Socioeconomic Status and Academic Achievement among Students at Pangasinan State University amidst the Digital Divide in the New Age of Teaching and Learning

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ABSTRACT

The new age of education is shaped by the ongoing growth of digital technologies, changing what it means to be a student today. With digital tools and online platforms now a big part of education, students need to have strong digital skills and experiences. Unfortunately, this change has also magnified the dilemmas like inequalities, especially the differences in socioeconomic status that affect students' access to education and their success. At Pangasinan State University, many students come from different economic backgrounds. Understanding how socioeconomic status (SES) affects academic achievement, especially with the digital divide, is both a challenge and opportunity to overcome barriers and promote fair and equitable education. Through quantitative methods, including a descriptive-correlational design, the study surveyed 287 learners from College of Teacher Education. This study sought to describe the learners' demographics, determining their estimated GPA, exploring the challenges due to digital divide, and identifying relationships between learners' socioeconomic background, challenges, and academic achievement. Findings revealed that out of 287 respondents their parents primarily being high school graduates, deceased or jobless (fathers), and homemakers (mothers), earning less than P12,082, with most families belong to medium-sized households (consisting of 6-10 members), having 1-5 enrolled siblings, owning 1-5 gadgets, and residing on countryside area. Challenges encompassed availability of digital devices, internet access, and financial constraints, with significant correlations between profiles, challenges, and academic achievement. Recommendations advocate for support inclusive teaching methods and policies targeting learner profiles or socioeconomic background and nurturing partnership between parents and teachers, to create a more equitable education system regardless of students' socioeconomic status.

Keywords: Socioeconomic Status, Academic Achievement, Digital Divide, Students' Challenges, Model Predicting Performance

INTRODUCTION

One major area revolutionized by technology is education (Parveen & Ramzan, 2024). The shift toward the new age of education has been greatly influenced by the unending development of digital technologies, redefining what it means to be a student in the 21st century. With the prominent integration of digital tools and online platforms into educational systems, including the structure and quality of the teaching and learning process, students nowadays are expected to have a highly digitized possession of skills, belongings, and experiences. Unfortunately, this shift has also magnified the dilemmas such as inequalities, particularly the socioeconomic disparities that impact educational access and achievement of the students. For students at Pangasinan State University, where many of whom come from diverse socioeconomic backgrounds, the need to understand the correlation between socioeconomic status (SES) and academic achievement within the context of the digital divide can be both a challenge and an opportunity to address barriers in and promote equitable education.

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There is no doubt that technology is a crucial delivery aid of information in the educational aspects, which helps both the teacher and the students during the teaching and learning processes. Thus, the integration and incorporation of technology can be a great factor in helping students enhance their academic performances. According to Omar & Ibrahim (2024) study, it was said that there is evidence that using emerging technology boosts achievement and self-efficacy. However, in the research study conducted by Kumari et al. (2024), it was found that despite the growing importance of digital technology, many individuals and communities continue to face barriers to accessing digital resources, perpetuating the digital divide.

The digital divide represents the gap between individuals who have easy and convenient access to digital technologies and those who do not. This gap has emerged as a pivotal component in educational equity for students. In existing literature and studies, it was repeatedly revealed that the digital divide extends beyond mere access to devices and connectivity. It also includes levels of digital literacy, which may vary depending on the socioeconomic factors of each individual. Europa et al. (2022) discussed that in the case of learning using the new learning modalities, one identified challenge encountered by learners during the new normal is the lack of digital skills. This is characterized by learners having insufficient skills or knowledge in using and navigating the digital devices, communication applications, and networks that are being used in their synchronous and asynchronous learning. The lack of skills and knowledge in manipulating the various technology-related learning modalities worsens the so-called digital divide.

Moreover, research has consistently shown a strong correlation between socioeconomic status (SES) and academic performance, implying that students from higher socioeconomic backgrounds tend to outperform their peers from lower-income families. Munir et al. (2023) found that students from wealthier families routinely outperform their less privileged classmates in school. Students from affluent backgrounds have the privilege to attend well-funded schools with modern facilities, high-quality teachers, and a wide range of academic and extracurricular opportunities. On the other hand, students from low-income families may attend underfunded schools with limited resources, inadequate infrastructure, and a lack of educational support. For instance, students from higher-income generating families are more likely to own personal computers and have stable internet connections that enable them to access online resources with so much ease. In contrast, students from low-income generating families often rely on shared devices among their families or public internet connections, limiting their ability to actively and fully participate in digital learning. Research further indicates that geographic and institutional factors, along with socioeconomic status, contribute to the digital divide. This disparity is particularly evident in rural and underserved areas, where a lack of technologically advanced educational structure exacerbates the digital divide. Bala & Pandey (2024) had the same view about it, where they infer that the rural-urban divide, the caste-wise division and class are very important and play crucial roles in deciding about haves and have-nots of digital resources and techniques that lead to inequality in access to the Internet, which affects the learning process. This is also influenced by the infrastructure of the university premises, as some universities have better access to high-speed internet and some don’t.

As such, socioeconomic status (SES) continues to be a critical determinant of digital access and, consequently, academic success. Nevertheless, Lee et al. (2023) affirm in their article that, like many current complex issues, digital divides do not have a single cause or linear effect, and they involve multiple dynamic variables. Furthermore, the challenges that are presented by the digital divide are constantly changing as the use of technology continues to evolve and are also affiliated with the socioeconomic standing of a person.

Therefore, all of these insights presented provide a foundation for a call to understanding the unique digital challenges faced by students from different socioeconomic backgrounds, ranging from those with higher and lower SES backgrounds, and to shed light on the experiences of those students who have to endure for their educational journey. While all of the existing research efforts are commendable, they have not entirely bridged the gap on this issue. Existing research highlights a range of socioeconomic factors that influence academic achievement, yet few studies focus on how these factors intersect with the digital divide. Given these challenges, this study seeks to investigate the relationship between socioeconomic status (SES) and academic achievement among students at Pangasinan State University San Carlos City Campus, with a particular focus on how the digital divide influences this relationship. By focusing on this said public university in a rural area, this study aims to address challenges faced by students currently enrolled in this university who are often

excluded from mainstream discussions and are often overlooked in broader similar studies on digital equity in education.

Additionally, the future findings of this study aim to fill the gap in existing studies by determining the specific socioeconomic predictors of academic performance at PSU with the exploration of the digital access barriers faced by the students for this study to have the potential to guide the development of interventions, and effective strategies, and to have informed policies that address the specific needs of students affected by the digital divide in Pangasinan State University and other educational institutions facing similar challenges to promote inclusive education, ensuring that all students, regardless of socioeconomic background, will have an equal opportunity to succeed in the new age of the digital era.

Statement of the Problem

This study will explore the relationship between socioeconomic status and academic achievement among students at PSU, with particular emphasis on digital accessibility and related challenges.

Specifically, the study addresses the following research questions:

1. What is the socioeconomic profile of the respondents in terms of:

    a) parental educational attainment;

    b) parent's occupation;

    c) monthly family income;

    d) number of household members;

    e) number of siblings;

    f) number of siblings in school;

    g) number of gadgets used at home; and

    h) residency?

2. What is the academic achievement of students in terms of their grade point average in the previous semester?

3. What are the challenges faced by the students due to the digital divide in their academic pursuits in terms of:

    a) availability of digital devices;

    b) internet access; and

    c) financial constraints?

4. Is there a significant relationship between socioeconomic background of the respondents, the challenges they encountered, and their academic achievement?

RESEARCH METHODOLOGY

This study employed a quantitative research method to examine the relationship between socioeconomic status and academic achievement among students at Pangasinan State University (PSU), with particular emphasis on the digital divide and its associated challenges. Quantitative research is appropriate for this study as it focuses

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on numerical data, statistical analysis, and measurable variables to establish patterns and relationships among the variables of interest.

Specifically, the study adopted a descriptive-correlational research design, which is used to determine whether and to what degree a relationship exists between two or more variables. This design is ideal for understanding how SES factors such as parental education, family income, and residency correlate with academic outcomes (GPA) and digital access (availability of internet and devices). Furthermore, it allows to identify trends, relationships, and potential causative insights into how disparities in socioeconomic status and digital access impact academic performance

Population/Sample Research Participants

The population of this study was the students of Pangasinan State University San Carlos City Campus across various colleges and year levels. The total population of College of Teacher Education students in the campus consists of 1127 students. To ensure fair and eliminate the personal biases of the researchers in selecting the respondents, simple random sampling was utilized to get the total of 287 sample. This sample size was determined using the Cochran's Formula with a 5% margin of error, 95% confidence level, and 50% response distribution.

Instrumentation & Data Collection

This study utilized a survey questionnaire as the primary tool for data collection. The instrument is divided into two parts to align with the objectives of the study. The first part focused on gathering data about the respondents' demographic and socioeconomic profiles, which include parental educational attainment, parent's occupation, monthly family income, number of household members, number of siblings, number of siblings in school, number of gadgets used at home, and residency. This was designed to provide a clear understanding of the socioeconomic background of the respondents, which served as one of the independent variables in the study.

The second part of the questionnaire was designed to gather data related to the respondents' academic achievement, digital access, and the challenges they face due to the digital divide. Specifically, this section includes questions about their Grade Point Average (GPA) and the completion of academic requirements to measure academic performance. It also sought to assess the extent of digital access among students by asking about their availability of digital devices, such as laptops and smartphones, and the reliability of their internet connectivity. Furthermore, the second part identified the challenges encountered by students in their academic pursuits due to limited access to technology and internet services.

The developed questionnaire was validated by five experts and then tested for reliability and internal consistency through a pilot test.

Analysis of Data

In answering the first problem, the socioeconomic profile of the respondents in terms of parental educational attainment, parent's occupation, monthly family income, number of household members, number of siblings, number of siblings in school, number of gadgets used at home, and residency, frequency count and percentage were used to provide a clear understanding of the dominant socioeconomic factors.

In answering second problem, patterns existing in the academic achievement of students in terms of grade point average, and completion of online/digital activities, frequency count, percentage, and weighted mean will be employed to analyze the academic achievement of students based on their socioeconomic status. Academic performance indicators, such as Grade Point Average (GPA), will be categorized and interpreted using a descriptive scale.

To answer the third problem, the challenges do students face due to the digital divide in their academic pursuits in terms of availability of digital devices, internet access, and stress levels related to online learning,

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frequency count, percentage, and weighted mean will be utilized to identify the challenges faced by students due to limited digital access to quantify the extent of the digital divide's impact on academic performance.

A five-point Likert scale was utilized to determine the extent of students' challenges related to their socioeconomic conditions and digital divide. The following descriptive scale was used:

Interval Scale for Five-point Likert Scale

Rating Scale	**Point Range**	**Descriptive Equivalent**
5	4.51-5.00	Very Highly Challenging
4	3.51-4.50	Highly Challenging
3	2.51-3.50	Moderately Challenging
2	1.51-2.50	Slightly Challenging
1	1.00-1.50	Not Challenging

In answering the fourth problem, to test the relationship between the socioeconomic background of the respondents, the challenges they encountered, and their academic achievement, Multiple Linear Regression was used, consequently developing a mathematical model predicting the academic achievement of the respondents.

RESULTS AND DISCUSSION

The study yielded several significant findings, which provide valuable insights into the topic at hand. These major findings shed light on the profile of the respondents, their academic achievements, challenges encountered in the digital divide, and the model predicting their performance.

Profile of the Respondents

The Table 1 below presents the profile of the learners in terms of father's and mother's educational attainment, parents' occupation, monthly family income, number of household members, number of siblings, number of siblings in school, number of gadgets at home, and residency, and was analyzed using frequency counts and percentage.

Table 1 Profile of the Respondents n=287			
Variables	Categories	Frequency	Percent
Father's Educational Attainment	No formal education	6	2.09%
	Elementary graduate	63	21.95%
	High school graduate	133	46.34%
	College undergraduate	38	13.24%
	College graduate	46	16.03%
	Master's degree graduate	1	0.35%
Mother's Educational	Elementary graduate	40	13.94%
	High school	153	53.31%

Attainment	graduate		
	College undergraduate	34	11.85%
	College graduate	51	17.77%
	Master's degree graduate	8	2.79%
	Doctoral degree graduate	1	0.35%

In terms of the respondents' fathers' educational attainment, the data shows that out of 287 respondents, there are 133 (46.34%) have fathers who are high school graduates, 63 (21.95%) have fathers who are elementary graduates, 46 (16.03%) have fathers who are college graduate, 38 (13.24%) have fathers who are college undergraduates, 6 (2.09%) have fathers with no formal education, and 1 (0.35%) have father who is master's degree graduate. This means that the educational background of most fathers is high school graduates, which may have implications for the respondents' access to educational support at home.

In terms of the respondents' mothers' educational attainment, the data also shows that there are more than half of the respondents whose mother is high school graduates, with 153 (53.31%), followed by 51 (17.77%) have mothers who are college graduates, 40 (13.94%) have mothers who are elementary graduates, 34 (11.85%) have mothers who are college undergraduates, 8 (2.79%) have mothers who are master's degree graduates, and 1 (0.35%) have mother who is doctoral degree graduate. This means that the educational background of most mother is also high school graduates, which may have indications that educational support and assistance for respondents is limited.

In terms of father's occupation, the data reveal that among the surveyed respondents, most (71 or 24.74%) of their fathers are deceased or jobless. This is followed by construction and skilled laborer, with 69 (24.04%) responses. Care and domestic workers make up 54 (18.82%) responses, while transportation has 43 (14.98%) responses. Sales and small businesses with 19 (6.62%) responses. Artisanal and factory workers with 10 (3.48%) responses, yet in recycling and waste management there are 8 (2.79%) responses. Meanwhile, security have 7 (2.44%) responses, and farming and agriculture 5 (1.74%) responses. Finally, as for government and professional roles represent the smallest category with only 1 (0.35%) response. This finding suggests that many fathers are either unemployed or already deceased, which may influence the level of financial support available for the learners' education.

Table 2 Profile of the Respondents n=287			
Variables	Categories	Frequency	Percent
Father's Occupation	Artisanal and Factory Work	10	3.48%
	Recycling and Waste Management	8	2.79%
	Care and Domestic Work	54	18.82%
	Construction and Skilled Labor	69	24.04%
	Deceased or No Job	71	24.74%
	Farming and Agriculture	5	1.74%
	Government and Professional Roles	1	0.35%

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	Sales and Small Businesses	19	6.62%
	Security	7	2.44%
	Transportation	43	14.98%
Mother's Occupation	Deceased or No Job	60	20.91%
	Farming and Handicraft	9	3.14%
	Government and Professional Roles	9	3.14%
	Helper	10	3.48%
	Homemakers	134	46.69%
	Overseas Workers	15	5.23%
	Teachers and Educators	12	4.18%
	Vendors and Small Businesses	38	13.24%

In terms of mother's occupation, the data shows that the most common occupation among the mothers is homemakers, with 134 (46.69%) responses. Following that, deceased or no job is the next, with 60 (20.91%) responses. Vendors and small businesses with 38 (13.24%) responses, while overseas workers with 15 (5.23%) responses. Teachers and educators with 12 (4.18%) responses, while helper have 10 (3.48%) responses. Finally, farming and handicraft as well as government and professional roles have 9 (3.14%) responses which represent the smallest category. This also suggests that many mothers are homemakers, which may influence the level of assistance, attention, and support they are able to provide toward their children's education.

Table 3 Profile of the Respondents n=287			
Variables	Categories	Frequency	Percent
Monthly Family Income	Less than P 12,082	204	71.08%
	Between P12,082 and P24,164	51	17.77%
	Between P24,164 and P48,328	27	9.41%
	Between P48,328 and P84,574	4	1.39%
	Between P84,574 and P144,984	1	0.35%
Number of Household Members	1-5 members	129	44.95%
	6-10 members	149	51.92%
	11 members and more	9	3.14%
Number of Siblings	None	8	2.79%
	1-5 siblings	209	72.82%
	6-10 siblings	68	23.69%
	11 Siblings and more	2	0.70%
Number of Siblings in School	None	57	19.86%
	1-5 siblings	225	78.40%

	6-10 siblings	5	1.74%
Number of Gadgets at Home	1-5 Gadgets	175	60.98%
	6-10 Gadgets	105	36.59%
	More than 11	7	2.44%
Residency	Urban Area (City proper)	134	46.69%
	Rural Area (Countryside)	153	53.31%

In terms of monthly family income, the data reveals that the majority of respondents 204 learners (71.08%) earned less than P12,082. This is followed by the 51 learners (17.77%) who responded that they earned between P12,082 and P24,164. While 27 learners (9.41%) whose monthly family income range between P24,164 and P48,328. In addition, 4 learners (1.39%) responded that their monthly family income are between P48,328 and P84,574. Finally, only 1 learner (0.35%) whose monthly family income is P84,574 and P144,984. This suggests that a significant portion of learners may face financial challenges that could impact their access to resources and support for their education.

In terms of number of household members, the data shows that the majority of respondents 149 learners or 51.92%% belong to medium-sized households (consisting of 6-10 members). Small-sized households (1-5 members) are the next most common, with 129 learners (44.95%). Large households (more than 11 members) are the least common, with only 9 learners (3.14%). This suggests that the majority of the learners live in medium-sized households, which may affect their capabilities in terms of digital devices, internet or data resources, and even physical spaces as these can be shared by the members of the family.

In terms of number of siblings, the data reveals that majority of the respondents have 1-5 siblings, with 209 (72.82%) responses. The next majority is 6-10 siblings, with 68 (23.69%) responses. While, no siblings have 8 (2.79%) responses, and more than 11 siblings have 2 (0.70%) responses. This suggests that most learners have 1-5 siblings, where educational resources and support are likely to be shared.

In terms of number of siblings in school, the data shows that majority of the respondents 225 (78.40%) have 1-5 siblings going to school. No siblings in school were the next majority, with 57 (19.86%) responses. Lastly, 5 (1.74%) of the respondents have 6-10 siblings in school. This shows that most learners go to college while they have 1-5 siblings in school which may implies that the educational resources and parental support are likely to be shared by them.

In terms of number of gadgets at home, the data reveals that majority of the respondents 175 (60.98%) owned 1-5 gadgets at home. Next is, the majority of the respondents 105 (36.59%) responded that they owned 6-10 gadgets at home. Finally, 7 respondents (2.44%) responded that they owned more than 11 at home. This means that most respondents have access to a limited number of gadgets at home, which may impact their capability to finish their academic tasks.

In terms of residency, 153 (53.31%) reside on rural area (countryside). While, 134 (46.69%) reside on urban area (city proper). This means that most of the respondents live at rural area (countryside).

Academic Achievement of Students in Terms of Their Grade Point Average

The academic achievement of students in terms of their grade point average is presented in Table 4.

Table 4 Profile of the Respondents n=287

Variables	**Categories**	**Frequency**	**Percent**
Estimated GPA	1.00-1.25	2	0.7%
	1.26-1.50	13	4.5%
	1.51-1.75	76	26.5%

	1.76-2.00	97	33.8%
	2.01-2.25	66	23.0%
	2.26-2.50	22	7.7%
	2.51-2.75	9	3.1%
	2.76-3.00	2	0.7%

In terms of the respondents' estimated GPA, the data shows that out of 287 respondents, there are 97 respondents (33.8%) whose estimated GPA were 1.76-2.00, 76 (26.5%) whose estimated GPA were 1.51-1.75, 66 (23.0%) whose estimated GPA were 2.01-2.25, 22 (7.7%) of the respondents whose estimated GPA were 2.26-2.50, 13 (4.5%) of the respondents whose estimated GPA were 1.26-1.50, 9 (3.1%) of the respondents whose estimated GPA were 2.51-2.75, 2 (0.7%) of the respondents whose estimated GPA were 2.76-3.00, and 2 (0.7%) whose estimated GPA were 1.00-1.25. This means that the majority of the respondents have an estimated GPA ranging from 1.76 to 2.00, indicating that most learners are performing well in their academics.

These findings are aligned with Budiongan et al. (2024) where they revealed that most students consider their family income to be above average as high parental income is typically linked to better access to educational resources, extracurricular activities, and a supportive learning environment, all of which can enhance academic performance. Additionally, the high average score for parents' occupations also implies that many students' parents have reputable and economically stable jobs. Such occupations can elevate a family's socioeconomic status, fostering an environment conducive to academic success. Furthermore, parents with advanced education levels are more likely to value education, set higher academic expectations, and have the capability to support their children's education effectively.

Challenges Faced by The Students Due To the Digital Divide in Their Academic Pursuits

The challenges faced by the students due to the digital divide in their academic pursuits, specifically in terms of availability of digital devices, internet access, and financial constraints is presented in Table 5 using frequency counts, percentage, and weighted mean.

Table 5

Challenges Faced by the Students due to the Digital Divide in their Academic Pursuits in terms of Availability of Digital Devices

n = 287

A. Availability of Digital Devices	**N**	**R**	**S**	**O**	**A**
1. I used a personal digital device (e.g., laptop, tablet, or smartphone) that I use for academic purposes.	2	3	29	70	**183**
	0.7%	1.0%	10.1%	24.4%	**63.8%**
2. I have to borrow or share a digital device with my family members or classmates to complete my academic tasks.	40	51	**100**	62	34
	13.9%	17.8%	**34.8%**	21.6%	11.8%
3. The digital device I use for learning often experiences performance issues (e.g., slow processing, battery problems, outdated software).	12	32	**97**	96	50
	4.2%	11.1%	**33.8%**	33.4%	17.4%
4. I have difficulty accessing essential academic applications due to the	23	50	**96**	83	35
	8.0%	17.4%	**33.4%**	28.9%	12.2%

limitations of my digital device.					
5. My digital device doesn't have adequate storage space for me to do my academic tasks productively.	26	40	**82**	80	59
	9.1%	13.9%	**28.6%**	27.9%	20.6%
Mean	**3.51**			**Often**	

Note: Boldface means highest frequency.

Legend: 1.00-1.50: Never(N), 1.51-2.50: Rarely (R), 2.51-3.50: Sometimes (S), 3.51-4.50: Often (O), 4.51-5.00: Always (A)

The data shows that a significant majority of students (63.8%) always use personal digital devices for academic purposes, indicating that most of the students have direct access to digital devices necessary for their studies. However, a significant number of respondents often (21.6%) to always (11.8%) admitted that they need to borrow or share digital devices with their family members or classmates to meet the demands of their academic tasks, while others sometimes (34.8%) encountered the same challenge. This implies that despite most of the students have digital devices, some are still experiencing limitations in consistent device access influencing their academic achievement.

Furthermore, 33.4% of the respondents indicated that they often encountered performance issues and (28.9%) limitations with their digital devices, with (17.4%) and (12.2%) indicating that they always meet the same challenges. Likewise, 27.9% of the respondents indicated that they often experienced storage limitations affecting their academic productivity, while another 20.6% indicated always dealt this aspect. This implies that while they have access to devices this does not guarantee the smooth performance and capacity leading to hard time compliance of their academic tasks. Overall, the mean of 3.51 means that challenges related to digital device availability often impact the students' academic pursuits.

A recent study from Zhou et al. (2024) supports these findings. Their study emphasize that digital literacy and access are intertwined, and that effective digital engagement requires not only device availability but also the ability to navigate digital learning environments. Their study demonstrates that digital learning effectiveness is closely linked to both access and the development of digital competencies, echoing our observation that device limitations and sharing hinder optimal academic outcomes.

Furthermore, Alotaibi (2024) found that technical barriers, including device performance and insufficient storage, directly impact students' ability to participate fully in digital learning, supporting our findings on the negative effects of device inadequacy. These technical limitations are not just abstract challenges for students as it also has direct impact on students' academic pursuits.

The challenges faced by the students due to the digital divide in their academic pursuits in terms of internet access is presented in Table 6.

Table 6

Challenges Faced by the Students due to the Digital Divide in their Academic Pursuits in terms of Internet Access

n = 287

B. Internet Access	**N**	**R**	**S**	**O**	**A**
1. I have a stable and reliable internet connection for my academic needs.	7	17	104	**104**	55
	2.4%	5.9%	36.2%	**36.2%**	19.2%
2. I rely on mobile data instead of Wi-Fi	19	49	**82**	58	79

to complete my schoolwork.	6.6%	17.1%	**28.6%**	20.2%	27.5%
3. I experience frequent internet connectivity issues that disrupt my academic activities.	9	29	**102**	99	48
	3.1%	10.1%	**35.5%**	34.5%	16.7%
4. I have to go to public places with a free internet access to accomplish my academic tasks.	58	68	**93**	50	18
	20.2%	23.7%	**32.4%**	17.4%	6.3%
5. The availability of internet access limits the amount of time I spent to study and complete my schoolwork.	22	45	**102**	91	27
	7.7%	15.7%	**35.5%**	31.7%	9.4%
Mean	**3.29**			**Often**	

Note: Boldface means highest frequency.

Legend: 1.00-1.50: Never (N), 1.51-2.50: Rarely (R), 2.51-3.50: Sometimes (S), 3.51-4.50: Often (O), 4.51-5.00: Always (A)

Regarding internet access, the data reveals that only 19.2% of the respondents are always having a stable and reliable internet connection, while others are sometimes (36.2%) up to often (36.2%) have such access. However, a significant number of respondents often (20.2%) to always (27.5%) admitted that they rely on mobile data instead of Wi-Fi to complete any school tasks, while others sometimes (28.6%) faced the same scenario. This suggests that a considerable proportion of students experience instability in their internet connectivity due to less stable and costly internet sources.

Moreover, 16.7% of students always and 34.5% often have frequently experience connectivity issues interrupting their accomplishment of tasks, while 35.5% sometimes suffer the same issues. As a result, 6.3% of the respondents always and 17.4% often go to public places, while others sometimes (32.4%) do the same to have an access to internet indicating that a significant number lack reliable home internet. Additionally, 9.4% always and 31.7% often report that their study time and completion of schoolwork is limited due to internet access constraints.

With the total mean score of 3.29, this corresponds to the challenges often encountered by the surveyed respondents indicating that internet access are still restrictions and a barrier for many students.

These findings are aligned with Enoch (2024) where they underscored that facing unreliable internet access and bandwidth limitations disrupted not only academic performance but also students' mental health and resilience. Furthermore, the study also notes that students from underserved communities reported heightened stress and anxiety, frequently experiencing missed deadlines, incomplete assignments, and reduced participation in online learning.

Similarly, Akmad and Abatayo (2024) reported that unstable internet connectivity resulted in delays in task submissions, hindered access to academic resources, and reduced opportunities for collaborative learning. Their study emphasized that students who relied on mobile data or public Wi-Fi experienced more frequent disruptions and higher levels of stress, mirroring the challenges highlighted in the current data.

Furthermore, the findings of Chen, Chen, and Zheng (2024) support these observations, as their research on international students in China revealed that internet access quality has a direct impact on learning outcomes. Poor internet quality was found to reduce student engagement, lower academic performance, and increase stress. Their mediation analysis further indicated that internet quality affects not only direct learning outcomes but also students' motivation and participation.

The challenges faced by the students due to the digital divide in their academic pursuits in terms of financial constraints is presented in Table 7.

Table 7

Challenges Faced by the Students due to the Digital Divide in their Academic Pursuits in terms of Financial Constraints

n = 287

C. Financial Constraints	**N**	**R**	**S**	**O**	**A**
1. I struggle to afford a personal digital device for my academic needs.	12	36	**102**	85	52
	4.2%	12.5%	**35.5%**	29.6%	18.1%
2. The cost of internet access is a financial burden for me and affects my ability to participate effectively in my class.	18	31	95	**95**	48
	6.3%	10.8%	33.1%	**33.1%**	16.7%
3. Limited financial resources prevent me from upgrading outdated or malfunctioning digital devices.	13	26	**97**	94	57
	4.5%	9.1%	**33.8%**	32.8%	19.9%
4. Financial struggles force me to limit my screen time or learning activities to save on data expenses.	25	37	**101**	82	42
	8.7%	12.9%	**35.2%**	28.6%	14.6%
5. My academic performance is negatively affected by financial struggles related to digital access.	24	42	**115**	73	33
	8.4%	14.6%	**40.1%**	25.4%	11.5%
Mean	**3.37**			**Often**	

Note: Boldface means highest frequency.

Legend: 1.00-1.50: Never (N), 1.51-2.50: Rarely (R), 2.51-3.50: Sometimes (S), 3.51-4.50: Often (O), 4.51-5.00: Always (A)

In terms of financial constraints, the challenges faced by the students due to the digital divide in their academic pursuits has an overall mean of 3.37 which means that these challenges are often experienced by the respondents.

Regarding to the challenges to financial constraints, a respondent often (29.6%) to always (18.1%) confirmed that they cannot afford to buy their own digital device for their academic needs, while a significant majority of the respondents (35.5%) admitted that they sometimes experience this challenge as well. This implies that a considerable number of students face financial barriers in acquiring essential digital tools, which may limit their ability to fully participate in academic activities and keep up with their digital learning requirements. Aside from this, 16.7% of the respondents have always feel that the cost of internet access is a financial burden, and sometimes (33.1%) to often (33.1%) of the respondents considered themselves as part of the same challenge which hinders their capacity to engage effectively in class.

Furthermore, respondents often (32.8%) to always (19.9%) reveals that financial incapacity holds them back from upgrading their old or malfunctioning digital devices, while a significant number of respondents sometimes (33.8%) admitted that this challenge occurs to them. Additionally, 14.6% and 11.5% of the respondents agreed that they always force themselves to limit their screen time to do their academic tasks due to the expenses it may costs which negatively impacts their performance with their academics, while 28.6% and 25.4% often faced the same challenges. This implies that financial constraints not only affect students' access to functional devices but also limit their online engagement, thereby impacting the quality and consistency of their academic performance.

The findings aligned with Dev et al. (2023) reported that the financial constraints and their impact to university students in different nationalities caused by economic slowdown was affecting the students' motivation for academic performance and achievements. Many students face pressure due to living expenses and limited access to financial aid, which lead to poor academic performance.

Similarly, Nasr et al. (2024) supported that the financial stress has significant effects on students, most students experience financial crisis that could led to higher stress level among students, especially on their academic performance. Furthermore, based on their findings financial constraints serves as barrier to academic achievement by affecting students' performance, since it reduces time and energy available for studies, and creating unequal access to academic resources.

The summary of the challenges faced by the students due to the digital divide in their academic pursuits is presented in Table 8.

Table 8 Summary of the Challenges Faced by the Students due to the Digital Divide in their Academic Pursuits

n = 287

Variables	**Mean**	**Descriptive Equivalent**
A. Availability of Digital Devices	3.51	Often
B. Internet Access	3.29	Often
C. Financial Constraints	3.37	Often
Grand Mean	**3.39**	**Often**

Legend: 1.00-1.50: Never (N), 1.51-2.50: Rarely (R), 2.51-3.50: Sometimes (S), 3.51-4.50: Often (O), 4.51-5.00: Always (A)

The data shows that the challenges faced by the students due to the digital divide in their academic pursuits in terms of availability of digital devices (3.51), internet access (3.29), and financial constraints (3.37). The grand mean of 3.39 means that they often experienced such challenges.

These findings are supported by Dawadi et al. (2024) quantitative research as it demonstrates that students frequently encounter barriers related to devices, internet access, and financial resources—conditions that limit their digital participation and academic engagement. These challenges extend beyond mere location hurdles; they also shape students' academic motivation and sense of inclusion.

As one student emphasized, "We are in the rural areas and the accessibility of the Internet is poor", echoing the reality that poor connectivity continues to disrupt learning. Another respondent observed, "We have two different groups of students. I mean there is a digital divide […] Many students in my university are from rural parts of the country. Many of them don't have access to technology." These voices clarify how unequal digital access intensifies educational inequalities, leaving some students feeling excluded from the full academic experience.

Additionally, a student shared, "I could not attend online classes because of my economic condition. It was very stressful […] But, my university didn't provide me any support that time". This reflection emphasizes the emotional strain caused by financial hardship and the lack of institutional support during critical learning moments. Such stress may contribute to decreased participation, loss of motivation, and academic disengagement.

Encouragingly, another student noted, "Later, the university provided mobile data package to students. Then, the number of students in online classes increased slightly". This suggests that institutional interventions and support can help reduce barriers and foster greater inclusion, highlighting the importance of responsive support systems in bridging the inequalities and challenges students faced with the digital divide.

Beyond measurable academic performance, the findings in Kress (2025) study supports the idea that lower socioeconomic students are associated with decreased academic performance. One of the most interesting findings is associated with reading fluency and comprehension benchmarks. Students from low-income households struggled significantly with foundational literacy skills. This may be due to limited access to reading materials at home, reduced exposure to language development opportunities, and fewer literacy experiences outside of school.

Relationship Between Socioeconomic Background Of The Respondents, The Challenges They Encountered, And Their Academic Achievement

The relationship between socioeconomic background of the respondents, the challenges they encountered, and their academic achievement is presented in Table 9 using Multiple Linear Regression.

Table 9

Correlates of the General Point Average of the Students

n = 287

Significant Predictors	**Coefficients**		**Sig.**
	Unstan.	**Stand.**	
(Constant)	5.844		.000
Mother's Educational Attainment	-.169	-.148	.028
Mother's Occupation	-.069	-.130	.034
Number of Siblings in School	.121	.164	.016
F_t= 2.332; $F_{sig.}$= 0.006; R^2=0.057			

The coefficient of determination Rsquare indicating the percent of how much of the total variance is explained by the independent variables is 5.7%. The model shows that the educational attainment and the occupation of the mothers of the respondents are significant predictors of their academic achievement, along with their number of siblings in school. It is important to note that among these predictors, the highest impact on the academic performance is the number of siblings in schools as shown by the standardized coefficient (beta = 0.164, p = 0.016). Thus, the regression model is *Y = 5.844 - 0.148MEA - 0.130MO + 0.164 NSS.*

The relationship between a mother's education and her child's academic outcomes has been widely examined. Alibraheim & Taifour (2023) conducted a quantitative study in Bahrain and found no significant relationship between mothers' educational levels and their children's academic achievement. Their research suggests that other factors, such as the amount of time spent studying together, children's intrinsic motivation, and learning environment, may play a more decisive role than educational attainment alone. They further argue that academic performance cannot be judged solely by the mother's education, as factors like student confidence, motivation, and anxiety also contribute significantly.

In contrast, Das & Tiwari (2023) found that a mother's educational level plays a direct and positive role in her children's educational attainment. Their household-level study in Assam, India, demonstrated that children of more educated mothers tend to achieve higher academic outcomes and benefit from improved family welfare. The authors highlight that maternal education not only enhances children's academic achievement but also promotes better health, nutrition, and educational values within the household, contributing to intergenerational progress.

Similarly, Athirathan (2025) reported that mother's education is significantly associated with both parental involvement and student academic activities. The study showed that children of mothers with a college degree

or higher perform better in reading and math, and that these mothers are more active in supporting their children's learning at home and at school. The research also found that higher maternal education correlates with increased volunteering, engagement in school activities, and the provision of educational resources at home, all of which foster a more supportive learning environment and contribute to higher student achievement.

Furthermore, Fatema (2023) focus on the relationship between a mother's occupation and her child's academic success, also the mother's time allocation was considered. According to the findings of this study, there is a statistically significant relationship between a mother's career and her child's academic success. Wherein, mothers who work long hours may have limited time to engage in school-related activities as they would want, such as attending school meetings, helping with homework, or offering emotional support, which can affect their children's academic outcomes.

Similarly, Kyao & Onyango (2024) supported that the contribution of parents' occupation on students' academic achievements indicated that parents' work is responsible for students' achievement at school by way of learning morale, absenteeism, child labor, and unfavorable home environments. Parents affect monitoring and supervising children's performance both at home and school. Income can prepare a home environment that is beneficial to their children instead of those who are surrounded by poor jobs. Likewise, parents who have a good job can encourage their children so that they can do well.

CONCLUSIONS

The socioeconomic profile of the students in terms of mother's educational attainment; mother's occupation; and number of siblings in school plays an important role in enhancing their academic performance in this new age of learning.

Further, students still faced significant challenges including the availability of digital devices, internet access, and financial constraints, emphasizing the continued struggles and issues students faced with this educational set-up, where digital and internet access demands is another expense for students' and their families. Moreover, these differences and challenges not only affects the academic performance of students' rather it also shows that the gap among advantage learners in terms of socioeconomic profile and those who are not, are present and existing to elevate the digital divide. As such, addressing these challenges means understanding the implications of the data gathered to enhance the learning environment, family and institutional support and to have inclusive education for all students despite their differences in socioeconomic backgrounds.

The Multiple Linear Regression Model with a 5.7% accuracy level predicts the students' academic performance, with the following predictors: mother's educational attainment; mother's occupation; and number of siblings in school. Hence, revealing that the three variables are significant factors in academic performance of students, highlighting the need to consider these factors and challenges.

Suggestion

The school administrators and teachers of Pangasinan State University should collaborate to improve digital access and provide focused academic and emotional support for students from low-income families. By using data to identify students' needs, they can ensure that resources and assistance are given where they are most needed. Teachers should also use inclusive teaching methods, while administrators should create policies that address the specific challenges of disadvantaged students. Furthermore, they can take some initiatives to collaborate with the community to recommend institutional actions such as creating Wi-Fi hubs in underserved communities, offering device lending programs, and implementing digital literacy workshops for underprivileged students. Thus, these initiatives can help bridge digital gaps and foster more equitable academic outcomes.

The parents are encouraged to stay involved in their child's education by offering support, encouragement, and a positive home environment, as well as keeping track of their children's academic progress and communicating regularly with teachers to address any challenges as early as possible. They can also speak up for better resources and support in the school community to help their children succeed. On the other hand,

students should be aware of how their background might affect their learning and take the initiative to ask for help or use available resources in the school when needed. By working together, staying pro-active, and supporting each other, parents and students can overcome these challenges and help them cope up with this new age of education and learning.

The future researchers should explore other family and social factors that may influence students' academic achievement, especially in the context of digital access. As well as, they should consider getting the exact grade point average (GPA) to increase the predictions of the model. Additionally, future researchers can also evaluate which programs or interventions are most effective in closing learning gaps between students from different backgrounds. By doing so, future studies can help create a more equitable education system where all students have the opportunity to succeed, regardless of their socioeconomic status.

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