

Students' Academic Performance Based on Internet Availability and Devices

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I. INTRODUCTION

The COVID-19 pandemic has altered our educational landscape, forcing schools to abruptly shift to online classes in place of a face-to-face classroom set up. Although we are already in the technological era, this pandemic provided a devastating effect on all [1]. Everyone suffered, from school closures to devastated industries and millions of jobs lost – the social and economic costs of the pandemic are many and varied.

On the other side of the coin, since everyone is affected, the educational system was temporarily halted due to Lockdown. This made face-to-face learning impossible, hampering students' educational pursuits. The unexpected closure of educational institutions prompted authorities to suggest emergency remote teaching to ensure that students are not left idle during this pandemic [2]. As a result, for the time being, traditional methods (traditional face-to-face teaching) have been replaced by online (e-learning). Distance education technology allows students to benefit from the convenience, flexibility, affordability, and accessibility to study anywhere, at any time, without the need for physical presence at a campus location [3]. Based on these definitions, we can see that teachers and students are separated by distance or space, but not necessarily by time. However, despite the benefits of online distance learning, students and teachers encounter challenges. Studies found that millions of students around the world are affected, and some have already given up their student status due to the difficulties this pandemic has brought. [4]. One of the most difficult challenges in addressing the problem of learning is the availability of technological gadgets and internet connectivity. In this regard, the researchers aim to conduct a research study on how these factors or challenges affects the students' academic performance.

Objective of the Study

This study is carried out based on the objective:

1. To analyze and assess the students' performance based on internet availability and devices in online distance learning.

Statement of the Problem

Online learning is a type of live synchronous platform in which both parties must have a good and stable internet connection as well as the necessary technological equipment. Although we live in an era where technological instruments and apparatus are widely available, there are still some people who do not have one. Internet connectivity is a common concern among students, as the Philippines remains one of Asia's slowest internet countries [5]. In terms of technological gadget availability, it is essential to have one because it is the primary tool required to attend online classes. The importance of digital gadgets in this type of learning is huge. However, not everyone has the privilege of owning one. And although nearly all students have access to a reliable device (typically a laptop) for school, not all devices are capable of handling the demands of remote learning. The most common device-related issue students reported was missing a remote class session or a deadline. Reasons included not having access to their primary computing device, their primary device not working, or their device not being equipped to perform a task required for a class [6]. These difficulties may contribute to students falling behind academically, resulting in low learner motivation.

Research Question

This study is conducted in reference to the research question:

Does the internet availability and devices affect the students' academic performance in an online distance learning?

Significance of the Study

This study aims to provide an overview of the students' academic performance based on internet availability and devices use during their online distance learning. This study hopes to give insights to teachers, parents, educators, and other stakeholders in the use of online distance learning. This would help them make necessary adjustments and measures to improve the implementation of the learning modality.

II. REVIEW OF RELATED LITERATURE

Distance learning, also known as distance education, e-learning, and online learning, is a type of education in which teachers and students are physically separated during instruction and various technologies are used to facilitate student-teacher and student-student communication [7]. It is one method of continuing education during times of uncertainty, such as the covid-19 pandemic. Though it is a good platform, certain issues arise that affect both students and teachers.

Research conducted that seven out of ten students have home internet access. This is a good sign for an online option. This finding may contradict the findings of Chung et al., who claim that one of the major challenges of online learning for students is a lack of internet access. According to the findings, nearly six out of ten students use mobile data for internet access other than Wi-Fi access (45%), free mobile data (44%), or pocket Wi-Fi (13%) [8]. With this result in mind, problems with internet signals may become a barrier to students' learning. Wireless connectivity is indeed one of the common problems during online classes, as the country has seen on television or read in the news about teachers and students climbing mountainsides or hilltops to catch wireless signals to use the internet [9]. Adonis (2020) also stated that teachers suspected that the decrease in class size was due to a poor internet connection as millions of students and parents struggled to become acquainted with the new learning platforms prompted by the new coronavirus pandemic. The Philippines' slow internet connection posed a significant challenge to students, particularly those from remote areas [10].

Another study showed that technical difficulties and a poor internet connection are the biggest problems students encountered during online classes. Many students are not provided with the high bandwidth or strong internet connection that online courses require, and as a result, they fall behind their virtual classmates: their poor monitors make it difficult to follow the Course

Management System, and their learning experience suffers. Furthermore, the majority of them live off campus, making it difficult to keep up with the technical requirements of the chosen course. Some of them do not even own computers and must seek technical assistance from Learning Resource Centers [11].

On the other hand, having technological devices is an additional opportunity to maximize and exploit students learning potential. A study showed that the greater number of device types owned by a student, the greater the level of learning readiness [12]. A study by Essel et al. agrees with the results. The group stipulated that students own a variety of mobile devices, particularly smartphones [13]. In addition, Kapasia et al. stated in their study that the majority of their student respondents used android mobile to attend their online classes [14]. It shows that mobile phones are popular among students and have become one of the best tools for educational institutions to use. However, in the local context, some students still do not have access to these devices. This becomes a burden or a challenge for them, especially when it comes to learning [15]. Although there are few who possess tablets, laptops, and personal computers, they can use them to supplement their learning rather than relying solely on smartphones.

The student's academic performance in terms of Internet access and device availability do have differences from before. It has a significant impact on student performance; if you lack these resources, it will affect your learning and retention of lessons. You may not be updated due to inaccessibility. And while those with the means may be kept up to date on everything, some distractions may cause them to lose control over how they spend their time. They may have lost track due to social media, which can divert their attention and time.

III. METHODOLOGY

Research Design

This study will use a descriptive-comparative research design with the online survey as the primary instrument for data gathering. It describes the performance based on internet availability and devices among students. Likewise, this study employed a comparison of two variables, the grades of students when classes were held in person and the grades of students when classes were held online

Research Environment

The locale of the study will be Silliman University, which is located in Dumaguete City, Negros Oriental because the target respondents will be students from that institution. However, for safety reasons, respondents will not be expected to gather in person; instead, respondents will be contacted and will accomplish the survey questionnaires online.

Respondents

The respondents of the study will be students from the College of Computer Studies of Silliman University. These are the students who attend and receive grades in both face-to-face and online classes. Respondents will be asked to share their experiences in an online learning situation as they have just transitioned from conventional to online learning. The participants were asked to voluntarily participate in the study and informed consent was sought before the study began.

Instrument

The researchers will use Google Forms to create a survey questionnaire for data collection as the study's instrument. Google forms can reach a large population of participants in different locations while saving costs. Considering the different locations of the students employed in the present

study, the google form was considered appropriate. The survey questionnaire will have 4 parts. The first part will include the basic demographic profiles of the students. The second part assesses the internet connectivity and access of the students, and the availability of the device of students for learning. The third part will assess about thoughts and experiences of the students about their internet connection and devices they have, and how it affects their performance. The last section will request the students' grades they acquired from both face-to-face and online classes.

Data Collection and Analysis

Following the preparation of questionnaires, Google Forms will be distributed to the target groups, which will be students from the College of Computer Studies. This will be done through email, Messenger, Telegram, and other messaging and social media platforms. Once the gathering of data is done, the researchers will tally and tabulate the survey results. The researchers will then compute and analyze the data using Microsoft Excel Sheets. The collected data will be statistically analyzed using frequency and percentage in this study.

APPENDIX

SURVEY QUESTIONNAIRES

The purpose of this survey is to conduct research on how a student's academic performance will be based on internet availability and devices. This survey will also request students' grades from both face-to-face and online classes as it will be used as the main basis for this study. Your answers will be treated with complete confidentiality. If you have any questions about this questionnaire, please contact the researcher.

The study will take about 10-15 minutes. Please answer all the questions honestly and thoroughly, your participation in this research is highly appreciated! Thank you so much.

I. Students Information

1. **Name of Student:** _____

2. **Contact Number:** _____

3. **Current Address:** _____

4. **Email Address:** _____

5. **Gender:** _____

6. **Age:** _____

7. **Year Level:** _____

8. **Course**

- ☐ Bachelor of Science in Computer Science
- ☐ Bachelor of Science in Information Technology
- ☐ Bachelor of Library and Information Science

II. Internet Connectivity and Devices

9. Do you have internet access at home?

- ☐ Yes
- ☐ No (Skip to Number 11)

10. What kind of internet connection do you have at home?

(Check all that apply)

- ☐ Dial-up telephone line
- ☐ DSL-enabled phone line
- ☐ Cable TV modem
- ☐ Wireless Connection (land-based or satellite)
- ☐ Fiber optic (for example, PLDT, Converge)
- ☐ T-1
- ☐ Don't know
- ☐ Other (please specify) _____

(Skip to Number 12)

11. What is the reason why you don't have internet access at home?

(Skip to Number 13)

12. What is your internet speed?

13. Do you have any type of devices at home?

- ☐ Yes
- ☐ No (Skip to Number 15)

14. What kind of gadgets/devices do you have at home?

(Skip to Number 16)

15. What is the main reason you don't have a computer/laptop at home?

- ☐ Cost/Too Expensive
- ☐ Sufficient access elsewhere
- ☐ Do not know how to use it
- ☐ Other (please specify) _____

III. Experience Based on Internet Connectivity and Devices

16. How is your internet connection?

17. Do your devices function very well or give you the performance you need?

18. How do internet connectivity and devices affect your performance in classes?

IV. Grades Acquired

19. Please provide a screenshot of the grades you acquired when classes are held face-to-face. (All subjects in 1 semester)

☐ (Insert File)

20. Please provide a screenshot of the grades you acquired when classes are online. (All subjects in 1 semester)

☐ (Insert File)

REFERENCES

- [1] C. C. Belgica, J. A. Calugan, J. U. Dumo, and L. A. Timber, "Online Distance Learning: Thematic Study on the Challenges Faced By Educare College Inc. Primary Pupils," Dec-2020. [Online]. Available: https://www.researchgate.net/publication/352441865_httpswwwpublicationcomwp-contentuploads20210639-158pdf. [Accessed: 24-Oct-2022].
- [2] J. M. R. Asio, E. D. Gadia, E. C. Abarintos, D. P. Paguio, and M. Balce, "Internet Connection and Learning Device Availability of College Students: Basis for Institutionalizing Flexible Learning in the New Normal," *Studies in Humanities and Education*, 30-Jun-2021. [Online]. Available: <https://files.eric.ed.gov/fulltext/ED613639.pdf>. [Accessed: 24-Oct-2022].
- [3] P. Gautam, "Advantages and Disadvantages of Online Learning," *eLearning Industry*, 12-May-2021. [Online]. Available: <https://elearningindustry.com/advantages-and-disadvantages-online-learning>. [Accessed: 24-Oct-2022].
- [4] J. Obana, "What will schools look like under the 'new normal?'," *Grant Thornton Philippines*, May-2020. [Online]. Available: <https://www.grantthornton.com.ph/insights/articles-and-updates1/from-where-we-sit/what-will-schools-look-like-under-the-new-normal/>. [Accessed: 24-Oct-2022].
- [5] "Internet speed in Southeast Asia," Visually, Apr-2022. [Online]. Available: <https://visual.ly/community/Infographics/computers/internet-speed-southeast-asia>. [Accessed: 29-Oct-2022].
- [6] D. C. Gierdowski, "Student Experiences with Connectivity and Technology in the Pandemic," *Educause*, 05-Apr-2021. [Online]. Available: <https://www.educause.edu/ecar/research-publications/2021/student-experiences-with-connectivity-and-technology-in-the-pandemic/introduction-and-key-findings>. [Accessed: 27-Oct-2022]
- [7] M. Simonson, "Distance learning," *Encyclopædia Britannica*. [Online]. Available: <https://www.britannica.com/topic/distance-learning>. [Accessed: 27-Oct-2022].
- [8] Chung, E., Noor, N. M., & Mathew, V. N. (2020, April 28). *Are You Ready? An Assessment of Online Learning Readiness among University Students*. ResearchGate. Retrieved October 29, 2022, from https://www.researchgate.net/publication/341057343_Are_You_Ready_An_Assessment_of_Online_Learning_Readiness_among_University_Students

- [9] L. Averia, "Security Challenges in the Online Learning Environment," *The Manila Times*, 07-Oct-2020. [Online]. Available: <https://www.manilatimes.net/2020/10/07/opinion/columnists/topanalysis/security-challenges-in-the-online-learning-environment/777325>. [Accessed: 29-Oct-2022].
- [10] M. Adonis, "Challenges Hound Online Opening of Classes," *INQUIRER.net*, 06-Oct-2020. [Online]. Available: <https://newsinfo.inquirer.net/1344074/challenges-hound-online-opening-of-classes>. [Accessed: 29-Oct-2022].
- [11] J. Shore, "Problems in Online Classes," *Seattle.pi*, 21-Nov-2017. [Online]. Available: <https://education.seattlepi.com/problems-online-classes-1132.html>. [Accessed: 30-Oct-2022].
- [12] Estira, K. L. A. (2020). Online Distance Learning Readiness of Business Administration Students in One State University in the Philippines: Semantic Scholar. Semantic Scholar. Retrieved October 31, 2022, from <https://www.semanticscholar.org/paper/ONLINE-DISTANCE-LEARNING-READINESS-OF-BUSINESS-IN-Estira/8138f81cca5b2974570857683591cd8585890b59>
- [13] Essel, H. B., Nunoo, F. K. N., Tachie-Menson, A., & Amankwa, J. O. (2017, November 30). Higher Education Students' Ownership and Usage of Smart Phones and Tablets: The Case of Kwame Nkrumah University of Science and Technology (KNUST). *International Journal of Educational Technology*. Retrieved October 31, 2022, from <https://eric.ed.gov/?id=EJ1182237>
- [14] Kapasia, N., Paul, P., Roy, A., Saha, J., Zaveri, A., Mallick, R., Barman, B., Das, P., & Chouhan, P. (2020, June 23). Impact of Lockdown on Learning Status of Undergraduate and Postgraduate Students During COVID-19 Pandemic in West Bengal, India. *Children and Youth Services Review*. Retrieved October 31, 2022, from <https://www.sciencedirect.com/science/article/pii/S0190740920310604?via%3Dihub>
- [15] Cleofas, J. V., & Rocha, I. C. N. (2021, April 4). Demographic, Gadget and Internet Profiles as Determinants of Disease and Consequence Related Covid-19 Anxiety among Filipino College Students - . *SpringerLink*. Retrieved November 1, 2022, from <https://link.springer.com/article/10.1007/s10639-021-10529-9>