-income households or remote areas do not have internet access or gadgets; and, according to Albay Rep. Joey Salceda, only 17% of Filipino students have home internet access and only 3.74% have mobile phones (Daguno-Bersamina & Relativo, 2020). Because they live in a third-world

country, even middle-class citizens face scarcity or may require additional assistance, depending on how close they are to the poverty line (Albert, Santos, & Vizmanos, n.d.). Historically, those with financial capital have always benefited from new technologies, while those without have always been left behind. Unfortunately, accessibility is strongly related to socioeconomic status (SES), and it is here that the digital divide begins. Children from lower-income families develop academic skills more slowly than those from higher-income families (Morgan, Farkas, Hillemeier, & Maczuga, 2009). For example, a study of 399 students at California State University San Marcos concluded that those from low-income families are more likely to have difficulty accessing materials online (Añoover, Ng, & Pelliccia, n.d.). Another study conducted by the Institute for Fiscal Studies (IFS) and the Institute of Education (IoE) in England found that children from poorer families spend less time learning at home during the lockdown due to a lack of study spaces and online resources (Andrew, Cattan, Costa Dias et al., 2020).

For Filipinos, poor internet connection is bothersome and considered a pressing problem in the country. According to the Philippine Institute for Development Studies (2019), this concern may have stemmed from the dependence of the country on the services sector. Terrible internet connection is a major concern because the Philippines' services sector owes much of its infamously stellar and expensive resources to improve Information and Communications Technology (ICT). In terms of purchasing power parity, telephone services in the Philippines cost \$36.15 per month, which is the most in ASEAN. Mobile cellular services and fixed broadband services are priced at \$22.24 and \$51.59 per month, respectively, according to data from the International Telecommunication Union. Despite the high costs, the Philippines' average connection speed was only 2.8 megabits per second (Mbps). This is significantly lower than the global average connection speed of 5.1 Mbps, and the Asia-Pacific region's second slowest. This is a prime example of how pricing does not always translate to quality service, as is the unfortunate case with telecommunications services in the Philippines.

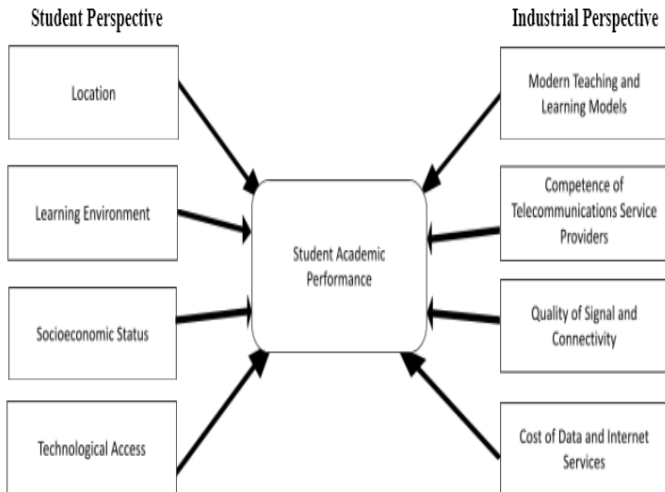
In addition, geography also becomes a problem since the Philippines is an archipelago, the construction of cell towers for connectivity within the islands is more challenging than installation in a region within a wider area (Salac & Kim, 2016). Most of the time, this problem is caused by geographic location. It is hard to find a stable internet connection especially in mountainous areas and in most provinces in the Philippines. At other times, it was caused by the weather conditions. Although there are many existing internet bundles in the country, they are fluctuating and are not equal in terms of speed and stability (Amadora, 2020). This problem may imply to students that they will not be able to participate in their class activities. Students with no high-speed internet access at home are also less likely to attend a college or university. On the other hand, students with internet access have

substantially higher digital skills, which makes them participate more in class activities, while those with a poor learning environment cannot even comfortably participate. This difficulty has been repetitively revealed in students' responses. Establishing a positive and conducive learning space has long been a problem in distance education especially in most poor households. If this recurs, study productivity and the utmost concentration of students are at stake (Chang & Fang, 2020).

CONCEPTUAL FRAMEWORK

Figure 1. Framework of the Study

This framework shows the variables that affect student performance, separated between the student and industrial perspectives. For the students themselves, location, learning environments, socioeconomic status, and technological access all hinder their academic performance. From the industrial perspective, the modern teaching and learning models, the competence of telecommunications company service providers, quality of signal and connectivity, and cost of data and internet services all directly and indirectly affect the students. These variables are used as the foundation to the questions this study is trying to answer and the amendments that could be made thereafter.



Hypotheses

- H0: No more than 60% of the student participants experience difficulties in access to the internet.
- H1: More than 60% of the student participants experience difficulties in access to the internet.
- H0: Poor internet connectivity does not affect the students' academic performance.
- H1: Poor internet connectivity affects the students' academic performance.

METHODOLOGY

Design

The researchers used a Correlational Research Design in conducting their study entitled: Technology as an Educational Dilemma: Disparities in Access to Quality Internet Connectivity and their Implications on Students' Academic Performance. According to Bhandari (2021), correlational research examines the relationships between two or more variables using statistics without any intervention or manipulation. This corresponds to the main objective of this study which is to find the patterns and trends on how prevalent internet issues for students of Letran-Bataan are and relate how these difficulties implicate their academic performance. Furthermore, standardized surveys were utilized as the primary instrument for data collection, where the researchers formulated a set of questions following the 5-point Likert scale. Using survey questionnaires was both beneficial and convenient for this study as the necessary data were easily collected in a single time frame.

In a time of pandemic where activities were often remote and restricted, this method of data collection that can be done online was deemed most appropriate and effective for this study to ensure that it was handled safely and effectively. The survey questionnaires mostly included closed-ended questions to ensure that their responses were accurate and sufficient enough to support the study's quantitative nature. The questions focused on the experiences of the students regarding internet connectivity and their insights on how it affected their performance. Afterwards, the results of the survey were analyzed to identify the patterns within the respondents' ideas, which were then used to determine whether the hypotheses made by the researchers were true or not.

Subject

This study focused on the Senior High School students of Colegio de San Juan de Letran - Bataan. They were particularly chosen as they have openly expressed their lived experiences regarding the difficulties with their internet connections during this pandemic. Especially since the current educational setup is done online, the different qualities of access these students have to the internet were said to negatively affect their academic performance. Thus, by thoroughly identifying and analyzing their struggles through this study, the researchers were given the opportunity to suggest amendments in the educational and industrial systems.

The respondents were selected using simple random sampling, which ensured that each individual of the specific population has an equal chance to participate in the study. This was chosen to ensure that the results would be achieved with minimal bias and error from external factors. Furthermore, a total of 50 respondents would be the exact sample size, which was the closest number that could be settled with the Raosoft estimate considering time restrictions and unresponsiveness of some respondents. A set of criteria was established on how the particular respondents were picked, and they were as follows:

1. Bonafide Senior High School students of Colegio de San Juan de Letran - Bataan;
2. Able to share, explain, and articulate their experiences; and
3. Have experienced difficulties with internet connectivity.

Study Site

This study was conducted at Colegio de San Juan de Letran - Bataan where many students of the said institution have started to address their problems with internet connectivity that affected their educational fulfillment. Since this school is located in a province, this posed more vulnerability to the topic being addressed as many places where students live have yet to be urbanized. The speeds of internet bandwidth in rural areas were far less competitive when compared to those in urban areas.

Colegio de San Juan de Letran - Bataan is a long-standing private Catholic institution that is an extension of the main campus in Intramuros. It is specifically located in a lofty and mountainous area in Abucay, Bataan surrounded by natural sceneries and environment. Currently, the method of education in this school has shifted to a more flexible program driven by the pandemic where students were able to study in the comfort of their homes. Although timely and effective, this new program has also raised concerns for students and their parents on the quality of education they were receiving. Especially in a country and province where proper internet connectivity is both expensive and sparse, the disparities in this aspect further supported how essential the objectives of this study were.

Data Measures

The data collected through the survey questionnaires were purposefully used to identify the differences in the respondents' accessibility to proper internet and how their academic performance was affected. In terms of its structure, the survey contained questions that directly relate to the study's objectives. They were straightforward and easy to understand, allowing the respondents to answer them accurately and effectively. As stated before, the majority of the questions were close-ended so their answers could strongly correlate with the study and could be easily generalized to represent the entire population. In addition, the questionnaire was fully formulated in the English language so that most participants are comfortable with answering the questions. The process was meticulously regulated to ensure that the correctness and integrity of the responses were maintained throughout the study.

Data Collection Procedures & Ethical Considerations

The researchers started the data collection process through the formulation of the survey questionnaires that were used to assess the participants' lived experiences about the topic. A thorough literature review was first conducted to find previous surveys that were then used as the standard measures for comparison. Before handing out the questionnaire to the selected participants, it went through the process of validation where its contents were checked by the research advisers to assess its validity and feedbacks for improvement. Once the revisions were made, the survey questionnaire was then submitted to the Research and Publication Department of Letran - Bataan for official approval and validation.

To exercise their rights to confidentiality, the respondents initially signed and completed an informed consent form, indicating their full agreement to participate in the study. They were briefed on the assurance that their identities and responses would be solely used for research purposes and held confidentially. Access to the information gathered was only given exclusively to the researchers

and the instructors themselves. These procedures were followed in accordance with the Republic Act 10173, known as the Data Privacy Act of 2012 that protects all forms of information given by people. Moreover, respondents who were below the age of 18 were required to fill out a parental consent form before beginning to answer the actual survey. Upon obtaining the responses from the selected participants, the researchers then went through the process of data analysis and interpretation. Statistical analysis was conducted where the data was organized in a particular manner and then uncovered related patterns and trends relevant to the issue being addressed. This entire data collection process was achieved in a span of a month before proceeding with the finalization of the paper.

Data Analysis

The data was first validated by the researchers through repeated screening and with specific standards to guarantee that the answers were expressed without bias. Afterwards, the researchers proceeded to the cross-tabulation of the collected data, wherein similar responses were categorized in a tabular form in order to infer the relationships present in the data. They were organized according to their particular measurement scales and then applied with correlational statistics for summarization. To best fulfill the objective of this study, regression tests were conducted with the aid of the SPSS statistical software to identify the cause-and-effect relationships between the independent and dependent variables. This type of analysis assisted the researchers on how the variable of quality internet access actually affects the variable of academic performance, whether positively or negatively. Addressing this issue in a statistical and quantitative manner ensured that bias was non-existent, and the results obtained were as accurate as possible.

RESULTS

The data gathered from the respondents was given to and analyzed by a professional statistician to produce a more authentic and deeper analysis of the responses that can be further evaluated to assist the researchers in conducting the study. Each piece of data obtained contribute greatly in answering the objectives this study aims to achieve, particularly by determining: (1) the demographics of the respondents in terms of age, sex, grade level, academic track; (2) their mode of internet access, network for mobile data, type of mobile data connection, internet service provider, broadband internet connection type, assumed speed or bandwidth subscription, and monthly bill; (3) the student experiences with regards to internet connectivity; and (4) the implications of internet access disparities to students' academic performance.

Age	Frequency	Percent
17 years old	22	44
16 years old	13	26
18 years old	13	26
15 years old	2	4
Total	50	100

Table 1. Demographic profile according to age

The table above reveals that twenty-two (22) respondents were at the age of 17 years old, taking up 44% or the majority of the sample size. This is then followed by thirteen (13) respondents that were 16 years old, and another thirteen (13) that were 18 years old. Both of these demographics took up 26% each of the sample size. Lastly, two (2) respondents were determined to be 15 years old, which is the youngest among the sample, which took up 4% of the overall number.

Sex	Frequency	Percent
Female	25	50
Male	25	50
Total	50	100

Table 2. Demographic profile according to sex

The table above indicates that twenty-five (25) of the respondents were male, and another twenty-five (25) were female which each took up 50% of the total number of respondents. In totality, fifty (50) respondents were determined as the total sample size of this research study.

Level	Frequency	Percent
Grade 11	26	52
Grade 12	24	48
Total	50	100

Table 3. Demographic profile according to grade level

The table above depicts that twenty-six (26) of the respondents belonged to the Grade 11 of Letran-Bataan, which took up 52% of the total sample. This was closely followed by a number of twenty-four (24) respondents in Grade 12, that were 48% of the sample size.

Track	Frequency	Percent
STEM	32	64
ABM	9	18
HUMSS	9	18
Total	50	100

Table 4. Demographic profile according to academic track

The table above shows that the majority of the respondents, totaling thirty-two (32) and took up 64% were from the STEM strand. Following this, nine (9) are from the ABM and another nine (9) are from HUMSS that were each 18% of the overall number of respondents.

Mode of Access	Frequency	Percent
Broadband Internet Connection at Home	47	94
Mobile Data - Paid Data	3	6
Total	50	100

Table 5. Respondents' primary mode of internet access

The table above indicates that the significantly greater number of respondents have broadband internet connection as their primary mode of internet access, totaling forty-seven (47) that is 94% of the sample size. Consequently, only three (3) or 6% of the respondents primarily use mobile data to gain access to the internet.

Network	Frequency	Percent
Globe or TM	26	52
Smart or Talk 'N Text(TNT)	22	44
Gomo	1	2
None	1	2
Total	50	100

Table 6. Respondents' network for mobile data

The table above depicts that twenty-six (26) respondents use Globe or TM as their mobile data network, which is more than half of the total number at 52%. This is closely followed by the users of Smart or Talk 'N Text (TNT) that is at twenty-two (22) or 44% of the sample. Thereafter, there is one (1) respondent who uses Gomo, and another one (1) that does not use any mobile data network, both at 2% each.

Connection	Frequency	Percent
4G / 5G / LTE	48	96
3G or Less	2	4
Total	50	100

Table 7.

Respondents' type of mobile data connection

The table above demonstrates that the large majority of the respondents' mobile data connection are 4G/5G/LTE, with a number of forty-eight (48) which is 96% of the sample size. Only two (2) respondents have stated that their mobile data connection is at 3G or less, which equates to only 4%.

ISP	Frequency	Percent
PLDT	19	38
Converge	16	32
Globe Broadband	12	24
None	2	4
Etisalat	1	2
Total	50	100

Table 8. Respondents' internet service provider

The table above shows that 38% of the respondents use PLDT as their home internet service providers, equaling to nineteen (19) respondents in total. Subsequently, sixteen (16) of them uses Converge at 32%, while twelve (12) of them uses Globe Broadband at 24%. Lastly, two (2) respondents admitted to having no internet service providers, which is at 4%, and the remaining one (1) uses Etisalat, a foreign telco company that equates 2%.

Connection	Frequency	Percent
Fiber	40	80
DSL (Digital Subscriber Line)	6	12
Cable	4	8
Total	50	100

Table 9. Respondents' type of broadband internet connection

The table above constitutes that a total of forty (40) respondents have fiber as the type of their broadband internet connection that totals to 80% of the sample size. Following this, six (6) of them have DSL (Digital Subscriber Line) at 12%, and the remaining four (4) have cable which is at 8%.

Bandwidth	Frequency	Percent
Fast (10 to 34 mbps)	12	24
Moderate (6 to 9 mbps)	21	42
Slow (2 to 5 mbps)	8	16
Very Fast (35 mbps and up)	5	10
Very Slow (Less than 1 mbps)	4	8
Total	50	100

Table 10. Respondents' ISPs' assumed speed or bandwidth subscription

The table above reveals that the majority of the respondents that totals to twenty-one (21) and 42% of the sample assume that their ISP's speed or bandwidth subscription is at a moderate level at 6 to 9 mbps. This is then followed by twelve (12) respondents who said that theirs are fast at 10 to 34 mbps that makes up 24%. Consequently, only eight (8) or 16% of the respondents believe that their internet speed is slow at 2 to 5 mbps, while five (5) or 10% of them stated that theirs are very fast at 35 mbps and up. Lastly, the remaining four (4) thinks that their internet speed is very slow at less than 1 mbps, that equates to 8%

of the the total sample.

Price range	Frequency	Percent
₱1000 - ₱2000	38	76
₱500 - ₱1000	10	20
Less than ₱500	1	2
₱2000 - ₱5000	1	2
Total	50	100

Table 10. Respondents' ISP monthly bill

The table above demonstrates that exactly thirty-eight (38) or 76% of the respondents pay ₱1000 - ₱2000 in monthly bill for their internet service provider. Likewise, ten (10) or 20% of them pay ₱500 - ₱1000 for theirs. The remaining one (1) respondent pay ₱2000 - ₱5000, and another one (1) pays less ₱500, which both equates 2% of the sample size.

Statement	Median	QR	Interpretation
1. I am comfortable with the speed and reliability of my internet connection for online learning.	2	,4	Disagree
2. I am satisfied with the pricing and performance of my telecommunications service provider.	2	,3	Disagree
3. I have experienced internet instability over the past month.	4	,5	Agree
4. I have missed online sessions because of unstable internet connections.	4	,5	Agree
5. I have missed project or assignment deadlines because of unstable internet connections.	4	,5	Agree
6. I am not updated with the information and announcements given in our online group because of unstable internet connections.	4	,5	Agree
7. I cannot perform well in class during discussions compared to those with better internet access.	4	,5	Agree
8. I cannot easily gather and access online material that is relevant for my studies.	4	,7	Agree

Table 12. Implications of internet disparities on student academic performance

The table above constitutes the data gathered from the respondents regarding the implications of internet disparities on their academic performance. The first (1st) statement, which states that "I am satisfied with the current online model as the primary form of education" received an interpretation of disagree at a median of 2.5 and IQR of 1.5,3.5. Following this, the second (2nd), third (3rd), and fifth (5th) statements have gathered similar results and interpretation which was a neutral response, and the same median of 3 and IQR of 1.5. The fourth (4th) statement, which says that "4. I got low scores in live activities and online quizzes" had a different interpretation of agree with a 3.5 median and 1.5,5.5 IQR. The last four (4) statements, which are the sixth (6th) to ninth (9th), all demonstrated similar results in their interpretation which is agree, with all of them having a median of 4; sixth (6th) and seventh(7th) having an IQR of 3,5; and eighth (8th) and ninth (9th) having an IQR of 2,6 respectively.

DISCUSSION

The primary objectives of this research study are to (1) identify how common the differences in access to quality internet connections take place in Letran-Bataan, (2) find out how the varying accessibility to the internet corresponds to student academic performance, and (3) determine in what way can online learning be utilized without promoting inequality between students. Through the responses obtained from the respondents during the data collection process, the researchers were able to find and determine the concepts and variables that would support the aforementioned objectives.

Based on the gathered data, it can be determined that the majority of the respondents, which are the Senior High School Students of Letran-Bataan, have experienced some internet difficulties during the implementation of the online classes. This is supported by the analysis of the eleventh (11th) table, in which their experiences were assessed within the given spectrum. From statement three (3) to eight (8) of the eleventh (11th) table, which are about the negative implications of the internet during online learning, the responses resulted in an agree representation, meaning that the majority of them do experience difficulties with regards to the issue. Furthermore, this is also supported by how their responses indicated a disagree interpretation when it comes to statement one (1) and (2) of the said table, which are about their comfortability and satisfaction regarding their internet service providers. This implies that there are actually disparities that occur with the internet connections that these students use, and they are pretty common so much to say especially in this online set-up.

Likewise, these internet disparities are also shown to deal a negative impact on the respondents' academic performance, as supported by the analyzed data from the twelfth (12th) table, in which the direct implications to their academics are assessed. Some of the statements in the table such as statement three (3) and five (5) which are about performing poorly in recitation and missed deadlines, have received a neutral response from the respondents. However, the statements six (6) to nine (9) that covered related issues have contrarily been analyzed as an agree interpretation. These results show that the varying accessibility these students have may or may not affect their academic performance, but in generalizing the data gathered from the respondents, it can be interpreted that internet disparities can play a significant factor in their academics to say the least.

CONCLUSION

The general purpose of this study was to learn about the internet disparities that are present in today's time, and evaluate its implications on the students' academic performance, particularly those in Letran-Bataan. This is because the world is currently shifting to more remote and digital learning set-ups that are at risk of furthering the inequalities that exist between the students. Upon reviewing the findings, it is discovered that the majority of students who are currently studying in Letran-Bataan are actively experiencing difficulties with their day-to-day learning. There are several factors that come into play such as location, quality of internet service, socioeconomic status, that influences the prevalence of these differences in access. The responses had shown that these internet difficulties have a significant effect on the way they live as a student as they become more vulnerable to liabilities.

With that said, it is also determined that there is a direct correlation or relationship between internet access to the students' academic performance. Those who are comfortable with their internet service providers and the online set-up have expressed a neutral response with regards to the negative implications of the internet to their academics. On the contrary, a large number of respondents have also openly indicated that they believe their performance have been on a decline primarily because of the poor quality of their internet connections. It can be stated that their outlooks regarding internet access is directly influenced by their own experiences and demographical data. As such, it is determined that the data gathered for this research study and the information it creates could be used in further assessing and evaluating the efficacy of online learning in which the authorities can find areas to improve to ensure that these internet disparities that are quite prevalent nowadays do not become a hindrance to the students' academic success.

RECOMMENDATION

The researchers recommend the school, students, and future researchers to view this research paper as it provides useful information regarding the implications of differences in internet access to student academic performance in order to improve the quality of education not only in the locale but also for the entire country.

For the school, they may use the information gathered from this study to implement new policies and make curriculum reforms that target the inequalities between students with regards to their internet access. They can provide learning opportunities that are not only limited to the online aspect of the students but focus more on the holistic side to ensure that no student is left behind. This can prompt a timely response to enforce changes that can enhance the students' online learning experience.

For the students, this paper seeks to provide them additional information and make them understand more about how prevalent the issue is of how unequal internet access can affect their academics. This can encourage them to be more considerate not only about themselves, but also of their peers, so that they can work together in learning without furthering the implications of inequality.

For future researchers, this paper can serve as a strong foundation to further develop their studies and expand the gathered data to cover larger, more generalized demographics. It is

recommended to broaden the scope of respondents and look for other constituents of the society that are currently being affected by internet disparities, which was not achieved due to time constraints and other complications.

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