The Digital Access of Students and Hybrid Learning

A Thesis

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General Education

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Cagayan de Oro City

Hazel Andria R. Labajo

Leny B. Caingin

Luche Geleene M.Ompia

Jonaisa S. Sambolayan

Francis L. Serna

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ABSTRACT

This study examined the relationship between students' digital access and their participation in hybrid learning at Southern de Oro Philippines College during the academic year 2024–2025. A descriptive-correlational research design was employed, involving 149 respondents selected through non-random sampling. Data were collected using a validated researcher-made questionnaire and analyzed using mean, standard deviation, and Pearson Product-Moment Correlation.Findings revealed that students demonstrated a moderately high level of digital access in terms of internet availability and access to digital devices. Similarly, their participation in hybrid learning was also at a moderately high level. Results further indicated that access to digital devices had a stronger positive relationship with hybrid learning participation compared to internet availability. The study concludes that while students generally have access to digital resources, inconsistencies in quality and availability still affect engagement. It is recommended that institutions strengthen digital infrastructure and provide equitable access to devices to enhance student participation in hybrid learning environments.

KEYWORDS: digital access, hybrid learning, internet availability, student participation

I. INTRODUCTION

The integration of technology in education has significantly transformed teaching and learning processes, particularly through hybrid learning, which combines face-to-face and online instruction. This approach has increased flexibility and accessibility in education, allowing students to engage in learning beyond the traditional classroom setting (Miller, 2023). However, despite its advantages, hybrid learning also exposes inequalities in students' access to digital resources.

The concept of the digital divide highlights disparities in access to internet connectivity, digital devices, and technological skills (McElroy, 2024). These inequalities can limit students' ability to participate effectively in hybrid learning environments, especially in developing regions and rural communities (Gable et al., 2020). Studies have shown that students with limited access to stable internet and appropriate devices often struggle to keep up with online learning demands, affecting their academic engagement and performance (Estabillo, 2023).

At Southern de Oro Philippines College, students come from diverse socio-economic backgrounds, with varying levels of access to internet services and digital devices. These differences may influence their participation in online classes, access to learning materials, and overall academic engagement. According to previous research, access to digital tools plays a crucial role in enhancing students' learning experiences and participation in hybrid education (Muthuprasad et al., 2021).

Given these challenges, it is important to examine how digital access influences students' participation in hybrid learning environments. Understanding these relationships

can help institutions develop strategies to promote equitable access and improve learning outcomes. Thus, this study aimed to examine the extent of students' digital access and its relationship to their participation in hybrid learning.

II. METHODOLOGY

This study employed a descriptive-correlational research design to examine the relationship between students' digital access and their participation in hybrid learning. The respondents consisted of 149 students from the College of Hospitality and Tourism Management (CHTM) and Bachelor of Science in Business Administration (BSBA) at Southern de Oro Philippines College, selected through non-random sampling based on specific criteria such as enrollment status and exposure to hybrid learning. Data were collected using a validated researcher-made questionnaire composed of two main sections: digital access, which included internet availability and access to digital devices, and hybrid learning participation, which covered engagement in online courses and access to educational content. The instrument underwent expert validation and reliability testing through a pilot study prior to administration. Data analysis was conducted using mean and standard deviation to determine the level of digital access and participation, while the Pearson Product-Moment Correlation Coefficient was used to identify the significant relationship between the variables.

III. RESULTS AND DISCUSSION

The study explored the relationship between digital access and access to hybrid education, aligning with the title's emphasis on exploring access issues. Specifically, it sought to answer the following questions:

1. What is the extent of digital access of students in terms of;

1.1 internet availability;

1.2 digital devices

Table 1

Internet Availability

Indicators	Mean	SD	Description	Interpretation
1. I always have reliable access to the internet.	3.73	1.01	Undecided	Moderately High
2. I am satisfied with the speed of my internet connection.	3.58	0.97	Undecided	Moderately High
3. I feel that the internet service I have is reliable and stable.	3.55	0.95	Undecided	Moderately High
4. I find the internet is accessible to me during peak usage times.	3.52	0.93	Undecided	Moderately High
5. I experience minimal connectivity issues with my home internet.	3.73	0.89	Undecided	Moderately High
6.I find the internet speed in my area fast enough for my academic needs.	3.49	0.97	Undecided	Moderately High
7. I find the internet speed in my area to be generally strong and consistent.	3.54	1.02	Undecided	Moderately High
8. I experience minimal delays or lag when using the internet for online activities.	3.70	0.99	Undecided	Moderately High
9. I find the internet connection in my home is fast enough to use online services without buffering.	3.58	1.01	Undecided	Moderately High
10. I find the internet in my area is fast enough for multiple people in my household to use it simultaneously.	3.68	0.97	Undecided	Moderately High
Overall	**3.61**	**0.97**	Undecided	Moderately High

Note: 4.20-5.00 Very High; 3.41-4.20 High; 2.61-3.40 Moderately High; 1.81-2.60 Low; 1.00-1.80 Very Lo/w

Table 1 showed the extent of digital access of students in terms of internet availability. It can be seen from the table that it has a mean of 3.61 with SD = 0.97, described as Undecided and interpreted as Moderately High. The finding implies that while subjects usually can use the internet, they do not feel totally sure of their speed and stability, which might make them hesitant to fully rely on it for important academic tasks. This suggests that even though the internet is open for most users, there are some issues within consistency and performance, especially during peak usage times when multiple users may be online at once (Smith et al., 2021).This indicates that although students

generally have access to the internet, its quality and reliability still vary among users. Some students may experience slower connections or interruptions that affect their learning experience, especially in hybrid setups that depend heavily on stable connectivity. Therefore, improving internet infrastructure and providing affordable, high-speed options could help enhance students' overall access and engagement in hybrid education.

The highest mean score, 3.73 with SD = 1.01 and SD = 0.89 respectively, was observed in indicator 1, "I always have reliable access to the internet," and in indicator 5, "I experience minimal connectivity issues with my home internet," both described as Undecided and interpreted as Moderately High. Some surveys' results suggest most respondents feel their internet access is stable. However, there are some inconsistencies that still affect their experience, such as occasional buffering or delays in loading pages. This elevated assessment suggests users do not have perpetual outages, yet they still experience certain connection problems that can interrupt their focus or delay their schoolwork (Johnson et al., 2020). This finding highlights that while students generally perceive their internet connection as dependable, it is not entirely consistent. Minor issues such as buffering or lag still occur and can disrupt their learning flow, especially during synchronous online sessions. This suggests that although internet access is sufficient for most academic activities, further improvements in network stability and bandwidth could enhance the effectiveness of hybrid learning environments.

On the other hand, the lowest mean score, 3.49 with SD = 0.97, was recorded in indicator 6, "I find the internet speed in my area fast enough for my academic needs,"

described as Undecided and interpreted as Moderately High. This suggests that several respondents are dissatisfied with their internet speed for academic purposes, especially when it comes to streaming online classes or downloading large files, which can lead to missed learning opportunities (Lee et al., 2023). This implies that although students have access to the internet, the speed may not always meet the demands of hybrid learning activities. Slow connections can cause frustration and reduce productivity, particularly during real-time discussions or when accessing multimedia learning materials. Addressing this issue through faster and more reliable internet services could greatly improve students' learning experience and participation in hybrid education.

The data implies that while internet availability is broadly reliable, users experience several fluctuations in speed in addition to consistency, especially during virtually all peak hours. Despite the Moderately High rating, respondents remain Undecided on overall internet satisfaction, suggesting variability in individual experiences. While some users have a stable connection, others may face disruptions affecting their online activities, which could be frustrating during quizzes or real-time classes. These results indicate that internet service providers should focus on enhancing speed, reducing latency, and ensuring consistent performance, particularly for educational and work-related usage. As Asio et al. (2021) stated, while the education system quickly addressed the issue of student learning, internet accessibility remains inconsistent and continues to affect student participation in hybrid learning.

2. What is the level of access to hybrid education of the respondents in terms of:

2.1 participation in online courses;

2.2 educational content

Table 2

Digital Devices

Indicators	Mean	SD	Description	Interpretation
1. I frequently share my digital device(s) with other people.	3.61	1.09	Undecided	Moderately High
2. I use digital devices daily for education or personal tasks.	3.83	0.92	Undecided	Moderately High
3. I find digital devices essential for engagement in hybrid education.	3.85	0.94	Undecided	Moderately High
4. I have at least one digital device for personal or school-related tasks.	3.86	0.93	Undecided	Moderately High
5. I find purchasing or replacing digital devices affordable when necessary.	3.73	0.92	Undecided	Moderately High
6. I have technical support when I encounter issues with my digital device(s)	3.62	0.99	Undecided	Moderately High
7. I have access to a digital device (e.g., smartphone, laptop, tablet & desktop).	3.77	1.00	Undecided	Moderately High
8. The digital device(s) I can access are sufficient for completing my daily tasks.	3.64	0.99	Undecided	Moderately High
9. I have regular access to digital devices (e.g., smartphone, laptop, tablet & desktop).	3.75	1.04	Undecided	Moderately High
10. The digital devices I use are fast and capable of running the necessary applications and programs.	3.84	0.89	Undecided	Moderately High
Overall	**3.75**	**0.97**	Undecided	Moderately High

Note: 4.20-5.00 Very High; 3.41-4.20 High; 2.61-3.40 Moderately High; 1.81-2.60 Low; 1.00-1.80 Very Lo/w

Table 2 showed that respondents had a Moderately High level of access and usage of digital devices, with an overall mean of 3.75 SD = 0.97. This indicates that while most students own or have access to devices for educational and personal use, they remain uncertain about their adequacy and reliability. The highest mean score 3.86, SD = 0.93 was observed for having at least one digital device for school or personal tasks,

showing that device ownership is common and essential for learning. Meanwhile, the lowest mean score 3.61, SD = 1.09 was for sharing devices with others, suggesting that some students still lack exclusive access, which may affect productivity. Overall, the results reveal that while digital devices are widely available and frequently used, issues such as affordability, technical performance, and shared usage continue to limit students' full engagement in hybrid learning.

Problem 3. Is there a significant relationship between the respondents' digital access and hybrid learning?

Table 3

Correlation Analysis

Independent Variables	r-value	p-value	Description	Decision on Ho	Interpretation
Internet Availability	0.735**	0.000	High Positive	Reject	Significant
Digital Devices	0.836**	0.000	High Positive	Reject	Significant

**. Correlation is significant at the 0.01 level (2-tailed).

The table presents the results of a correlation analysis examining the relationship between students' digital access specifically Internet Availability and Digital Devices and their participation in hybrid learning environments. For Internet Availability, the correlation coefficient R-value was 0.735, with a p-value of 0.000, indicating a High Positive correlation. This strong positive relationship suggests that students with better internet access are more likely to participate effectively in hybrid learning environments. The statistical significance of this result ($p < 0.01$) leads to the rejection of the null hypothesis, confirming that internet availability plays a crucial role in facilitating hybrid learning

experiences. This finding aligns with previous research emphasizing the importance of reliable internet connections for successful engagement in hybrid learning models (Coman et al., 2020).

Similarly, digital devices showed a correlation coefficient (r-value) of 0.836, with a p-value of 0.000, indicating a high positive correlation. This strong correlation suggests that students with greater access to digital devices, such as laptops, tablets, or smartphones, experience significant benefits in their hybrid learning participation. The statistical significance of this result ($p < 0.01$) leads to the rejection of the null hypothesis, further supporting the conclusion that access to digital devices is a critical factor in the effectiveness of hybrid learning. This observation aligns with studies highlighting the positive impact of digital device availability on academic performance and engagement in hybrid learning settings (Limniou et. al, 2021).

Overall, the findings from this correlation analysis underscore the essential role of digital access in ensuring successful participation in hybrid learning. Both internet availability and access to digital devices exhibited strong and significant positive relationships with hybrid learning engagement. These results suggest the need for educational institutions to enhance digital access for students, particularly those from underserved communities, to bridge the digital divide and create equitable learning opportunities in hybrid education settings. Addressing these disparities is crucial for fostering an inclusive and effective hybrid learning environment.

IV. CONCLUSIONS

The study concluded the following based on the findings:

1. Students have a moderately high level of digital access and participation in hybrid learning, though issues with reliability and quality still exist.
2. There is a significant positive relationship between digital access and hybrid learning participation.
3. Access to digital devices has a stronger influence on student participation compared to internet availability.

V. **RECOMMENDATIONS**

Based from the study's findings and conclusions, the following recommendations are suggested:

1. Provide institutional access to devices (e.g., computer labs, lending programs)
2. Improve internet infrastructure and campus connectivity
3. Develop inclusive teaching strategies for students with limited access
4. Conduct further studies on digital inequality in education

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