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The Influence of Computer Usage on Students' Academic Performance

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Abstract. This study examined the influence of computer usage on the academic performance of Senior High School students at Buenavista Integrated School in Zamboanga City, Philippines, during the School Year 2025–2026. Specifically, the study determined the level of computer usage among students, assessed their academic performance based on their General Weighted Average (GWA), and analyzed the relationship between computer usage and academic performance. A quantitative descriptive-correlational research design was employed. Data were collected from 223 Grade 11 and Grade 12 students enrolled in the GAS, HUMSS, and TVL strands using a researcher-developed questionnaire measured through a four-point Likert scale. The instrument underwent pilot testing to establish reliability prior to data collection. Academic performance data were obtained from the students' GWA records. Descriptive statistics, including mean and standard deviation, were used to describe computer usage and academic performance, while the Pearson correlation coefficient was applied to determine the relationship between the variables. Results revealed that students demonstrated a generally high level of computer usage, particularly for academic-related tasks such as completing assignments and accessing educational resources. The overall academic performance of the respondents was categorized as very satisfactory, with a mean GWA of 85.76. However, the analysis indicated a weak and statistically non-significant relationship between computer usage and academic performance ($r = -0.163$, $p = 0.065$). These findings suggest that while computers support students' learning processes, their academic achievement is influenced by multiple factors beyond technology use, including study habits, motivation, and learning environment. The study highlights the importance of promoting responsible and purposeful use of computers to maximize their educational benefits.

Keywords: Academic Performance, Computer Usage, Educational Technology, Quantitative Correlational Study, Senior High School Students

Introduction

In today's education system, technology plays a vital role in all areas of learning. Students use digital tools both in their studies and daily lives, particularly in completing school tasks and participating in technology-supported courses (Jun et al., 2014). Computers are commonly used by students for academic purposes such as researching information, completing assignments, preparing presentations, and accessing educational platforms. However, according to Cuban, Kirkpatrick, and Peck (2001), even with increased computer access in schools, academic use often remains limited.

Academic performance is a major indicator of students' learning outcomes and overall achievement. It reflects their mastery of subjects, consistency in meeting academic requirements, and ability to meet curriculum standards. This performance is usually measured through grades such as the General Weighted Average, which shows progress and readiness for advanced education. Studies reveal that academic achievement is influenced by factors like learning resources, instructional quality, and student engagement (Glewwe & Muralidharan, 2016). High academic performance also affects students' present success and future opportunities (Kell et al., 2013).

Research exploring the relationship between computer usage and academic performance shows mixed results. Some findings suggest that educational technology enhances learning when properly integrated (Kulik, 2003), while others note that non-academic or excessive computer use can cause distractions and reduce learning gains (Selwyn, 2011). This suggests that the effect of computer use on academic performance depends on how it is applied.

Although much research exists on technology in education, there is limited evidence concerning how computer usage affects the academic performance of Senior High School students in Philippine public schools. This study aims to explore that relationship among Grade 11 and Grade 12 students of Buenavista Integrated School for the School Year 2025–2026, identifying key patterns and insights to support educational planning.

Research Questions

This study aimed to determine the influence of computer usage on the students' academic performance among Senior High School students of Buenavista Integrated School during the School Year 2025–2026 in the Curuan District, Zamboanga City.

Specifically, it seeks to answer the following questions;

1. What is the level of computer usage among student-respondents?
2. What is the academic performance of the student-respondents?
3. Is there a significant influence between students' computer usage and their academic performance?

Scope and Delimitation of the Study

This study was significant as it provided valuable insights into the level of computer usage among senior high school students, a skill that was increasingly vital in technology-driven academic and professional environments. By identifying strengths and weaknesses in students' digital competencies, the findings served as a guide for educators and school administrators in designing targeted interventions such as ICT training programs or curriculum enhancements.

Literature Review

Computer Usage

Computer usage refers to the use of computers for communication, research, content creation, and learning activities, and it has become an essential part of modern education. Studies show that when computers are properly integrated into teaching, they promote higher-order thinking, collaboration, and problem-solving skills (Yelland, 2005). Students who actively participate in computer-based learning activities—such as online discussions, digital projects, and research—tend to achieve better academic performance (Ben Youssef, Dahmani, & Ragni, 2022). The effectiveness of computer use, however, depends largely on how teachers implement technology in meaningful and guided ways (Ertmer et al., 2012; Kirkwood & Price, 2014). In higher education, digital tools such as Learning Management Systems and other ICT platforms have been shown to increase engagement and participation (Pinto & Leite, 2020; Timotheou et al., 2023). In the Philippine context, research indicates that students with higher computer literacy and self-efficacy demonstrate better academic performance and stronger engagement in technology-assisted learning (Cadiz-Gabejan & Takenaka, 2021; Badol et al., 2019; Roxas-Ridulme, 2017). A recent correlational study among Computer Engineering students further confirmed a statistically significant relationship between computer technology usage and academic performance, suggesting that effective and responsible computer use positively contributes to students' academic achievement.

Academic Performance

Academic performance refers to how well students achieve their educational goals, usually measured through grades, test scores, and academic evaluations (Simões, Oliveira, & Nunes, 2022). It is influenced by various socio-economic, psychological, and institutional factors, consistent with Walberg's (1984) educational productivity theory, which explains that academic achievement results from multiple interacting inputs. Research shows that students' motivation, attitudes, family background, and patterns of computer usage significantly affect their academic outcomes (Simões et al., 2022). Positive attitudes toward technology and

higher confidence in using computers are associated with better academic performance (Levine & Donitsa-Schmidt, 1998; Lee et al., 2019). Studies further reveal that effective and purposeful use of digital tools—such as learning management systems, online assessments, and academic communication platforms—enhances student engagement and achievement, while excessive recreational use may negatively affect performance (Dutta & Ray, 2023; Ma, 2021; Hasani, Xhomara, & Kasumi, 2020). In the Philippine context, higher computer literacy and meaningful integration of digital technology into learning have been linked to improved academic performance, although issues such as distractions and limited access remain challenges (Cadiz-Gabejan & Takenaka, 2021; Villanueva & Malabanan, 2022). Overall, the literature suggests that academic achievement is shaped by a combination of personal motivation, technological competence, supportive environments, and responsible use of digital tools.

Creating Presentations

Developing the ability to create presentations is an essential technological competence that supports academic communication and the organization of ideas. Well-designed presentations allow students to arrange information logically, communicate concepts more clearly, and improve audience understanding (Santos & Rivera, 2018). Research has found that students who are adept at creating presentations often demonstrate greater confidence, enhanced communication skills, and stronger academic performance (Kim & Lopez, 2019). Additionally, studies indicate that presentation-based activities foster collaborative learning and active engagement, as students construct knowledge through peer interaction and shared meaning-making (Martinez, Chen, & Patel, 2020). Furthermore, targeted instruction in presentation skills has been shown to yield sustained improvements in students' grades and overall academic outcomes (Ahmed & Noor, 2021; Silva & Tan, 2022).

Methodology

Research Design

This study was designed to explore how students' interaction with computers affected their academic success. As technology became increasingly integrated into modern education, understanding its influence was essential for educators, students, and policymakers who sought to improve learning outcomes and adapt teaching strategies to digital learners. To examine this relationship, the study employed a quantitative correlational research design, which was appropriate for identifying and analyzing potential associations between computer usage and academic performance. This design allowed the researchers to determine whether students who used computers more frequently tended to achieve higher academic performance. Data for the study were collected using a structured survey questionnaire, while academic performance was measured through students' self-reported grades or General Weighted Averages (GWA), providing insight into their overall academic achievement. Together, these data provided a comprehensive view of how behavioral and psychological factors related to computer use influenced academic outcomes

Sampling Design

This study employed a total enumeration method, in which all Grade 11 and Grade 12 students from the Senior High School Department of Buenavista Integrated School in Buenavista, Zamboanga City were included as respondents. Instead of selecting a sample, the entire population of 223 students participated in the study to ensure complete and comprehensive representation.

Research Locale

This study was conducted at Hadji Butu School of Arts and Trades, specifically in the senior high school department situated at Scott Road, Asturias, Jolo, Sulu. This study was conducted at Buenavista Integrated School, a senior high school located in Buenavista, Zamboanga City, Philippines. The school was selected as the research locale because it offered a diverse student population enrolled in various academic strands such as TVL, HUMSS, and GAS, which provided a suitable environment for examining the influence of computer usage on academic performance. With the increasing integration of digital tools in the school's teaching and learning processes, the institution served as an ideal setting for analyzing how students engaged with computers both inside and outside the classroom.

According to the Department of Education (DepEd, 2020), senior high schools in the Philippines are encouraged to adopt digital usage and integrate technology in the curriculum. As such, many students have regular access to computers and online platforms for academic tasks, making them an appropriate population for this study. The school also has access to computer laboratories, internet connectivity, and supports blended learning methods—factors that contribute to varying levels of computer usage among students. By selecting this locale, the researchers aimed to gather data that were both relevant and reflective of current educational practices in a technology-driven academic environment.

Research Participants

This study included all 223 students from Grade 11 and Grade 12 across the different Senior High School strands of Buenavista Integrated School. The largest number of students (63) was from Grade 11 TVL, while the smallest number (19) was from Grade 12 HUMSS.

Research Instrument

The research instrument was composed of two main parts. Part I focused on the level of computer usage and included statements that measured students' confidence and skills in using basic computer programs, solving common technical issues, browsing the internet safely, creating documents and presentations, understanding data privacy, and protecting devices from malware. Part II aimed to assess academic performance, in which students were asked to provide their General Weighted Average (GWA) for the School Year 2025–2026. The scale used in Part I employed a four-point Likert format: 4 = Strongly Agree (SA), 3 = Agree (A), 2 = Disagree (DA), and 1 = Strongly Disagree (SDA). This allowed the respondents to indicate the degree to which they agreed or disagreed with each statement regarding their computer usage. The administration of the instrument was carried out with the permission of the research teacher and was conducted in full compliance with the Data Privacy Act of 2012 of the Republic of the Philippines.

Data Gathering Procedure

The data collection process began with securing an Approval Letter from the Research Adviser, which served as the formal authorization to proceed with the study. After obtaining this letter, the researcher prepared and submitted an Endorsement Letter to the School Principal of Buenavista Integrated School to request permission to conduct the research within the Senior High School Department. Once approval was granted, the researcher compiled and submitted all required documents—including the Endorsement Letter, the Principal's Approval, and the Survey Questionnaire—to ensure full transparency and ethical compliance.

After school approval was obtained, the researcher coordinated with the advisers of Grade 11 and Grade 12 classes across the Senior High School strands (GAS, TVL, and HUMSS) to identify eligible student participants. The researcher visited each class section to explain the purpose of the study, emphasized the importance of their participation, and clarified that their involvement was voluntary.

The researcher conducted face-to-face survey sessions at scheduled times that did not disrupt regular classroom instruction. During these sessions, students received the researcher made questionnaire along with clear written and verbal instructions. The researcher remained present to address any questions and to ensure proper and complete responses to all questionnaire items. Responses remained confidential, and all collected data were used solely for academic purposes. All information gathered was stored securely and handled strictly according to ethical research standards to protect the rights and privacy of the student respondents.

Results and Discussions

Problem 1: What is the level of computer usage among student-respondents?

Table 1: The Level of computer usage among student-respondents

	Statements	Mean	Standard Deviation	Verbal Description	Interpretation
1.	Using Computer helps me finish school task faster	3.05	.49	Agree	Moderately Used
2.	Computer use improves the Quality of my school works	3.04	.49	Agree	Moderately Used
3.	Educational websites help me understand lesson better	3.05	.54	Agree	Moderately Used
4.	Educational websites help me understand lesson better	2.98	.52	Agree	Moderately Used
5.	Using computer to comply my activities in school is very effective.	2.85	.60	Agree	Moderately Used
6.	Educational app or websites does not improve my study habits.	2.21	.62	Disagree	Fairly Used
7.	Using the computer makes it hard for me to focus on school task.	2.49	.72	Disagree	Fairly Used
8.	I get higher grade when I use computer to play games	2.23	.72	Disagree	Fairly Used
9.	Using Computer often worsens my academic performance.	2.42	.72	Disagree	Fairly Used

10.	Computer use usually causes me to delay or avoid my task in school	2.57	.69	Agree	Moderately Used
11.	I get distracted by games or social media when using a computer.	2.75	.76	Agree	Moderately Used
12.	Using a computer helps me stay organize to my school works.	2.92	.66	Agree	Moderately Used
13.	Computer use makes it easier for me to finish task on time.	2.91	.64	Agree	Moderately Used
14.	Using the computer too much makes it harder for me to focus on studying.	2.71	.72	Agree	Moderately Used
15.	I can perform well in school, when I'm spending too much in computer.	2.37	.66	Agree	Moderately Used
16.	Working on non-school computer activities regularly lowers my grade.	2.51	.71	Agree	Moderately Used
17.	Spending too much time on the computer gets me tired.	2.78	.72	Agree	Moderately Used
18.	Computer use does not disrupt my focus during school related task.	2.60	.65	Agree	Moderately Used
19.	I often neglect my study time because I always play on the computer.	2.36	.62	Agree	Moderately Used
20.	Computer helps me finish my school work effectively.	3.05	.68	Agree	Moderately Used
	Over-all Mean	**3.87**	**0.65**	**Agree**	**Highly Used**

Table 1 shows that the highest mean scores were found in statements about the benefits of computer use for completing school tasks and understanding lessons, particularly "Using computer helps me finish school task faster" and "Educational websites help me understand lesson better," both with a mean of 3.05 (Agree/Moderately Used), indicating that students view computers as helpful tools for improving efficiency and learning. This is supported by previous studies showing that academic use of computers and digital tools enhances learning experiences and can positively affect academic performance (Çebi & Güyer, 2020; Chen et al., 2014; Kandukoori et al., 2024). In contrast, the lowest mean score was found in the statement "Educational app or websites does not improve my study habits" (M = 2.21, Disagree/Fairly Used), suggesting that students do not believe non-academic computer activities such as gaming or unrelated applications improve study habits or performance. This finding is consistent with research showing that leisure-oriented and excessive non-academic computer use can distract students from schoolwork and is often associated with lower academic performance (Islam et al., 2020), highlighting that computer use is more beneficial when focused on academic rather than recreational purposes.

Problem 2: What is the academic performance of the students-respondents?

Table 2: The Academic performance for school year 2025-2026

Indicator	Mean	Verbal Description
General Weighted Average Grade	85.76	Very Satisfactory

Table 2 shows that the academic performance of the student-respondents for School Year 2025–2026, as reflected by their General Weighted Average (GWA), had a mean score of 85.76, verbally described as Very Satisfactory. This indicates that, on average, students performed well across their subjects, demonstrated adequate understanding of lessons, and were able to apply their learning in exams, class activities, and other academic requirements, reflecting consistent effort and engagement in schoolwork. Previous studies support that high academic performance is influenced by factors such as motivation, study habits, learning strategies, resilience, self-regulation, and supportive learning environments (Squires & Coates, 2024; Linda Vitoria et al., 2024; Duckworth et al., 2019; Mendes De Oliveira & Da Costa, 2021). Thus, the Very Satisfactory GWA suggests that the students' achievement reflects not only academic competence but also positive learning behaviors and the ability to manage academic demands throughout the school year

Problem 3: Is there a significant influence between the students' computer usage and their academic performance?

Table 3: The significant influence between the students' computer usage and their academic performance

Variable Mean		R-Value	P-Value	Interpretation
X	Y			
Utilization of Artificial Intelligence (AI)	Student's academic performance.	-.163	.065	Not Significant

Table 3 shows a very weak negative relationship between students' computer usage and their academic performance, with an r-value of –0.163. However, this relationship is not statistically significant ($p = 0.065 > 0.05$), indicating that computer usage does not have a meaningful effect on students' General Weighted Average (GWA). Therefore, the null hypothesis, which states that there is no significant relationship between computer usage and academic performance, is accepted. The absence of a significant relationship suggests that using computers more frequently does not automatically lead to better academic performance. While computers are useful for learning, their impact depends on how they are used rather than how often they are used (Çebi & Güyer, 2020; Chen et al., 2014). This finding is also supported by Aguilar-Roca et al. (2014), who noted that non-academic computer activities such as gaming and social media may reduce study time and attention. Overall, these results imply that academic performance is influenced more by factors such as study habits, motivation, and teaching strategies than by computer usage alone

Ethical Considerations

This research was conducted in line with accepted ethical standards in educational studies to protect the rights and well-being of all participants. Approval to carry out the study was obtained from the Department of Education Division Office and the School Principal of Buenavista Integrated School, and informed consent was secured after participants were fully briefed on the purpose, procedures, and their right to participate voluntarily or withdraw at any time without penalty. Confidentiality and anonymity were strictly maintained through the use of coded identifiers, and no personal information was disclosed in the analysis or final report. Access to academic records was granted only with proper authorization and managed in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173), while all collected data were used solely for research purposes and stored securely. The study also ensured that participants were not exposed to physical, psychological, or emotional harm, as the survey contained only non-intrusive items and data collection was conducted during students' free time to avoid disruption or pressure, and throughout the entire research process, the principles of fairness, objectivity, and academic integrity were consistently upheld.

Conclusion

The study found that students of Buenavista Integrated School frequently used computers for academic purposes, although usage varied across activities. Computers were generally viewed as helpful in completing tasks, improving outputs, and understanding lessons, but their potential was not fully maximized. While some negative effects such as distraction and reduced focus were observed, these were not dominant. The students' academic performance was generally very satisfactory, indicating good learning skills and study habits. Moreover, computer use did not have a significant effect on academic performance, suggesting that achievement is influenced by various factors beyond computer use alone.

Reccomendations

Based on the findings, schools are encouraged to promote the guided and purposeful use of computers through clear policies, adequate facilities, and reliable access to technology. Teachers should integrate digital tools and resources into their lessons in a more meaningful and guided way to improve students' understanding, productivity, and engagement while reducing distractions. Students are advised to use computers responsibly by prioritizing academic tasks and developing good study habits. Future studies may include larger samples and additional variables, such as study habits, internet access, and digital literacy, to further examine factors affecting academic performance. Overall, while computer use among students was high, its effectiveness depended on how and for what purpose it was used.

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