



EXCESSIVE USE OF DIGITAL DEVICES: ITS EFFECTS ON STUDENT LEARNING, BEHAVIOR, AND WELLNESS

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ABSTRACT

Completed in 2026, this study investigated the extent of digital device use and its perceived effects on the learning, behavior, and wellness of Senior High School students in Palanan, Isabela. Anchored on the growing role of digital technology in contemporary education and adolescent life, the study sought to examine how students' engagement with digital devices influences academic functioning, behavioral outcomes, and overall well-being. The study employed a descriptive research design and involved 537 Senior High School students from Palanan National High School and Isabela School of Fisheries. Total population sampling was utilized to ensure comprehensive representation of the target respondents. Data were gathered through a structured and adapted questionnaire and were analyzed using frequency counts, percentages, weighted mean, Chi-square test, and Pearson's correlation coefficient. Findings revealed that smartphones were the most frequently used digital devices among the respondents. Students used digital devices for both academic and social purposes, particularly for accessing information, organizing school-related tasks, communicating with others, and supporting lesson comprehension. However, the study also found that excessive digital device use contributed to academic distractions, delayed task completion, and reduced concentration. In terms of behavior, digital device use generally facilitated communication, collaboration, and social interaction, although minor concerns such as irritability were also observed. Regarding wellness, digital engagement provided benefits such as stress relief and social support; however, prolonged use was associated with sleep disruption, eye strain, and decreased physical activity. Statistical findings indicated significant relationships between digital device use and students' learning and wellness, while behavioral effects did not significantly vary across selected profile variables. The study concludes that digital devices function as both beneficial and potentially disruptive tools.

It recommends the promotion of balanced, responsible, and guided digital device use through the coordinated efforts of students, teachers, parents, school administrators, and policymakers.

Keywords: *Digital device use, excessive screen time, student learning, academic performance, student behavior*

INTRODUCTION

The unprecedented expansion of digital technology has profoundly transformed the ways in which students acquire knowledge, communicate, and engage in leisure activities. Devices such as smartphones, tablets, laptops, and gaming consoles have evolved from optional luxuries into indispensable tools embedded in everyday routines. Increasingly, students depend on these technologies not only for accessing instructional materials and conducting academic research but also for social interaction, entertainment, and personal management. This pervasive integration of digital devices presents both opportunities and challenges. While information is now accessible instantaneously, the distinction between constructive and excessive use has become increasingly ambiguous (American Academy of Pediatrics [AAP], 2025; Sage et al., 2021).

The integration of technology into educational settings accelerated during the COVID-19 pandemic, as remote learning and online resources became normative, further entrenching digital practices in students' daily lives. This transformation has reshaped student experiences in significant ways. Academically, the convenience of digital tools is frequently counterbalanced by the distractions of multitasking, which may diminish attention spans and impede sustained cognitive engagement. Behaviorally, the constant influx of notifications and the cyclical nature of social media interactions have altered communication patterns, fostering tendencies toward instant gratification and reducing opportunities for direct interpersonal exchanges (AAP, 2025; Sage et al., 2021).

Moreover, student wellness has been increasingly challenged by prolonged screen exposure, which is associated with physical concerns such as sleep disruption and ocular strain, as well as psychological pressures including digital fatigue and heightened anxiety. This dual character of technology—its capacity to enhance learning and its potential to distract or impair—underscores the necessity of critically examining students' patterns of device use. Such inquiry is essential, as digital engagement exerts a profound influence on academic performance, behavioral development, and holistic well-being (Victor et al., 2023; Xu & Wang, 2023; AAP, 2025).

Globally, the prevalence of digital device use continues to escalate, with recent estimates indicating that approximately 6.12 billion individuals—representing 73.8% of the world's population—are now connected to the internet, the vast majority through mobile devices (International Telecommunication Union, 2023). While these technologies facilitate knowledge acquisition, communication, and access to educational resources, their excessive use has been increasingly associated with adverse outcomes among

young people, including diminished academic performance, behavioral alterations, and compromised wellness.

The World Health Organization (WHO) (2020) has issued comprehensive guidelines on physical activity, sedentary behavior, and sleep, underscoring that prolonged recreational screen time contributes to sedentary lifestyles, disrupted sleep patterns, and reduced attention spans. Complementing this perspective, Twenge's (2019).seminal work iGen documents that adolescents who devote extended hours to digital devices exhibit heightened risks of depression, social withdrawal, and academic disengagement.

At the regional level, Adelantado-Renau et al. (2019) conducted a systematic review and meta-analysis across 23 countries, revealing that high engagement in screen-based activities—particularly television viewing and video gaming was significantly and negatively associated with academic performance among children and adolescents. These findings highlight the dual nature of digital technologies: while they offer unparalleled opportunities for learning and connectivity, their unregulated use poses substantial risks to educational attainment and psychosocial well-being.

In the Philippines, the 2018 Expanded National Nutrition Survey conducted by the DOST–Food and Nutrition Research Institute (FNRI) (2020) found that Filipino adolescents spend an average of four hours per day on screen-related activities, often replacing physical exercise and sleep. Another study published in BMC Public Health in 2023 on Filipino children showed that screen time exceeding two hours daily was associated with delayed language development and decreased social interaction skills (Dy et al., 2023). These findings indicate that excessive gadget use may contribute to both academic difficulties and health risks among Filipino youth, an issue that warrants further investigation in secondary education.

This study is guided by existing education and child protection policies in the Philippines. Republic Act 10533, or the Enhanced Basic Education Act of 2013, emphasizes the comprehensive development of learners, including their physical, mental, and social well-being. Likewise, the Department of Education's (2012) Child Protection Policy (DepEd Order No. 40, s. 2012) mandates schools to protect students from practices and influences that may impede academic progress and health. This policy also emphasizes the school's responsibility to ensure the holistic well-being of learners, including their emotional, physical, and social development, which provides a clear rationale for examining the effects of device use on students.

In rural municipalities such as Palanan, Isabela, secondary school students increasingly use digital devices not only for online learning but also for entertainment and social media. Teachers and parents have raised concerns about this trend during school consultations and PTA meetings, noting a decline in study habits, classroom discipline issues, and health problems such as poor sleep and eye strain among students. Personal observations within the school environment further highlighted how pervasive device use has become in students' routines, prompting the conduct of this study. These

observations provide a practical basis for examining the local effects of technology use, especially as there is limited research documenting these challenges in the area.

Considering these global, regional, national, and local contexts, it is evident that while digital devices are essential tools for modern education, their overuse presents risks that warrant careful examination. This study specifically investigated the extent of device use among secondary students in Palanan, Isabela, and assessed its influence on their learning, behavior, and wellness. The findings aimed to contribute to existing research and provide practical insights for DepEd educators, school administrators, parents, and policymakers to promote responsible and balanced device use.

Research Questions

This study aimed to determine the effects of excessive use of digital devices on students' learning, behavior, and wellness. Specifically, it sought to answer the following questions:

1. What is the profile of the student-respondents in terms of:
 - 1.1 Sex
 - 1.2 Grade level
 - 1.3 Parents' Monthly Income
 - 1.4 Academic Performance
 - 1.5 Living arrangement
 - 1.6 Internet Accessibility
 - 1.6.1 Internet access at home
 - 1.6.2 Primary place of internet use
2. What type of digital devices do students commonly use?
3. What is the extent of students' engagement with digital devices in terms of:
 - 3.1 Frequency of use
 - 3.2 Purpose
 - 3.3 Types of online applications
4. What are the effects of digital device use on the following aspects as experienced by the students, and observed by their parents and teachers in terms of:
 - 4.1 Learning
 - 4.2 Behavior
 - 4.3 Wellness
5. Is there a significant relationship between the effects of digital device use on students' learning, behavior, and wellness when grouped according to their profiles?
6. Is there a significant relationship between the students' engagement with digital devices and the perceived effects?
7. Based on the findings of the study, what action plan may be proposed to promote responsible and balanced digital device use among students?

METHODOLOGY

Research Design

This study employed a descriptive–correlational research design, which was deemed appropriate for examining and analyzing the relationships between digital device use and students’ learning, behavior, and wellness. As Creswell (2012) explains, quantitative research designs systematically investigate relationships among variables through structured data collection and statistical analysis. A descriptive–correlational approach enables the researcher to portray variables as they naturally occur while determining the degree of association between them without manipulation.

In this investigation, the focus is directed toward the patterns of digital device usage and their associations with students’ academic performance, behavioral tendencies, and wellness outcomes. The design was suitable because it allowed the researcher not only to identify the types of devices commonly used and the extent of student engagement, but also to assess whether significant relationships existed between usage patterns and the specified outcomes.

Moreover, the descriptive–correlational framework provided a systematic means of presenting and interpreting data through statistical measures of association, thereby ensuring that the findings were both meaningful and evidence-based. This approach is particularly appropriate in studies where variables are observed in their natural context without manipulation, and where the primary objective is to establish relationships rather than infer causality.

Locale of the Study

The study was conducted in the municipality of Palanan, a coastal and geographically isolated area situated on the eastern side of the province of Isabela. The municipality is bounded by the Sierra Madre Mountain Range, which significantly restricts land access. Consequently, Palanan is primarily reachable via air and sea transportation, rendering it one of the most remote municipalities in the region. Despite these geographical constraints, the area has gradually adapted to digital advancements, facilitated by the increasing availability of internet connectivity and the integration of online learning platforms. These developments have contributed to the growing use of digital devices among students for both academic and recreational purposes.

With respect to internet connectivity, Palanan generally has access to Wi-Fi services provided in schools, small commercial establishments, private residences, and boarding houses. Students who are able to connect to these networks can access online resources for academic tasks and communication. However, connectivity remains inconsistent, particularly during adverse weather conditions such as heavy rainfall, which disrupts signal transmission and results in slow or intermittent access. In more remote or inland areas, students rely primarily on mobile data, though signal strength is often limited and available only in specific locations. This uneven distribution of connectivity underscores the disparities in digital access among learners within the municipality.

The study was conducted in two major Senior High School institutions within the municipality of Palanan, Isabela. Palanan National High School, strategically situated at the town center, serves as the primary hub for general secondary education. It accommodates a large and diverse student population drawn from various barangays, thereby functioning as a central institution for academic formation.

In contrast, the Isabela School of Fisheries is located in a coastal area and provides specialized education with a strong emphasis on fisheries and marine-related programs, alongside its Senior High School curriculum. This institution caters to learners pursuing academic advancement, technical-vocational training, and employment opportunities in fields aligned with the municipality's coastal economy.

Together, these schools represent the principal educational centers for Senior High School students in Palanan.

Selection and Description of Respondents

The respondents of this investigation are Senior High School students enrolled at Palanan National High School and the Isabela School of Fisheries, both located in the municipality of Palanan, Isabela. These institutions were selected as the research locale because Senior High School students, typically aged 16 to 18, are at a critical developmental stage wherein digital technology plays a central role in both academic pursuits and everyday life. At this level, students are generally more capable of responsible and informed use of digital devices and are able to provide accurate self-reports regarding their usage patterns, academic experiences, and related behaviors.

The inclusion of Senior High School students directly aligned with the primary objective of the study, which was to examine the effects of excessive digital device use on academic performance, behavior, and wellness. At this stage, learners are engaged in advanced academic tasks, cultivate independent study habits, and undergo significant social transitions. Consequently, the influence of digital devices on their academic engagement and personal development is more pronounced, making them suitable respondents for the research.

The total population of Senior High School students across the two schools is 537, and the study employed total population sampling, wherein all members of the defined population were included as respondents. This sampling approach was deemed most appropriate given the scope and objectives of the study, ensuring comprehensive representation of the target group.

To enrich the findings and provide supplementary perspectives, the study also included 537 parents and 23 teachers as respondents. Their insights offered valuable observations regarding students' digital device use, behavioral tendencies, and overall wellness, thereby strengthening the validity and depth of the research outcomes.

Table 1
Distribution of the Respondents

School	Isabela School of Fisheries	Palanan National High School	Total
Grade 11 Students	60	208	268
Grade 12 Students	56	213	269
Grade 11 Parents	60	208	268
Grade 12 Parents	56	213	268
Teachers	8	15	23

Data Gathering Procedure

The following procedures were meticulously undertaken to ensure systematic, ethical, and accurate data collection within the municipality of Palanan, Isabela. First, formal approval and permission were secured from the Schools Division Office of Isabela, the respective school principals, and other concerned authorities. To uphold ethical standards, parental consent forms were distributed and collected prior to the conduct of the study, thereby ensuring compliance with established research protocols.

Second, an orientation session was conducted for the student respondents. During this briefing, the objectives and significance of the study were thoroughly explained, and clear instructions on the proper accomplishment of the questionnaire were provided to promote accuracy, honesty, and reliability in their responses.

Third, ethical considerations were strictly observed throughout the data-gathering process. Participation was entirely voluntary, and respondents were explicitly informed of their right to withdraw at any stage without adverse consequences. Personal information was treated with the highest degree of confidentiality, and all responses were utilized solely for academic purposes. No identifying details were included in the research reports, and all collected data were securely stored in full compliance with Republic Act No. 10173, otherwise known as the Data Privacy Act of 2012.

The administration of the questionnaire was strategically scheduled during the respondents' vacant hours to minimize disruption to their academic responsibilities. The researcher personally supervised both the distribution and retrieval of the instruments, ensuring strict adherence to principles of confidentiality and voluntary participation throughout the process.

Upon completion, each questionnaire was meticulously reviewed to verify completeness and accuracy. Responses were subsequently coded, encoded, and systematically organized for analysis using either the Statistical Package for the Social Sciences (SPSS) or Microsoft Excel. Any inconsistencies or errors identified during the encoding and verification stages were promptly addressed to safeguard the integrity of

the dataset. This rigorous procedure ensured that the final data subjected to statistical analysis was both reliable and valid, thereby strengthening the credibility of the study's findings.

Statistical Treatment of Data

The data collected from the respondents were subjected to appropriate descriptive and inferential statistical analyses to ensure the accuracy and systematic interpretation of results. These statistical procedures were employed to determine the extent of students' engagement with digital devices and to examine how excessive use influenced their academic performance, behavioral patterns, and overall wellness.

Frequency and percentage counts were utilized to analyze the demographic profile of the respondents and to identify the types of digital devices most commonly used.

Weighted mean was applied to assess the degree of students' engagement with digital devices in terms of frequency of use, purpose, and types of online applications, as well as to evaluate the perceived effects of excessive digital device use on learning, behavior, and wellness, both from the students' perspective and as observed by parents and teachers.

Chi-Square Test was employed to determine whether significant relationships exists between the effects of digital device use on learning, behavior, and wellness when grouped according to demographic profile variables.

Pearson's r test was used to examine the correlation between the level of students' engagement with digital devices and its effects on learning, behavior, and wellness.

RESULTS AND DISCUSSION

1. What is the profile of the student-respondents in terms of:

a. Sex

Table 1.1
Frequency and Percentage Distribution of Respondents According to Sex

Sex	Frequency	Percentage
Male	244	45.44
Female	293	54.56
Total	537	100.0

Table 1.1 presents the distribution of respondents according to sex. As reflected in the table, the majority of the respondents are female, comprising 54.56 percent, while 45.44 percent are male. This indicates a slightly higher representation of female students in the study.

This pattern aligns with existing research in educational contexts, which consistently demonstrates that female students tend to participate more actively in survey-based and academic studies. Al Ghamdi and Holland (2020) observed that female university students report higher levels of engagement in academic surveys, a trend that may be attributed to broader patterns of academic motivation and responsiveness. Similarly, Walsh et al., (2008) highlighted that females often exhibit greater willingness to respond to educational and psychological assessments, possibly due to heightened interest in sharing personal experiences or stronger conscientiousness in research participation. These findings suggest that the slight predominance of female respondents in the present study reflects broader trends in academic research participation.

b. Grade Level

Table 1.2
Frequency and Percentage Distribution of Respondents According to Grade Level

Grade Level	Frequency	Percentage
Grade 11	268	49.91
Grade 12	269	50.09
Total	537	100.0

Table 1.2 shows the distribution of respondents according to grade level. The data reveal a nearly equal representation for Grade 11 and Grade 12, with 50.09 percent of the former and 49.91 percent of the latter. This balanced distribution ensures that both senior high school levels are adequately represented in the analysis, thereby strengthening the validity of comparative interpretations across grade levels.

The relevance of grade level in educational research has been consistently emphasized in prior studies. Aramay and Flores (2025) observed that senior high school students in higher grade levels often exhibit greater autonomy in managing digital tools and online learning activities, whereas younger students tend to require more structured guidance. Similarly, Dy et al., (2023) underscored that students' age and grade level significantly influence their interaction with digital devices, with older learners demonstrating more strategic and purposeful use of technology in accomplishing academic tasks. These findings highlight the importance of considering grade-level distinctions when analyzing students' engagement with technology, study habits, and academic performance.

1.3 Monthly Income

Table 1.3
Frequency and Percentage Distribution of Respondents According to Monthly Income

Monthly Income	Frequency	Percentage
Less than Php5,000	343	63.87
Php5,000 – Php10,000	128	23.84

Php10,001 – Php20,000	40	7.45
Php20,001 – Php30,000	14	2.61
Php30,001 and Above	12	2.23
Total	537	100.0

Table 1.3 presents the distribution of respondents according to monthly family income. The data reveal that a majority or 63.87 percent of respondents belong to households earning less than ₱5,000 per month, This is followed by 23.84 percent whose families earn between ₱5,000 and ₱10,000, 7.45 per cent have a monthly incomes ranging from ₱10,001 to ₱20,000. The data further shows that 2.61 percent earn ₱20,001 to ₱30,000, and 2.23 percent have an incomes of ₱30,000 and above.

The data clearly indicate that a substantial portion of the respondents originate from low-income households. This socioeconomic profile has significant implications for educational access and participation. Aramay and Flores (2025) observed that students from lower-income families often encounter constraints in acquiring personal digital devices, maintaining stable internet connectivity, and accessing adequate educational resources, factors that may hinder their full engagement in technology-mediated learning environments. Likewise, Buctot et al., (2021) emphasized that lower socioeconomic status (SES) is frequently associated with limited patterns of smartphone and device utilization, which in turn affects both academic productivity and the development of digital literacy skills. These findings underscore the critical role of socioeconomic conditions in shaping students' educational experiences and technological engagement.

1.4 Student Learning

Table 1.4
Frequency and Percentage Distribution of Respondents According to Student Learning Outcomes (Academic Performance)

Grading Scale	Frequency	Percentage
Outstanding (90 – 100)	110	20.48
Very Satisfactory (85 – 89)	169	31.47
Satisfactory (80 – 84)	207	38.55
Fairly Satisfactory (75 – 79)	51	9.50
Did Not Meet Expectations (Below 75)	0	0.00
Total	537	100.0

Table 1.4 displays the distribution of respondents according to student learning outcomes. The data indicate that 38.55 percent of the respondents obtained a grade of 80–84, described as “Fairly Satisfactory.” Meanwhile, 31.47 percent obtained grades within the 85–89 bracket, interpreted as “Very Satisfactory.” In addition, 20.48 percent attained grades between 90–100, or “Outstanding.” A smaller proportion or 9.50 percent received grades ranging from 75–79, also categorized as “Fairly Satisfactory.” Notably, no respondents fell within the grade range of 75 and below, which is described as “Did Not Meet Expectations” These findings suggest that the majority of students maintain average

to above-average academic performance, with a substantial proportion demonstrating commendable achievement.

1.5 Living Arrangement

Table 1.5
Frequency and Percentage Distribution of Respondents According to Living Arrangement

Living Arrangement	Frequency	Percentage
With parents	292	54.38
With relatives	29	5.40
In a boarding house	216	40.22
Total	537	100.0

Table 1.5 presents the distribution of respondents according to their living arrangements. A majority or 54.38 percent of the students live with their parents. Meanwhile, 40.22 percent live in boarding houses, while a smaller group of 29 respondents live with relatives. These figures suggest that although most learners remain within the familial household, a considerable proportion are situated in independent or semi-independent living contexts.

Living arrangements constitute an important contextual factor influencing learners' academic performance, study habits, and access to educational support. Students who reside with their parents often benefit from consistent supervision, guidance, and emotional reinforcement, which foster greater engagement, responsibility, and persistence in academic tasks. On the other hand, those living away from their families may experience increased autonomy but face challenges in sustaining structured study routines and accessing immediate support systems. This distinction underscores the relevance of household context in shaping students' educational experiences and outcomes. Patel et al., (2024) emphasize that the home environment, including whether students reside with their parents or independently, directly shapes academic outcomes. They highlighted that students living with parents benefit from consistent supervision, corrective guidance, and emotional reinforcement, which foster responsibility and persistence in academic tasks. Conversely, those living away from their families often experience increased autonomy but face challenges in sustaining structured study routines and accessing immediate support systems.

1.6. Internet Accessibility

a. Internet Access at Home

Table 1.6.a
Frequency and Percentage Distribution of Respondents According to Internet Access at Home

Internet Access at Home	Frequency	Percentage
Yes, with a stable internet connection	198	36.87
Yes, but the connection is unstable/slow	69	12.85
No, but I use mobile data	89	16.57
No internet access at home	181	33.71
Total	537	100.0

Table 1.6.a presents the distribution of respondents according to internet access at home. The data reveal that 36.87 percent of the respondents have a stable internet connection. In contrast, 33.71 percent indicate the absence of internet access at home. Meanwhile, 16.57 percent rely primarily on mobile data, and 12.85 percent reported having experienced unstable or slow internet connectivity. These underscore notable disparities in internet accessibility among the respondents.

Barz et al. (2024) highlight that students with reliable internet access tend to exhibit stronger self-regulated learning skills, enhanced time management, and greater participation in digital collaborative activities. Conversely, those without consistent access often depend on offline resources, which may restrict their engagement with interactive learning tools and limit opportunities for peer collaboration. Understanding the distribution of internet access among respondents provides essential context for examining how digital engagement, screen time, and academic outcomes intersect, particularly within senior high school settings where technology has become a central component of educational practice.

b. Primary Place of Internet Use

Table 1.6.b
Frequency and Percentage Distribution of Respondents According to Primary Source of Internet Use

Primary Place of Internet Use	Frequency	Percentage
At home (Wi-Fi)	217	40.41
At home (mobile data)	95	17.69
At school	27	5.03
Internet café/store	47	8.75
At a relative's or friend's house	151	28.12
Total	537	100.0

Table 1.6.b presents the distribution of respondents according to their primary source of internet use. The largest proportion of students or 40.41 percent reported accessing the internet at home via Wi-Fi. This is followed by 28.12 percent who primarily connected at a relative's or friend's residence. About 18 percent rely on mobile data at home, 8.75 percent accessed the internet in cafés or commercial establishments, and 5.03 percent primarily utilized school-based internet facilities.

These findings highlight the predominance of home-based Wi-Fi access while also underscoring the significant proportion of learners who depend on alternative venues for connectivity. Prior studies have noted that students who primarily access the internet outside their homes often develop adaptive learning strategies, such as downloading instructional materials in advance or coordinating with peers for collaborative tasks, thereby partially mitigating the challenges posed by irregular or unstable access.

Understanding the primary places of internet use is crucial for contextualizing patterns of screen time, digital device utilization, and academic performance. Such contextualization is particularly relevant in environments where students encounter varied technological and infrastructural constraints, as it provides insight into how access disparities shape digital learning behaviors and educational outcomes.

2. What type of digital devices do students commonly use?

Table 2
Frequency and Percentage Distribution of Respondents According to Digital Devices Commonly Used

Types of Digital Devices	Frequency	Percentage
Laptop	16	2.98
Desktop Computer	0	0.00
Tablet/iPad	2	0.37
Smartphone	519	96.65
Gaming Console	0	0.00
Total	537	100.0

Table 2 presents the distribution of respondents according to the types of digital devices commonly utilized. The data reveal that smartphones overwhelmingly dominate as the primary digital device of 96.65 percent of the respondents. This underscores the centrality of smartphones in students' daily digital activities and highlights their role as the principal medium for accessing online resources, social media platforms, and academic applications. In contrast, only 2.98 percent reported using laptops, while tablets or iPads were utilized by two respondents. No respondents indicated the use of desktop computers or gaming consoles for their digital engagement. These findings affirm that smartphones serve as the predominant tool for both academic and personal purposes, while the minimal reliance on laptops and tablets suggests a strong preference for mobile-based access.

The dominance of smartphones, however, is not without challenges. Existing literature cautions that excessive reliance on smartphones may contribute to distractions,

reduced attention span, and adverse effects on academic performance if not properly regulated. Despite these concerns, smartphones remain indispensable for digital participation, with students increasingly integrating them into both academic and social contexts. Understanding the distribution of digital device usage provides a critical foundation for examining patterns of screen time, learning behaviors, and their relationship to academic outcomes (Buctot et al., 2021).

3. What is the extent of students' engagement with digital devices in terms of:

3.1 Frequency of Use

Table 3.1
The Extent of Students' Engagement with Digital Devices in Terms of Frequency of Use

Statements	Mean	Interpretation
Laptop	1.65	Rarely
Desktop Computer	1.34	Never
Tablet/iPad	1.59	Rarely
Smartphone	3.84	Always
Gaming Console	1.00	Never
Grand Mean	1.88	Rarely

Table 3.1 shows the extent of students' engagement with digital devices in terms of frequency of use. The data reveal that smartphones are consistently utilized, with a mean score of 3.84, indicating that students "Always" employ them in their academic and personal activities. In contrast, laptops and tablets/iPads are only "Rarely" used, while desktop computers and gaming consoles are "Never" utilized by the respondents. The computed grand mean of 1.88 suggests that, on the average, students seldom engage with digital devices other than smartphones. This pattern underscores the focus of smartphones in students' daily routines, both as academic tools and as sources of entertainment.

Despite the prevalence of smartphone use, existing literature cautions against its potential drawbacks. Buctot et al. (2021) as well as Cain and Gradisar (2010), emphasized that constant engagement with smartphones may lead to distractions, diminished study focus, and excessive exposure to social media, which can adversely affect academic performance. Conversely, smartphones also serve as valuable platforms for mobile-assisted learning, online collaboration, and immediate access to information, thereby highlighting their dual role in shaping students' educational experiences. Understanding the frequency of device usage is therefore critical in interpreting patterns of screen time, learning behaviors, and their broader implications for students' academic outcomes.

3.2 Purpose of Use

Table 3.2
The Extent of Students' Engagement with Digital Devices in Terms of Purpose of Use

Statements	Mean	Interpretation
Completing homework, projects, and school assignments	3.49	Often
Conducting academic research (e.g., search engines, online articles, e-books)	3.11	Often
Communicating with teachers or classmates regarding academic tasks	3.31	Often
Using social media platforms (e.g., Facebook, Instagram, TikTok, X)	3.64	Always
Messaging or chatting (e.g., Messenger, WhatsApp, Viber)	3.46	Often
Watching videos or movies (e.g., YouTube, Netflix)	3.28	Often
Participating in online gaming	2.07	Rarely
Creating digital content (e.g., videos, photos, vlogs, artwork, blogs)	2.08	Rarely
Grand Mean	3.06	Often

Table 3.2 presents the extent of students' engagement with digital devices according to their purpose of use. The data reveal that students always utilize digital devices for accessing and interacting on social media platforms. They often employ these devices for completing homework, projects, and school assignments, as well as for messaging or chatting, communicating with teachers and classmates, watching videos or movies, and conducting academic research. On the other hand, activities such as participating in online gaming and creating digital content are reported as rarely undertaken. The computed grand mean of 3.06 indicates that students generally use digital devices often for varied purposes, with a primary emphasis on social media engagement and academic-related tasks.

These findings is similar with the findings of Barz et al. (2024), who emphasized that integrating educational activities with digital tools such as peer-to-peer messaging about school tasks or utilizing devices for research—enhances students' self-regulated learning, academic collaboration, and time management skills. Understanding the purposes for which students engage with digital devices is therefore critical in interpreting their learning behaviors and in assessing the broader impact of technology on academic performance.

3.3 Type of Online Application Usage

Table 3.3
The Extent of Students' Engagement with Digital Devices in Terms of Types of Online Application Usage

Statements	Mean	Interpretation
1. Search engines and academic reference sites (e.g., Google, journals, e-books)	3.17	Often
2. Social media platforms (e.g., Facebook, Instagram, TikTok)	3.64	Always
3. Messaging and chat applications (e.g., Messenger, WhatsApp, Telegram, Viber)	3.37	Often
4. Video streaming platforms (e.g., YouTube, Netflix)	2.62	Often
5. Online gaming platforms (e.g., mobile games, Steam, Roblox)	2.01	Rarely
Grand Mean	2.96	Often

Table 3.3 presents the extent of students' engagement with digital devices in relation to their usage of various online applications. The data reveal that respondents "Always" use social media platforms, while "Often" utilize chat applications, search engines, academic reference sites, and video streaming platforms. In contrast, online gaming platforms are "Rarely" used. The computed grand mean of 2.96 indicates that students generally "Often" engage with diverse online applications, with a pronounced preference for social media and communication tools.

These findings imply that students' digital engagement is heavily concentrated on smartphones, particularly through social media and messaging applications, while their use of other platforms remains comparatively limited. The high frequency of engagement with social and communication tools suggests that digital device usage is predominantly oriented toward social interaction and entertainment, though academic activities also occupy a significant portion. According to Junco (2012), this dual role of digital devices highlights their function in supporting both learning and leisure.

Such patterns confirms both global and local research on adolescents' digital habits where social media and messaging applications serve as primary instruments for communication, collaboration, and peer interaction, which are integral to students' social and academic lives. Meanwhile, Aramay and Flores (2025) claim that the frequent use of search engines, academic journals, and e-books demonstrates students' reliance on digital platforms for information retrieval, research, and the completion of school-related tasks. These findings affirm the multifaceted role of digital devices in shaping contemporary learning environments and student lifestyles.

4. What are the effects of digital device use on the following aspects as experienced by the students, and observed by their parents and teachers in terms of:

4.1 Students' Learning, Behavior, and Wellness

a. Learning

Table 4.1.a
The Effects of Excessive Digital Device Use on Students' Learning as Experienced by Students

Statements	Weighted Mean	Interpretation
1. My lessons are more interesting when I use digital devices.	2.90	Moderately Excessive
2. I understand hard lessons better when I watch videos or tutorials.	3.04	Moderately Excessive
3. Digital devices help me keep my school tasks organized.	3.19	Moderately Excessive
4. I learn faster because I can quickly search for information on my device.	3.12	Moderately Excessive
5. Using digital devices helps me practice and improve my skills.	3.07	Moderately Excessive
6. I get distracted from my schoolwork because of social media, games, or apps.	2.86	Moderately Excessive
7. I delay studying because I spend too much time on my device.	2.67	Moderately Excessive
8. I submit rushed or unfinished schoolwork because I use my device too much.	2.49	Moderately Excessive Effect
9. I find it hard to focus in class after staying up late using my device.	2.62	Moderately Excessive
10. I forgot what I studied because my device distracted me while reviewing.	2.60	Moderately Excessive
Grand Mean	2.86	Moderately Excessive

Table 4.1.a presents the perceived effects of excessive digital device use on students' learning. The grand mean of 2.86, interpreted as "Moderately Excessive," indicates that respondents generally experienced a moderate level of influence from digital device use in their academic activities. The findings show that digital devices positively support learning by increasing lesson engagement, improving comprehension of difficult topics through videos and tutorials, helping students organize academic tasks, and providing quick access to information. These results suggest that digital technologies serve as useful instructional tools that enhance understanding and academic skill development.

However, the respondents also recognized negative effects of excessive use. Prolonged engagement with social media, games, and applications was found to cause distractions, delay study schedules, reduce classroom focus, and affect retention during

review sessions. Despite these concerns, excessive device use had only a minimal effect on the completion and submission of schoolwork, as reflected by the mean score of 2.49.

Overall, the findings reveal the dual role of digital devices in learning: beneficial when used appropriately but potentially disruptive when unregulated. This supports Adelantado-Renau et al. (2019), who emphasized that screen media can enhance access to learning resources while also affecting academic outcomes when excessively used.

b. Behavior

Table 4.1.b
The Effects of Excessive Digital Device Use on Students' Behavior as Experienced by Students

Statements	Weighted Mean	Interpretation
1. I use digital devices to help or support my classmates.	2.94	Moderately Excessive
2. Digital devices help me talk clearly with my teachers and classmates.	2.93	Moderately Excessive
3. Digital devices help me keep track of school schedules and deadlines.	3.2	Moderately Excessive
4. I use digital devices to work well with classmates on school tasks.	3.07	Moderately Excessive
5. I follow school and home rules when using digital devices.	2.87	Moderately Excessive
6. I feel annoyed when someone asks me to stop using my digital device.	2.59	Moderately Excessive
7. I forget or ignore my responsibilities at home because of device use.	2.35	Minimal Effect
8. I argue with my parents or guardians about my digital device use.	2.15	Minimal Effect
9. I use digital devices during class even when it is not allowed.	2.15	Minimal Effect
10. I avoid talking to people around me because I am using my digital device.	2.26	Minimal Effect
Grand Mean	2.65	Moderately Excessive

Table 4.1.b shows that excessive digital device use has a moderately excessive effect on students' behavior, as reflected by the grand mean of 2.65. The findings indicate that students perceive digital devices as having a moderate influence on their behavioral patterns. Positively, respondents reported that digital devices help them communicate with teachers and classmates, support peers, monitor school schedules and deadlines, and collaborate effectively on academic tasks. These results suggest that digital technology contributes to students' organizational skills, cooperative behavior, and communicative competence.

However, the respondents also recognized minor negative behavioral effects. Some students reported feeling irritated when asked to stop using their devices, suggesting a certain level of attachment or dependence. Despite this, other negative

behaviors were found to be minimal, as students generally disagreed that device use causes them to ignore household responsibilities, argue with parents or guardians, or avoid face-to-face interaction.

Overall, the findings suggest that excessive digital device use moderately affects student behavior, with more positive than negative outcomes. This is supported by Buctot et al. (2021), who found that digital device use can enhance communication, collaboration, and responsible academic behavior when used for educational purposes.

Wellness

Table 4.1.c
The Effects of Excessive Digital Device Use on Students' Wellness as Experienced by Students

Statements	Weighted Mean	Interpretation
1. I feel supported when I connect with family and friends online.	3.14	Moderately Excessive
2. I use apps or online videos to help me exercise or stay active.	2.81	Moderately Excessive
3. I find online information that helps me make healthier choices.	2.92	Moderately Excessive
4. Using digital devices helps me relax after a stressful day.	3.01	Moderately Excessive
5. I find helpful tips online on how to manage stress or worries.	3.02	Moderately Excessive
6. I sleep late or do not get enough sleep because I use digital devices at night.	2.85	Moderately Excessive
7. I feel tired or sleepy during the day because I stayed up using digital devices.	2.78	Moderately Excessive
8. My eyes feel strained or hurt after using digital devices for a long time.	2.81	Moderately Excessive
9. I spend less time on physical activities because I use digital devices too much.	2.66	Moderately Excessive
10. I feel anxious or stressed when I cannot check my digital devices or the internet.	2.69	Moderately Excessive
Grand Mean	2.87	Moderately Excessive Effect

Table 4.1.c presents the effects of excessive digital device use on students' wellness as perceived by the respondents. The data yielded a grand mean of 2.87, which is qualitatively described as "Moderately Excessive ." This finding indicates that excessive use of digital device moderately influence students' overall wellness.

Respondents agreed that digital devices foster emotional support by enabling connections with family and friends online. They also reported that utilizing applications and online videos help them engage in exercise or maintain physical activity, as well as accessing online information that guides healthier lifestyle choices. Furthermore, students

concurred that digital devices provide relaxation after stressful days and offer practical strategies for managing stress and worries. These results suggest that digital technology contributes positively to students' emotional well-being and facilitates access to wellness-related resources.

Conversely, respondents acknowledged several adverse effects on students' wellness associated with excessive device use. They agreed that prolonged nighttime use of digital devices leads to insufficient sleep, resulting in daytime fatigue and drowsiness. Students also reported experiencing eye strain or discomfort after extended screen exposure and noted a reduction in time devoted to physical activities due to device overuse. Additionally, they expressed feelings of anxiety or stress when unable to check their devices or access the internet. These findings underscore that while digital devices provide avenues for emotional support and health information, excessive engagement may compromise sleep quality, physical health, and psychological stability.

Findings of this study confirm the study of Dy et al., (2023) who investigated the effects of screen time on the development and overall well-being of children in the Philippines. Their cross-sectional study revealed that while digital devices can provide emotional support, access to information, and tools for relaxation, excessive use is associated with negative physical and mental health outcomes. For instance, students who spent extended periods on digital devices reported eye strain, fatigue, sleep disturbances, and reduced engagement in physical activity, which parallels the current study's findings where respondents agreed that using devices at night leads to insufficient sleep and daytime tiredness, and that prolonged device use results in eye strain and less physical activity. Taken together, the results of Tables 4.1.a, 4.1.b, and 4.1.c show that students generally agree that digital devices positively contribute to learning, behavior, and wellness. However, excessive engagement may also introduce distractions, fatigue, and stress that can limit the overall benefits. These findings highlight the dual nature of digital device use, demonstrating that while digital tools provide academic support and social connectivity, excessive use may negatively affect students' focus, physical health, and emotional well-being.

4.2 Effects of Digital Device Use on Students' Learning, Behavior, and Wellness as Observed by Parents and Teachers

a. Learning

Table 4.2.a
The Effects of Digital Device Use on Students' Learning as Observed by Parents and Teachers

Statements	Parents		Teachers	
	Weighted Mean	Interpretation	Weighted Mean	Interpretation
1. Digital devices make lessons more engaging for the student/my child.	2.81	Moderately Excessive	3.04	Moderately Excessive

2. The student/My child learns faster because they can easily find information using digital devices.	2.92	Moderately Excessive	3.17	Moderately Excessive
3. Digital devices help the student/my child organize schoolwork, such as tasks and deadlines.	2.88	Moderately Excessive	2.91	Moderately Excessive
4. The student/my child understands difficult lessons better when using educational videos or tutorials.	2.84	Moderately Excessive	2.91	Moderately Excessive
5. Digital devices help the student/my child practice and improve academic skills.	2.84	Moderately Excessive	3.04	Moderately Excessive
6. Excessive use of digital devices distracts the student/my child from schoolwork.	2.67	Moderately Excessive	3.35	Moderately Excessive
7. The student/My child delays or avoids studying because of too much device use.	2.67	Moderately Excessive	3.17	Moderately Excessive
8. The student/My child submits rushed or incomplete schoolwork due to time spent on digital devices.	2.51	Moderately Excessive	3.17	Moderately Excessive
9. The student/My child has difficulty focusing in class after using digital devices late at night.	2.57	Moderately Excessive	3.17	Moderately Excessive
10. Excessive digital device use affects the student's/my child's overall academic performance.	2.68	Moderately Excessive	3.26	Moderately Excessive
Grand Mean	2.74	Moderately Excessive	3.17	Moderately Excessive

Table 4.2.a shows that both parents and teachers perceived digital device use as having a **moderately excessive effect** on students' learning. Parents obtained a grand mean of **2.74**, indicating that digital devices moderately influence students' academic experiences by improving lesson engagement, providing quick access to information, supporting task organization, and helping learners understand difficult topics through videos and tutorials. However, parents also observed that excessive device use may distract students, delay study time, encourage rushed outputs, and reduce classroom concentration, especially after late-night use. This supports Alghamdi and Holland (2020), who emphasized that digital tools enhance learning when purposefully used but may weaken academic focus when unregulated.

Similarly, teachers reported a higher grand mean of 3.12, also interpreted as "Moderately Excessive." Teachers affirmed that digital devices promote engagement, faster learning, academic organization, and skill development. However, they observed stronger negative effects, particularly distraction, procrastination, incomplete or rushed outputs, and difficulty focusing in class. These findings align with Rosen et al. (2011), who found that excessive digital engagement can reduce focus and affect academic work quality. Overall, digital devices support learning but require balanced and responsible use.

b. Behavior

Table 4.2.b
The Effects of Digital Device Use on Students' Behavior as Observed by Parents and Teachers

Statements	Parents		Teachers	
	Weighted Mean	Interpretation	Weighted Mean	Interpretation
1. Digital devices help the student/my child communicate clearly with teachers and classmates.	2.95	Moderately Excessive	3.09	Moderately Excessive
2. The student/my child uses digital devices responsibly for school tasks and activities.	2.91	Moderately Excessive	3	Moderately Excessive
3. Digital devices help the student/my child stay organized with school schedules and deadlines.	2.89	Moderately Excessive	3	Moderately Excessive
4. The student/my child understands lessons better when using educational videos or online materials.	2.86	Moderately Excessive	3.48	Moderately Excessive
5. Digital devices help the student/my child improve academic skills through practice and activities.	2.91	Moderately Excessive	3.09	Moderately Excessive
6. Excessive use of digital devices distracts the student/my child from schoolwork.	2.65	Moderately Excessive	3.09	Moderately Excessive
7. The student/my child spends too much time on digital devices instead of studying.	2.55	Moderately Excessive Effect	3.13	Moderately Excessive Effect
8. Digital device use causes the student/my child to neglect responsibilities at home or school.	2.62	Moderately Excessive	3.43	Moderately Excessive
9. The student/my child becomes irritable or upset when asked to limit digital device use.	2.64	Moderately Excessive	3.04	Moderately Excessive
10. Excessive digital device use affects the student's/my child's overall academic performance.	2.77	Moderately Excessive	3.17	Moderately Excessive
Grand Mean	2.77	Moderately Excessive	3.15	Moderately Excessive

Table 4.2.b presents the effects of digital device use on students' behavior as observed by parents and teachers. For parents, the result yielded a grand mean of 2.77 qualitatively described as a "Moderately Excessive." This finding suggests that parents generally perceive digital device use as having a moderate influence on their children's behavioral patterns.

Parents concurred that digital devices facilitate clear communication with teachers and classmates, encourage responsible use for school-related tasks, and support organizational skills through schedules and deadlines. They further observed that digital

devices enhance lesson comprehension via educational materials and strengthen academic skills through practice. These findings indicate that, when appropriately managed, digital devices can foster responsible behavior, effective communication, and improved organizational competencies among students.

On the contrary, parents also identified several adverse behavioral effects associated with excessive use of digital device. They agreed that overuse can distract students from academic responsibilities, lead to excessive time spent on devices rather than studying, and result in neglect of household or school duties. Moreover, parents reported that students may exhibit irritability or frustration when asked to limit device use, with excessive engagement perceived as potentially detrimental to overall academic performance. Supporting these observations, Domoff et al. (2020) emphasized that while purposeful use of digital media can enhance behavioral engagement, communication, and responsibility, excessive or unregulated use may foster distraction, irritability, poor time management, and neglect of obligations. These findings resonate with the parents' perceptions in the present study, underscoring the importance of moderation and guided use in fostering balanced behavioral outcomes.

On the other hand, teachers also reported notable negative behavioral effects. They agreed that excessive digital device use can distract students from schoolwork and cause them to spend too much time on devices rather than studying. Teachers further observed that students may neglect responsibilities at home or school. Moreover, excessive use was perceived to affect students' overall academic performance. These findings are supported by Junco (2012), who emphasized that responsible technology use can enhance communication, collaboration, and organization, but also Przybylski and Weinstein (2017), who found that excessive screen time may lead to distraction, irritability, and reduced self-regulation when not properly managed. These studies align with the teachers' observations regarding behavioral challenges linked to overuse.

Overall, parents and teachers believe that digital devices moderately influence students' behavior, offering both developmental benefits and behavioral risks. While digital devices can enhance communication, responsibility, and organization, excessive use may lead to distractions, neglect of responsibilities, and emotional responses such as irritability. These findings underscore the need for balanced and regulated digital device use to promote positive behavioral outcomes while minimizing potential negative effects.

c. Wellness

Table 4.2.c
The Effects of Digital Device Use on Students' Wellness as Observed by Parents and Teachers

Statements	Parents		Teachers	
	Weighted Mean	Interpretation	Weighted Mean	Interpretation
1. The student/my child feels emotionally supported when	2.94	Moderately Excessive	2.83	Moderately Excessive

connecting with family and friends online.				
2. The student/my child uses apps or online videos to stay active or exercise.	2.77	Moderately Excessive	2.39	Minimal
3. The student/my child finds online information that helps them make healthier choices.	2.81	Moderately Excessive	3.00	Moderately Excessive Effect
4. Using digital devices helps the student/my child relax after a stressful day.	2.86	Moderately Excessive	2.96	Moderately Excessive
5. The student/my child finds helpful online tips for managing stress or worries.	2.89	Moderately Excessive	3.48	Excessive
6. The student/my child sleeps late or does not get enough sleep because of digital device use at night.	2.74	Moderately Excessive	3.26	Excessive
7. The student/my child appears tired or sleepy during the day due to late-night device use.	2.80	Moderately Excessive Effect	3.26	Excessive
8. The student/my child experiences eye strain or eye discomfort after long periods of device use.	2.77	Moderately Excessive	3.17	Moderately Excessive
9. The student/my child spends less time on physical activities because of excessive device use.	2.61	Moderately Excessive	3.30	Excessive
10. The student/my child becomes anxious or stressed when unable to check digital devices or the internet.	2.64	Moderately Excessive	3.26	Excessive
Grand Mean	2.78	Moderately Excessive	3.09	Moderately Excessive

Table 4.2.3 presents the effects of digital device use on students' wellness as observed by the parents and by the teachers.

For parents, the grand mean of 2.78, qualitatively described as Moderately Excessive suggests that parents generally perceive digital device use as having a moderate impact on their children's wellness. On the positive side, parents agreed that students feel emotionally supported when connecting with family and friends online. They also observed that students use apps or online videos to stay active or exercise and access information that helps them make healthier lifestyle choices. In addition, parents noted that digital devices help students relax after stressful experiences and provide useful strategies for managing stress and worries. These findings indicate that digital devices can support emotional well-being, relaxation, and access to health-related information when used appropriately.

However, parents also recognized several negative wellness effects associated with excessive use. They agreed that students tend to sleep late or experience insufficient sleep due to nighttime device use and often appear tired or sleepy during the day. Parents also observed that prolonged screen exposure may cause eye strain or discomfort and

reduce students' participation in physical activities. Furthermore, they noted that students may feel anxious or stressed when they are unable to access their digital devices or the internet. These findings suggest that while digital devices can provide emotional benefits, excessive use may disrupt sleep patterns, decrease physical activity, and negatively affect overall wellness.

These observations are supported by the work of Twenge and Campbell (2018), who found that moderate digital device use can promote emotional support, stress management, and access to health information, but excessive or unregulated use may lead to sleep disruption, fatigue, reduced physical activity, and increased anxiety. This aligns closely with the parents' observations, reinforcing the importance of balanced and guided device use.

Similarly, for teachers, the grand mean of 3.09, also interpreted as Moderately Excessive indicates that teachers likewise perceive digital device use as moderately influencing students' physical and emotional well-being. Teachers agreed that students benefit emotionally from online communication with family and peers and gain access to information that supports healthier choices. They also observed that digital devices help students relax and manage stress, with one indicator, accessing online tips for stress management. These findings highlight the potential of digital devices to support emotional regulation and well-being.

On the other hand, teachers also identified significant negative effects. They strongly agreed that students experience lack of sleep due to late-night device use and often appear fatigued during the day. Teachers also noted that prolonged use may cause eye strain and reduce students' involvement in physical activities. Additionally, students may feel anxious or stressed when unable to access their devices. Notably, teachers disagreed that students commonly use digital devices to stay physically active, indicating minimal engagement in this area. These findings suggest that excessive digital device use may negatively impact students' sleep, physical health, and emotional stability.

Supporting these observations, studies by Cain and Gradisar (2010) as well as Shen et al. (2023), show that excessive screen time, especially before bedtime can disrupt sleep patterns and circadian rhythms, leading to fatigue and reduced well-being. Additionally, Domoff et al. (2020) emphasized that unregulated media use may contribute to increased stress, anxiety, and behavioral difficulties among adolescents. These findings are consistent with the teachers' observations in the present study.

Overall, the combined perspectives of parents and teachers indicate that digital devices moderately influence students' wellness, offering both supportive and detrimental effects. While digital devices can promote emotional connection, relaxation, and access to health information, excessive use may lead to sleep disturbances, physical strain, reduced activity, and increased stress. These results highlight the importance of promoting balanced and responsible digital device use to support students' overall physical and emotional well-being while minimizing potential negative consequences.

5. Significant Relationship Between the Effects of Excessive Digital Device Use On Students' Learning, Behavior, and Wellness when Grouped According to their Profiles

5.1 Learning

Table 5.1
Results of the Test for Significant Relationship Between the Effects of Digital Use on Students' Learning and their Profiles

Variables	P - value	Analysis	Decision	Remarks
Effects of Excessive Digital Use on Students' Learning and Sex	0.044	$P < 0.05$	Reject H_0	Significant
Effects of Excessive Digital Use on Students' Learning and Grade Level	0.104	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Learning and Parents' Monthly Income	0.294	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Learning and Students' Learning (General Average)	<0.001	$P < 0.05$	Reject H_0	Significant
Effects of Excessive Digital Use on Students' Learning and Living Arrangements	0.107	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Learning and Internet Access at Home	0.505	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Learning and Primary Places(s) of Internet Use	0.842	$P > 0.05$	Accept H_0	Not significant

Table 5.1 presents the results of the test of the significant relationship between the effects of excessive digital device use on students' learning and their profile variables, using the Chi-square test for association at the 0.05 level of significance.

As shown in the table, the p-values for the relationship between the effects of excessive digital device use on students' learning and the profile variables grade level, parents' monthly income, living arrangement, internet access at home, and primary place(s) of internet use are all greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted for these variables. This indicates that there is no significant relationship between these profile variables and the perceived effects of excessive digital device use on students' learning. In other words, the effects of excessive digital device use on students' learning are not associated with their grade level, family income, living arrangement, internet access at home, or primary places of internet use.

However, the p-value for sex is 0.044, and the p-value for students' learning measured through General Average is less than 0.001, both of which are lower than the 0.05 level of significance. Thus, the null hypothesis is rejected for these variables. This indicates that there is a significant relationship between the effects of excessive digital device use on students' learning and their sex and learning as measured by General Average. This implies that the effects of excessive digital device use on students' learning are associated with the sex and academic performance of the students. The significant relationship with sex suggests that the perceived effects of excessive digital device use on learning vary in relation to whether the student is male or female.

Furthermore, the highly significant relationship between excessive digital device use and students' learning or General Average indicates that the effects of excessive digital device use are linked to students' level of academic achievement. This suggests that students' learning performance, as reflected in their General Average, is associated with how excessive digital device use influences their learning. It may also imply that students with stronger academic performance may exhibit better self-regulation in controlling excessive use, while those with lower academic performance may experience greater academic disruption associated with digital device overuse. The use of digital devices has become an integral part of the learning environment, providing both opportunities and challenges for academic performance. Studies of Adelantado-Renau et al. (2019) and Rosen et al. (2013) suggest that excessive screen time may negatively affect learning by reducing concentration, encouraging multitasking, and increasing distractions, which can interfere with comprehension and retention of information. Additionally, Lepp et al. (2015) and Mani and Goniewicz (2023) suggest that overreliance on smartphones and social media platforms can result in fragmented attention and procrastination, further impacting academic outcomes.

5.2 Behavior

Table 5.2
Results of the Test for Significant Relationship Between the Effects of Digital Use on Students' Behavior and their Profiles

Variables	P - value	Analysis	Decision	Remarks
Effects of Excessive Digital Use on Students' Behavior and Sex	0.617	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Behavior and Grade Level	0.527	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Behavior and Parents' Monthly Income	0.953	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Behavior and Students' Learning (General Average)	0.938	$P > 0.05$	Accept H_0	Not significant

Effects of Excessive Digital Use on Students' Behavior and Living Arrangements	0.497	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Behavior and Internet Access at Home	0.420	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Behavior and Primary Places(s) of Internet Use	0.791	$P > 0.05$	Accept H_0	Not significant

Table 5.2 presents the results of the test of a significant relationship between the effects of excessive digital device use on students' behavior and their profile variables, using the Chi-square test for association at the 0.05 level of significance.

As shown in the table, all the p-values for the profile variables—sex, grade level, parents' monthly income, students' learning as measured by General Average, living arrangement, internet access at home, and primary place(s) of internet use are greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted for all the variables. This indicates that there is no significant relationship between the effects of excessive digital device use on students' behavior and any of the identified profile variables. In other words, the perceived effects of excessive digital device use on students' behavior are not associated with their sex, grade level, parents' monthly income, academic performance, living arrangement, internet access at home, or primary places of internet use. The pervasive use of digital devices among students has raised concerns regarding its impact on behavior. Supporting these observations, studies of Alkhateeb et al. (2020) as well as Domoff et al. (2020), have shown that excessive screen time has been linked to irritability, attention difficulties, impulsivity, and reduced social interactions in children and adolescents. Studies of Twenge (2019) and Rosen et al. (2013) also indicate potential associations with risk-taking behaviors and overreliance on technology for problem-solving.

Findings from the current study show no significant relationship between the effects of excessive digital device use on students' behavior and their profile variables, including sex, grade level, parents' monthly income, academic performance, living arrangements, internet access at home, or primary place of internet use. This suggests that behavioral responses to digital device use may be more universally experienced among students, rather than being influenced by demographic or socioeconomic characteristics. This is consistent with research of Walsh et al. (2008) and Buctot et al. (2021) indicating that while digital engagement can affect attention, mood, and social behavior, these effects are often moderated by individual differences such as self-regulation, coping strategies, and personal habits rather than external profile factors.

5.3 Wellness

Table 5.3
Results of the Test for Significant Relationship Between the Effects of Digital Use on Students' Wellness and their Profiles

Variables	P - value	Analysis	Decision	Remarks
Effects of Excessive Digital Use on Students' Wellness and Sex	0.191	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Wellness and Grade Level	0.299	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Wellness and Parents' Monthly Income	0.004	$P < 0.05$	Reject H_0	Significant
Effects of Excessive Digital Use on Students' Wellness and Students' Learning (General Average)	0.209	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Wellness and Living Arrangements	0.922	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Wellness and Internet Access at Home	0.378	$P > 0.05$	Accept H_0	Not significant
Effects of Excessive Digital Use on Students' Wellness and Primary Places(s) of Internet Use	0.343	$P > 0.05$	Accept H_0	Not significant

Table 5.3 displays the results of the test of a significant relationship between the effects of excessive digital device use on students' wellness and their profile variables, using the Chi-square test for association at the 0.05 level of significance.

As shown in the table, the p-value for sex is 0.191, for grade level is 0.299, for students' academic performance measured through General Average is 0.209, for living arrangement is 0.922, for internet access at home is 0.378, and for primary place or places of internet use is 0.343. All these p-values are greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted for these variables. This indicates that there is no significant relationship between the effects of excessive digital device use on students' wellness and these profile variables. In other words, the perceived effects of excessive digital device use on students' wellness are not associated with sex, grade level, academic performance, living arrangement, internet access at home, or primary places of internet use.

However, the p-value for parents' monthly income is 0.004, which is less than the 0.05 level of significance. Thus, the null hypothesis is rejected for this variable. This means that there is a significant relationship between the effects of excessive digital device use on students' wellness and parents' monthly income. This implies that students'

wellness in relation to excessive digital device use is associated with their family income level. The significant relationship between parents' monthly income and students' wellness may be attributed to differences in access to health resources, supervision, and structured activities, which may influence how excessive digital device use is associated with students' physical and psychological well-being.

Research consistently indicates that excessive use of digital devices can influence the physical and psychological wellness of students. Studies of Tsang et al., (2023), Dy et al., (2023), and Cain & Gradisar, (2010) have shown that prolonged screen time may lead to visual fatigue, musculoskeletal discomfort, sleep disturbances, and mental health concerns such as anxiety or stress. The relationship between digital device use and wellness is not uniform across all demographic factors, as certain socioeconomic variables may modulate its impact.

The current findings reveal that parents' monthly income is significantly associated with students' wellness in the context of excessive digital device use, whereas variables such as sex, grade level, academic performance, living arrangement, and internet access do not show significant relationships. This aligns with previous research of Buctot et al., (2021) and Presta et al., (2024) emphasizing the role of family income in determining health outcomes and access to resources that support balanced digital engagement. Students from higher-income families may have greater access to ergonomic devices, structured schedules, and wellness resources, reducing the negative impact of prolonged device use. Conversely, lower-income families may face constraints that exacerbate wellness issues, such as limited supervision, fewer recreational alternatives, or lack of health-promoting interventions (World Health Organization, 2020).

Additionally, the lack of significant relationships with other profile variables suggests that wellness outcomes are more sensitive to socioeconomic context than demographic factors like sex or grade level. Prior studies of Domoff et al., (2020) and Walsh et al. (2008) support this, noting that while digital device use affects physical and mental health universally, the degree of impact often depends on environmental and familial conditions rather than inherent personal characteristics. Therefore, interventions aiming to mitigate the negative effects of excessive device use on wellness may need to focus on supporting families with limited resources, promoting structured screen time, and encouraging health-conscious behaviors.

6. Significant Relationship Between Students' Engagement with Digital Devices and Its Effects

Table 6.
Results of the Test for Significant Relationship between Students' Engagement with Digital Devices and its Effects

Variables	Pearson r - value	p-value	Analysis	Decision	Remarks
Frequency of Use and Effects of Excessive Digital Use on Students' Learning	0.09	0.049	$P < 0.05$	Reject H_0	Significant

Frequency of Use and Effects of Excessive Digital Use on Students' Behavior	0.34	0.433	$P > 0.05$	Accept H_0	Not significant
Frequency of Use and Effects of Excessive Digital Use on Students' Wellness	0.14	0.001	$P < 0.05$	Reject H_0	Significant
Purpose and Effects of Excessive Digital Use on Students' Learning	0.21	<0.001	$P < 0.05$	Reject H_0	Significant
Purpose and Effects of Excessive Digital Use on Students' Behavior	0.15	<0.001	$P < 0.05$	Reject H_0	Significant
Purpose and Effects of Excessive Digital Use on Students' Wellness	0.26	<0.001	$P < 0.05$	Reject H_0	Significant
Type of online application and Effects of Excessive Digital Use on Students' Learning	0.05	0.288	$P > 0.05$	Accept H_0	Not significant
Type of online application and Effects of Excessive Digital Use on Students' Behavior	0.04	0.364	$P > 0.05$	Accept H_0	Not significant
Type of online application and Effects of Excessive Digital Use on Students' Wellness	0.14	<0.001	$P < 0.05$	Reject H_0	Significant

Table 6 presents the results of the test of a significant relationship between students' engagement with digital devices and the effects of excessive digital device use, using Pearson correlation at the 0.05 level of significance. The engagement variables considered are frequency of use, purpose of use, and type of online application, while the effects are on students' learning, behavior, and wellness.

Frequency of use shows a significant relationship with students' learning and wellness. The correlation between frequency of use and the effect on learning has a Pearson r -value of 0.09 and a p -value of 0.049, which is less than 0.05. Similarly, the correlation between frequency of use and the effect on wellness has a Pearson r -value of 0.14 and a p -value of 0.001, also less than 0.05. These results indicate that how often students use digital devices is associated with perceived effects on their learning and wellness. However, the correlation between frequency of use and the effect on behavior has a p -value of 0.433, which is greater than 0.05, indicating no significant relationship.

Purpose of use has a significant relationship with all three effects of excessive digital device use. The correlations are as follows: learning ($r = 0.21$, $p < 0.001$), behavior ($r = 0.15$, $p < 0.001$), and wellness ($r = 0.26$, $p < 0.001$). Since all p -values are less than 0.05, the null hypotheses are rejected. This suggests that the reason why students use digital devices—whether for academic, social, or entertainment purposes—is associated with the perceived effects of excessive digital device use on learning, behavior, and wellness.

Type of online application shows a significant relationship only with students' wellness. The correlation between type of application and effects on wellness has an r -value of 0.14 and a p -value less than 0.001, indicating a significant association. However,

the correlations with learning ($p = 0.288$) and behavior ($p = 0.364$) are not significant, showing that the type of application does not have a statistically significant relationship with perceived effects on learning or behavior.

This aligns with prior research of Cain & Gradisar, (2010), Domoff et al. (2020) and Buctot et al., (2020), showing that while moderate device use can support academic tasks and learning engagement, excessive or unregulated use may affect students' sleep, attention, and well-being. Literatures like Dordas & Accad (2025), Junco (2012) and Twenge (2019) supports this finding, suggesting that purposeful use of devices for academic activities promotes cognitive engagement and skill development, whereas use for entertainment or social media may contribute to distractions or behavioral challenges.

7. Based on the findings of the study, what action plan may be proposed to promote responsible and balanced digital device use among students

Table 7
Action Plan to Promote Responsible and Balanced Digital Device Use Among Students

Focus Area	Objective	Proposed Actions	Responsible Party	Expected Outcome	Timeline	Budgetary Requirements
Student Self-Regulation	Promote self-discipline and balanced device use	Develop structured daily study and leisure schedules- Set screen time limits for non-academic use- Encourage offline activities such as sports, reading, and hobbies	Students	Improved time management, reduced distraction, and healthier digital habits	Ongoing / Semester-long	Minimal cost (printing of schedules, awareness materials: ₱2,000– ₱3,000)
Academic Integration	Enhance learning engagement through responsible device use	Integrate digital tools in lesson delivery and projects- Use educational apps and collaborative platforms- Strengthen digital literacy and	Teachers	Improved engagement, comprehension, and responsible academic use of ICT	Whole School Year	₱5,000– ₱10,000 (training materials, app subscriptions, ICT resources)

		online safety instruction				
Parental Support	Strengthen home-based supervision and guidance	Implement home rules for device use- Monitor screen time during study hours- Promote offline family activities	Parents / Guardians	Improved sleep, reduced fatigue, and balanced device use	Ongoing	Minimal cost (parent orientation materials: ₱1,500– ₱2,500)
Digital Wellness Programs	Promote mental and physical well-being in digital use	Conduct seminars on screen time management - Provide ergonomics and eye health awareness sessions- Address online stress and digital addiction risks	School Guidance Counselor / School	Increased awareness of digital health and reduced stress-related issues	Quarterly / Semester	₱8,000– ₱15,000 (speakers, materials, logistics)
Access and Equity	Ensure equitable access to digital learning tools	Provide access to computer labs and Wi-Fi hotspots- Support learners from low-income households with devices (when possible)- Strengthen ICT infrastructure	School Administration / Stakeholders	Equal access to digital resources and improved learning participation	Academic Year	₱20,000– ₱50,000 (ICT maintenance, connectivity, lab improvement support)

Table 7 presents a proposed Action Plan aimed at promoting responsible and balanced digital device use among students. The plan recognizes that digital devices are now essential for learning, communication, entertainment, and personal development; however, excessive or unmanaged use may lead to academic distractions, reduced attention, eye strain, sleep problems, stress, and other physical and psychological concerns. Thus, the framework emphasizes balanced digital engagement as vital to student well-being, academic success, and holistic growth.

The action plan is organized into five strategic focus areas. First, Student Self-Regulation encourages learners to manage their own device use through schedules, screen time limits, and offline activities, thereby developing discipline, focus, and lifelong digital wellness habits. Second, Academic Integration highlights the responsible use of technology in guided learning, project-based tasks, collaboration, and digital literacy instruction, with teachers serving as facilitators of meaningful and safe technology use. Third, Parental Support stresses the role of parents and guardians in monitoring home device use, setting rules, promoting healthy routines, and encouraging offline physical and social activities.

Fourth, Digital Wellness Programs address the health effects of digital use through workshops, awareness campaigns, ergonomic guidance, eye-care practices, and mental wellness strategies led by schools and guidance counselors. Finally, Access and Equity ensures that all students, especially those from low-income households, have fair access to devices, internet connectivity, computer laboratories, and Wi-Fi hubs.

Overall, the action plan offers a comprehensive, research-informed, and collaborative approach involving students, teachers, parents, counselors, school administrators, and stakeholders. Its implementation is expected to reduce the negative effects of excessive device use while strengthening digital literacy, self-regulation, academic engagement, wellness, and responsible technology habits among students in the coastal municipalities of Isabela.

Conclusions

In the light of the findings obtained in the study, the following conclusions are drawn.

Students' digital habits are revealed to be socially and communicatively driven rather than academically optimized. While devices are frequently employed for homework completion and research, engagement is overwhelmingly dominated by social media platforms, instant messaging, and entertainment applications. This illustrates the dual role of digital engagement where technology serves as both a facilitator of academic tasks and a medium for pervasive social interaction, often blurring the boundaries between productive and recreational use.

Finally, excessive digital device use functions as a double-edged sword in the academic context. On one hand, it enriches lesson engagement, accelerates information access, and provides instructional utility. On the other, its excessive use introduces significant academic disruptions, including classroom inattention, delayed study habits, and rushed scholastic outputs. From the collective perspectives of students, parents, and teachers, technology is simultaneously a catalyst for learning and a source of distraction. This underscores the urgent need for balanced, guided, and responsible integration of digital devices into educational practice, ensuring that their benefits are maximized while mitigating their disruptive potential.

The behavioral impacts of digital device usage are consistently experienced by students across demographic and socioeconomic categories, underscoring their influence on patterns of conduct. In contrast, the effects on learning and wellness are markedly profile-dependent. Variations in academic outcomes are significantly associated with students' sex and existing academic performance, as reflected in their general average, while disparities in physical and emotional wellness are directly linked to parental income levels. Ultimately, the intensity of device use and the motivations driving such engagement emerge as the definitive variables shaping students' educational attainment, behavioral adaptation, and holistic well-being.

Recommendations

Based on the summary of findings and conclusions of this study, the following recommendations are forwarded. adopted by the Action Plan crafted and proposed to maximize the benefits of technology while minimizing its potential negative effects on learning, behavior, and wellness.

1. Students are encouraged to cultivate responsible and balanced digital device practices. Establishing structured schedules that allocate specific time for academic tasks, social interaction, and leisure activities can sustain focus and productivity. Prioritizing school-related responsibilities before engaging with social media or entertainment applications enhances time management and fosters consistent study habits. Incorporating short breaks during screen use and participating in offline activities such as exercise, reading, or hobbies can mitigate the physical and psychological strain associated with prolonged device immersion.
2. Teachers are should integrate digital devices purposefully into classroom instruction. Employing mobile-assisted learning, educational applications, and online resources for guided activities can strengthen student engagement, comprehension, and skill development. Facilitating collaborative digital projects while monitoring participation promotes responsible technology use, communication skills, and teamwork. Furthermore, embedding digital literacy lessons into the curriculum underscores the importance of balancing online activities with offline responsibilities and cultivating healthy study routines.
3. Parents play a critical role in shaping students' digital habits at home. Establishing household guidelines regarding screen time, device use during study hours, and nighttime restrictions can improve sleep hygiene and overall wellness. Providing access to stable internet connections and educational platforms supports academic learning, while encouraging physical activity and social interaction beyond digital devices ensures holistic development. Maintaining open communication with children about both the benefits and challenges of digital device use fosters awareness, strengthens self-regulation, and reinforces responsible digital practices.
4. Schools are encouraged to formally adopt and institutionalize the proposed Action Plan by embedding its strategies within annual improvement initiatives and student development programs. School administrations may establish a technical working group

or committee to oversee the implementation of workshops on digital wellness, distraction management, and online safety. Providing structured guidance on ergonomic practices, eye care, and stress management can reduce the physical discomfort and mental fatigue associated with excessive device use. Moreover, fostering collaboration among teachers, school counselors, and parents within this framework can cultivate a supportive environment that balances digital engagement with healthy academic and social practices.

5. Policymakers and education stakeholders should prioritize initiatives that ensure equitable access to digital resources. Supplying students from low-income households with appropriate devices and reliable internet connectivity can mitigate disparities in academic participation and digital literacy. Additionally, investing in school-based digital infrastructure, such as computer laboratories and Wi-Fi access points, can create inclusive learning opportunities that enhance academic performance and engagement across diverse student populations.

6. Future researchers are encouraged to extend the scope of inquiry into the long-term effects of excessive digital device use on students' academic performance, behavior, and wellness. As this study primarily examined perceived effects and associations, subsequent research should employ experimental or longitudinal designs to establish causal relationships between digital device usage patterns and student outcomes. Such studies would provide deeper insights into the sustained impact of digital immersion and inform evidence-based.

Compliance with Ethical Standards

This study complied with established ethical standards in the conduct of research involving student respondents. Prior to data gathering, formal permission was secured from the appropriate school authorities, including the concerned offices and school heads of Palanan National High School and Isabela School of Fisheries. Since the study involved Senior High School students, parental consent and student assent were obtained to ensure voluntary and informed participation. The respondents were properly oriented regarding the purpose of the study, the nature of their participation, and their right to withdraw at any point without penalty or negative consequence. Confidentiality and anonymity were strictly observed by ensuring that no names or identifying information were disclosed in the presentation, analysis, and reporting of data. All responses were used solely for academic and research purposes and were handled with utmost care in accordance with the principles of privacy, respect, and the Data Privacy Act of 2012. The study avoided any form of coercion, deception, discrimination, or harm to the participants. The researchers also ensured objectivity, honesty, and integrity in the collection, interpretation, and reporting of data, thereby upholding ethical research practice throughout the completion of the study.

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REFERENCES

- Adelantado-Renau, M., Moliner-Urdiales, D., Cavero-Redondo, I., Beltran-Valls, M. R., Martínez-Vizcaíno, V., & Álvarez-Bueno, C. (2019). Association between screen media use and academic performance among children and adolescents: A systematic review and meta-analysis. *JAMA Pediatrics*, 173(11), 1058–1067. <https://doi.org/10.1001/jamapediatrics.2019.3176>
- Alghamdi, J., & Holland, C. (2020). A comparative analysis of policies, strategies and programmes for information and communication technology integration in education in the Kingdom of Saudi Arabia and the Republic of Ireland. *Education and Information Technologies*, 25, 4721–4745. <https://doi.org/10.1007/s10639-020-10169-5>
- Alkhateeb, A., Alboali, R., Alharbi, W., & Saleh, O. (2020). Smartphone addiction and its complications related to health and daily activities among university students in Saudi Arabia: A multicenter study. *Journal of Family Medicine and Primary Care*, 9(7), 3220–3224. https://doi.org/10.4103/jfmpc.jfmpc_1224_19
- American Academy of Pediatrics. (2025). Effects of screen time on academic performance and mental health. American Academy of Pediatrics.
- Aramay, R. S., & Flores, I. E. (2025). Audio-visual resources in the Social Studies Department of President Ramon Magsaysay State University. *International Journal of Multidisciplinary: Applied Business and Education Research*, 6(12).

- Barz, N., Benick, M., Dörrenbächer-Ulrich, L., & Perels, F. (2024). The effect of digital game-based learning interventions on cognitive, metacognitive, and affective-motivational learning outcomes in school: A meta-analysis. *Review of Educational Research*, 94(2), 193–227. <https://doi.org/10.3102/00346543231167795>
- Buctot, D. B., Kim, N., & Kim, J. J. (2020). Factors associated with smartphone addiction prevalence and its predictive capacity for health-related quality of life among Filipino adolescents. *Children and Youth Services Review*, 110, Article 104758. <https://doi.org/10.1016/j.childyouth.2020.104758>
- Buctot, D. B., Kim, N., & Kim, S.-H. (2021). Personal profiles, family environment, patterns of smartphone use, nomophobia, and smartphone addiction across low, average, and high perceived academic performance levels among high school students in the Philippines. *International Journal of Environmental Research and Public Health*, 18(10), Article 5219. <https://doi.org/10.3390/ijerph18105219>
- Cain, N., & Gradisar, M. (2010). Electronic media use and sleep in school-aged children and adolescents: A review. *Sleep Medicine*, 11(8), 735–742. <https://doi.org/10.1016/j.sleep.2010.02.006>
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson.
- Department of Education. (2012). DepEd Child Protection Policy (DepEd Order No. 40, s. 2012). https://www.deped.gov.ph/wp-content/uploads/2012/05/DO_s2012_40.pdf
- Department of Science and Technology–Food and Nutrition Research Institute. (2020). 2018–2019 Expanded National Nutrition Survey: Facts and figures. <https://enutrition.fnri.dost.gov.ph/uploads/2018-2019%20Facts%20and%20Figures%20-%20Food%20Consumption%20Survey.pdf>
- Domoff, S. E., Borgen, A. L., & Radesky, J. S. (2020a). Interactional theory of childhood problematic media use. *Human Behavior and Emerging Technologies*, 2(4), 343–353. <https://doi.org/10.1002/hbe2.217>
- Domoff, S. E., Foley, R. P., & Ferkel, R. (2020b). Addictive phone use and academic performance in adolescents. *Human Behavior and Emerging Technologies*, 2(1), 33–38. <https://doi.org/10.1002/hbe2.171>
- Dordas, R. H., & Accad, A. S. (2025). Pedagogical and technical competence level, problems and competency needs of Technology and Livelihood Education (TLE) teachers: Basis for professional development program. *Psychology and Education: A Multidisciplinary Journal*, 41(1), 1–40. <https://doi.org/10.70838/pemj.410101>
- Dy, A. B. C., Dy, A. B. C., & Santos, S. K. (2023). Measuring effects of screen time on the development of children in the Philippines: A cross-sectional study. *BMC Public Health*, 23, Article 1261. <https://doi.org/10.1186/s12889-023-16188-4>
- International Telecommunication Union. (2023, October 10). Facts and figures 2023: Internet use. Retrieved September 27, 2025, from <https://www.itu.int/itu-d/reports/statistics/2023/10/10/ff23-internet-use/>
- Junco, R. (2012). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. *Computers & Education*, 58(1), 162–171. <https://doi.org/10.1016/j.compedu.2011.08.004>

- Lepp, A., Barkley, J. E., & Karpinski, A. C. (2015). The relationship between cell phone use and academic performance in a sample of U.S. college students. *SAGE Open*, 5(1), 1–9. <https://doi.org/10.1177/2158244015573169>
- Mani, Z. A., & Goniewicz, K. (2023). Adapting disaster preparedness strategies to changing climate patterns in Saudi Arabia: A rapid review. *Sustainability*, 15(19), Article 14279. <https://doi.org/10.3390/su151914279>
- Patel, B., Singh, A., & Vaishnav, K. (2024). A review of the relationship between home environment and academic performance among college students. *International Journal of Indian Psychology*, 12(2), 3361–3372. <https://doi.org/10.25215/1202.297>
- Presta, V., Guarnieri, A., Laurenti, F., Mazzei, S., Arcari, M. L., Mirandola, P., Vitale, M., Chia, M. Y. H., Condello, G., & Gobbi, G. (2024). The impact of digital devices on children's health: A systematic literature review. *Journal of Functional Morphology and Kinesiology*, 9(4), Article 236. <https://doi.org/10.3390/jfmk9040236>
- Przybylski, A. K., & Weinstein, N. (2017). A large-scale test of the Goldilocks hypothesis: Quantifying the relations between digital-screen use and the mental well-being of adolescents. *Psychological Science*, 28(2), 204–215. <https://doi.org/10.1177/0956797616678438>
- Rosen, L. D., Lim, A. F., Carrier, L. M., & Cheever, N. A. (2011). An empirical examination of the educational impact of text message-induced task switching in the classroom: Educational implications and strategies to enhance learning. *Psicología Educativa. Revista de los Psicólogos de la Educación*, 17(2), 163–177. <https://doi.org/10.5093/ed2011v17n2a4>
- Rosen, L. D., Whaling, K., Carrier, L. M., Cheever, N. A., & Rokkum, J. (2013). The media and technology usage and attitudes scale: An empirical investigation. *Computers in Human Behavior*, 29(6), 2501–2511. <https://doi.org/10.1016/j.chb.2013.06.006>
- Sage, K., Jackson, S., Fox, E., & Mauer, L. (2021). The virtual COVID-19 classroom: Surveying outcomes, individual differences, and technology use in college students. *Smart Learning Environments*, 8(27). <https://doi.org/10.1186/s40561-021-00174-7>
- Shen, H., Lin, H., Han, W., & Wu, H. (2023). ESG in China: A review of practice and research, and future research avenues. *China Journal of Accounting Research*, 16(4), Article 100325. <https://doi.org/10.1016/j.cjar.2023.100325>
- Tsang, S. M. H., Cheing, G. L. Y., Lam, A. K. C., Siu, A. M. H., Pang, P. C. K., Yip, K.-C., Chan, J. W. K., & Jensen, M. P. (2023). Excessive use of electronic devices among children and adolescents is associated with musculoskeletal symptoms, visual symptoms, psychosocial health, and quality of life: A cross-sectional study. *Frontiers in Public Health*, 11, Article 1178769. <https://doi.org/10.3389/fpubh.2023.1178769>
- Twenge, J. M. (2019a). *iGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy—and completely unprepared for adulthood*. Atria Books.
- Twenge, J. M. (2019b). More time on technology, less happiness? Associations between digital-media use and psychological well-being. *Current Directions in*

- Psychological Science, 28(4), 372–379.
<https://doi.org/10.1177/0963721419838244>
- Twenge, J. M., & Campbell, W. K. (2018). Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study. *Preventive Medicine Reports*, 12, 271–283.
<https://doi.org/10.1016/j.pmedr.2018.10.003>
- Victor, V. M., Parsan, A., Dookran, A., Lulkool, A., Ali, A., Mahabir, A., Marchan, A., Monroe, A., Ramharack, A., Ekemiri, K., Ezinne, N., & Daniel, E. (2023). A web-based cross-sectional survey on eye strain and perceived stress amid the COVID-19 online learning among medical science students. *International Medical Education*, 2(2), 83–95. <https://doi.org/10.3390/ime2020008>
- Walsh, S. P., White, K. M., & Young, R. M. (2008). Over-connected? A qualitative exploration of the relationship between Australian youth and their mobile phones. *Journal of Adolescence*, 31(1), 77–92.
<https://doi.org/10.1016/j.adolescence.2007.04.004>
- World Health Organization. (2020). WHO guidelines on physical activity and sedentary behaviour. <https://www.who.int/publications/i/item/9789240015128>
- Xu, T., & Wang, H. (2023). High prevalence of anxiety, depression, and stress among remote learning students during the COVID-19 pandemic: Evidence from a meta-analysis. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1103925>

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