The Relationship of Technological Resources and Student Engagement Among Senior High School Students

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DOI: https://dx.doi.org/10.47772/IJRISS.2025.9020263

Received: 13 February 2025; Accepted: 17 February 2025; Published: 17 March 2025

ABSTRACT

Low engagement in academic activities is a common concern among senior high school students, often influenced by the availability of technological resources. This study aimed to examine the relationship between technological resources and student engagement among senior high school students. Using a descriptive-correlational research design, data were collected from 300 respondents. Pearson's correlation analysis revealed a strong positive relationship ($r = .614, p < 0.05$) between technological resources and student engagement, indicating that consistent access to technological tools enhances active learning and participation. These findings highlight the crucial role of technological resources in fostering student engagement and improving academic performance. Based on the results, the study recommends enhancing access to modern digital tools, providing teacher training on effective technology integration, and utilizing platforms like Edmodo and Google Classroom to sustain student engagement. Additionally, future researchers are encouraged to employ a mixed-method approach to gain deeper insights into how students interact with technology in their learning environment. A longitudinal study is also recommended to examine the long-term impact of technological resources on student engagement and academic performance.

Keywords: Technological resources, student engagement, senior high school students.

INTRODUCTION

Student engagement has become a critical concern for educators, particularly in addressing the diverse needs of learners in both traditional and online settings (Mucundanyi & Woodley, 2021). While the National Survey of Student Engagement (NSSE) has shifted the focus to what students actively do to engage in their studies (Bryson, 2014), maintaining consistent engagement remains a persistent challenge. Despite advancements in digital tools, their role in sustaining student engagement across different learning environments has not been fully explored (Meirbekov & Maslova et al., 2022). This study aims to bridge this gap by investigating how technological resources influence various aspects of student engagement.

Similar trends have been observed globally. In British Columbia high schools, educators have become increasingly interested in determining whether recent educational reforms effectively enhance student engagement (Dennis & Neufeld et al., 2018). Sanhi (2023) conducted a study at a private university in Kassel, Germany, examining the effects of rapid technological advancements and the COVID-19 pandemic on student engagement. Likewise, a study in Peru found that students in technologically enhanced classrooms were more attentive, participatory, and engaged in school activities compared to those in traditional classroom settings (Carlos, 2024).

In the Philippines, comparable concerns have emerged. According to Baloran and Hernan (2021), when universities transitioned to online learning during the COVID-19 pandemic, maintaining student engagement became a major challenge for educators. Briones and Prudente (2023) found that personal limitations and environmental distractions significantly affected student engagement in online learning. Additionally, Almagro and Montepio (2023) emphasized that student engagement manifests across affective, behavioral, and cognitive dimensions, highlighting the need to create a supportive e-learning environment to enhance engagement.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue II February 2025

While extensive research has explored various aspects of student engagement, a significant gap remains in understanding how different factors uniquely contribute to engagement levels across diverse educational settings. This study seeks to address these gaps by examining the emotional, behavioral, and cognitive dimensions of student engagement. It will also investigate variations in engagement based on course difficulty, teaching methodologies, and student demographics. By addressing these gaps, the study aims to provide deeper insights into student engagement and inform the development of targeted strategies for its effective enhancement.

Significance of the Study

The researchers believes that this study, the relationship of technological resources and student engagement among senior high school students, would benefit the following;

Department of Education (DepEd). The results of this study may help DepEd officials understand the extent to which technological resources influence student engagement. This will assist in the formulation of policies that integrate technology more effectively into the learning process, including curriculum standards, resource allocation, and educator training.

School Administrators**.** The findings of this study may provide school administrators with insights into the adoption and implementation of technological resources. It will help them make informed decisions on how to use these tools to enhance student engagement and overall institutional performance.

Educators. This research may offer educators evidence-based practices for integrating technological tools into their teaching. It will help them identify strategies to enhance learner engagement and improve educational outcomes through the use of technology.

Parents**.** The study will help parents understand both the advantages and challenges of using technological resources in education. This knowledge will allow them to better support their children and advocate for the effective use of technology in schools.

Students. Senior high school students will benefit as the study highlights how technological resources can improve their engagement in the learning process. Increased understanding of this relationship will lead to better educational experiences and outcomes.

Future Researchers**.** The study will provide a foundation for future research by offering valuable data and insights into the relationship between technological resources and student engagement. Future researchers can build on this work to explore new dimensions and related topics.

Statement of the Problem

This study aimed to determine the significant relationship between technological resources and student engagement among senior high school students. Specifically, it sought to answer the following question:

1. What is the level of technological resources in terms of:

   1 ownership and access to ICTS;
   2 internet access;
   3 uses of ICTS;
   4 social media; and
   5 perceptions of use of technology?

2. What is the level of student engagement in terms of:

   1 emotional engagement;
   2 behavioral engagements; and
   3 cognitive engagements?

3. Is there a significant relationship between technological resources and student engagement among senior

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue II February 2025

high school students?

Hypotheses

This study was tested at a 0.5 level of significance.

H_o: There is no significant relationship between technological resources and student engagement among senior high school students.

H_a: There is a significant relationship between technological resources and student engagement among senior high school students.

REVIEW OF RELATED LITERATURE

In this section, the research looks at literature related to the study, with studies and sources chosen for their relevance and importance to the topic. The discussion is organized around these topics: technological resources, student engagement, and the relationship between technological resources and student engagement among senior high school students.

Technological Resources.

As Zaripova and Sabirova (2020) rightly mentioned, technological resources in education have become inevitable in responding to the growing demands of society and the progress of science and technology. In this regard, one of the most effective practices is the meaningful utilization of digital educational resources. According to recent research, the best model that achieves high levels of excellence is the blended learning model, exemplified by the flipped classroom, which has proven to be the most effective way to integrate traditional teaching methods with digital tools. This approach aims to leverage information and communication technologies to enhance teaching and learning outcomes.

Delgado and Wardlow (2015) noted that the digital revolution has profoundly changed how people live, work, and learn. Technology has not only influenced changes in education but has also transformed students' approaches to learning and teachers' pedagogical strategies. Various reports highlight challenges in adapting technology to the classroom, such as funding constraints, lack of support, and mixed findings regarding its effectiveness. This paper critically examines these changes, focusing on improvements in technology integration, the availability of resources, and the conflicting results concerning its impact on education.

Ownership and Access to ICTs. According to Gasaymeh (2018), most students have access to and own popular technologies such as smartphones and computers. However, despite this access, their use of ICT tools for personal purposes does not significantly translate into broader applications for learning and educational activities. While students are highly competent in using smartphones, their proficiency with other technologies is only moderately high. The use of ICTs in informal learning depends on multiple factors, including ICT access, perceived competencies, and gender. However, these factors do not significantly influence students' use of ICTs for formal learning. The study suggests that universities should integrate students' familiarity with technologies like smartphones and social media into formal learning, with appropriate planning and pedagogical considerations.

Pratama and Scarlatos (2020) examined how secondary school students in Indonesia utilize both e-learning and m-learning and how device ownership affects their learning experiences. Their findings indicate that e-learning is more effective when accessed via mobile devices rather than traditional PCs. Learning is typically more portable and engaging when conducted through tablets. The study highlights the need for free Wi-Fi and suggests that promoting m-learning fosters an active and collaborative learning environment.

Internet Access. Suana (2018) found that female students demonstrate higher ownership of computers and greater internet access via mobile devices compared to male students. Female students primarily use the internet for academic purposes, frequently seeking resources for homework in physics and recognizing the benefits of online learning. In contrast, male students tend to use the internet for entertainment and to access educational

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue II February 2025

videos. Although students differ in how they access and utilize the internet for educational activities, there is no significant difference between genders in terms of internet experience or frequency of use.

Asio and Gradia (2021) analyzed students' internet connectivity and access to learning devices during the pandemic. Their findings indicate that 70% of students had internet access at home, with smartphones being the most frequently used learning device. They recommend a flexible pandemic learning plan that institutions can adopt and suggest improvements in learning systems to enhance student accessibility and engagement.

Use of ICTs. Muhammed and Irfanullah (2015) highlighted that ICT tools significantly enhance the learning experience for students. These tools are indispensable for completing assignments, fostering teamwork, and assisting students with special needs. Digital portfolios and project-based learning encourage students to take personal responsibility for their learning, facilitating effective work management. The study revealed that ICTs profoundly influence the learning process, helping students prepare assignments, plan lessons, and collaborate with peers. Additionally, broadband resources and interactive whiteboards improve communication between students and educators.

Gutierrez and Gimenez (2020) reported a substantial increase in the use of ICTs in teaching, particularly in developed countries where governments have invested heavily in digital tools for schools. This investment has led to the widespread adoption of computer-based learning. Policymakers remain optimistic about the positive impact of these technologies on student learning outcomes.

Social Media. Patel and Sheridan (2015) noted a significant increase in access to and use of social media, particularly in academic settings, including economics courses. A survey of students taking Principles of Microeconomics and Macroeconomics found that they primarily use social media in the following order: Facebook, YouTube, Instagram, and Twitter. However, their preferred platforms for academic participation rank differently, with Instagram leading, followed by Facebook, Twitter, and YouTube. While students express concerns about privacy, they are more likely to communicate with faculty through social media, particularly when participation is voluntary. The study suggests that social media could serve as an effective communication tool in academia.

Chen and Xiao (2022) examined the impact of social media on students' emotional well-being. Their findings suggest that while social media facilitates communication and knowledge exchange, its ability to fulfill students' emotional needs is often temporary. Excessive use of social media is correlated with increased stress, anxiety, and depression, underscoring the need for interventions. However, social media also positively influences students' academic performance by keeping them updated and engaged with societal trends.

Perceptions of Use of Technology. Soffer and Henderson (2022) found significant differences in the use and perceived usefulness of technology among students from different countries. While students frequently use official digital resources such as learning management systems and online libraries, they also rely on non-official sources, including academic search services, YouTube, and Wikipedia. These findings highlight the need for universities to integrate both types of resources to optimize teaching and learning experiences. A better understanding of these differences can help develop techno-pedagogical solutions tailored to students' needs.

Mercader and Gairin (2020) observed that university teachers use digital technologies less frequently than students, who increasingly incorporate them into personalized learning. The study identified personal, professional, institutional, and contextual barriers to digital adoption, with professional obstacles being the most significant. Teachers in the arts and humanities faced the greatest challenges in adopting digital tools, highlighting the need for professional development and stronger institutional support.

Student Engagement.

Khan and Everington (2016) emphasized that students' engagement in online learning is influenced by their reflections on their roles and interactions with peers. Purposeful engagement—characterized by active involvement and dedication to academic goals—is a critical factor in achieving positive educational outcomes.

Chui (2021) further stated that engaged students put in the necessary effort for academic excellence and gain

deeper insights into course content. Effective engagement leads to improved learning experiences and outcomes.

Emotional Engagement. Ulmanen, Soini, et al. (2019) asserted that emotional engagement and a sense of belonging are essential for academic success. Positive relationships with teachers and peers foster higher levels of empathy, negotiation skills, and self-esteem, enhancing students' overall development and school performance. Similarly, Wara and Aloka (2018) found that students who feel safe in school are more emotionally invested in learning.

Behavioral Engagement. Nguyen and Cannata (2018) noted that behavioral engagement varies along a continuum from disengagement to active participation. Factors such as classroom environment, teacher behavior, and curriculum design significantly influence students' engagement levels. Gul, Tahir, et al. (2022) emphasized the importance of creating a positive and supportive educational atmosphere to enhance behavioral engagement.

Cognitive Engagement. Park and Yun (2017) found that motivational regulation strategies predict cognitive, behavioral, and emotional engagement. Cognitive engagement, which involves metacognitive investment in learning, strategic thinking, and self-regulation, is strongly associated with motivational constructs. Chi, Adams, et al. (2018) suggested that conventional self-report questionnaires may not fully capture cognitive engagement, emphasizing the need for alternative assessment methods.

Relationship between Technological Resources and Student Engagement

Research demonstrates a strong link between technological resources and student engagement. Gray and DiLoreto (2016) found that well-structured courses and active instructor involvement, supported by technological resources, lead to higher student engagement, satisfaction, and academic performance. Martin and Bolliger (2018) further emphasized that interactive discussions and group activities facilitated by technology reduce feelings of isolation in online learning. Rashid and Asghar (2016) highlighted that technological resources enhance motivation, contributing to better student performance.

Synthesis

This review focuses on how technological resources affect student engagement, particularly in relation to ICT ownership, internet access, ICT usage, social media, and perceptions of technology.

Conceptual Framework

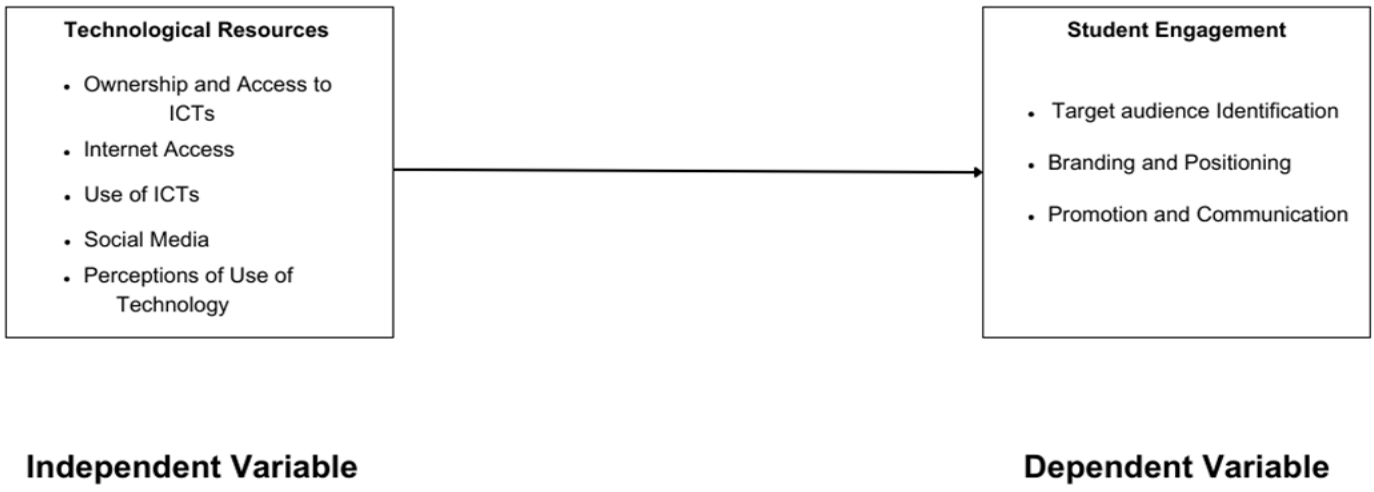

Figure 1. Conceptual Framework of the Study

The independent variable is technological resources, measured in terms of ownership and access to ICTs, internet access, use of ICTs, social media, and perceptions of technology use. The independent variable and its indicators are adapted from the study of Robinson and Latchem (2004) on Technology-Enabled Learning Implementation.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue II February 2025

The dependent variable is student engagement, which includes emotional, behavioral, and cognitive engagement. In this context, student engagement refers to the degree of involvement and interest a student show in their academic activities. Emotional engagement improves when students develop a stronger attachment to their learning environment. Behavioral engagement is fostered through increased participation in active learning. Cognitive engagement is facilitated by encouraging strategic thinking and problem-solving. Therefore, the effective use of digital learning tools positively influences all dimensions of student engagement, ultimately contributing to better academic performance.

The framework contends that digital learning tools significantly enhance student engagement. Students can improve their engagement through digital learning tools such as interactive apps and multimedia resources, which promote connectedness to learning, active participation in lessons, and deeper reflection. Thus, with the help of efficient learning aids—such as digital learning tools—student engagement increases, leading to improved academic performance.

METHODOLOGY

Research Design

researchers utilized a non-experimental quantitative research method to gather relevant data and information. According to Burkholder and Cox (2019), a non-experimental design, similar to a correlational design, explores the connections between variables without manipulating them. While it can identify relationships, it cannot establish causation due to factors such as bidirectionality—uncertainty about which variable influences the other—and the third-variable problem, which refers to the potential influence of an external variable on both variables under consideration. These limitations hinder the ability to draw definitive cause-and-effect conclusions.

This study employed a descriptive-correlational design. According to Curtis (2016), correlational research helps determine the prevalence of relationships among variables and can predict outcomes based on existing data. Additionally, Seeram (2019) described correlational research as a non-experimental approach that facilitates the prediction and explanation of how two variables are related. This method allows researchers to measure and examine the strength of relationships between variables. According to Coyle (n.d.), as cited by Seeram (2019), correlational studies identify interactions between variables and the nature of these interactions, enabling researchers to make predictions based on identified connections. Moreover, statistical methods such as correlational analysis provide an objective assessment of these relationships.

Research Locale

The study was conducted at Carlos P. Garcia Senior High School in Davao City, Region XI, Philippines. This location was chosen due to its diverse student population and its relevance to the study's focus.

Research Respondents

The respondents of this study were 300 students from Carlos P. Garcia Senior High School, comprising 150 Grade 11 students and 150 Grade 12 students. To qualify for participation, respondents had to be currently enrolled in either Grade 11 or Grade 12 at Carlos P. Garcia Senior High School. Students who did not meet these criteria were excluded from the study, as the research focused solely on currently enrolled students.

Sampling Design

This study employed a simple random sampling method, wherein respondents were selected randomly from the population. This technique ensured that each individual had an equal chance of being chosen. According to Tajik and Golzar (2022), simple random sampling is a commonly used technique in quantitative research involving surveys. It is particularly advantageous when dealing with homogeneous populations, as it minimizes bias and ensures equal representation.

However, despite its advantages—such as reducing bias and ensuring equal selection probability—simple

random sampling also has limitations. It can be cumbersome to implement, requires a complete list of the population (which is not always available), and may not be suitable for diverse and widely dispersed populations. The sample size for this study was determined using Pearson's formula.

Research Instrument

The variables of this study were measured using two instruments: a technological resources questionnaire made up of five domains—Ownership and Access to ICTs, Internet Access, Use of ICTs, Social Media, and Perceptions of Use of Technology—and a student engagement questionnaire made up of three domains—emotional engagement, behavioral engagement, and cognitive engagement. The items in the instrument were restructured to make it more applicable to the current local educational context.

In the validation process, the questionnaire was forwarded to three experts, who rated the survey questionnaire using a validation sheet. All opinions and recommendations from the experts were followed. After the validity test, the survey questionnaire was piloted with a target population of fifteen (15) students from Carlos P. Garcia Senior High School. Its reliability was measured using Cronbach's Alpha. The use of Cronbach's Alpha in measuring internal consistency might have masked the presence of inconsistencies in multi-item bipolar scales, as Vaske and Beaman (2017) indicated, showing that response inconsistencies did exist and were affected by the number of items on the scale.

Technological Resources. The items for technological resources were constructed by the researchers using a Likert scale that focused on the elaborate evaluation of a construct of technological resources regarding its ownership and access to ICTs, internet access, use of ICTs, social media, and perceptions of the use of technology. The rating scale for the said attribute was as follows:

Range of Means	Description	Interpretation
3.26 - 4.00	Very High	This means that the technological resources skills of students are always demonstrated.
2.51 - 3.25	High	This means that the technological resources skills of students are sometimes demonstrated.
1.76 - 2.50	Low	This means that the technological resources skills of students are rarely demonstrated.
1.00 - 1.75	Very Low	This means that the technological resources skills of students are never demonstrated.

Student engagement. The items representing student engagement were constructed by the researchers using a Likert scale. It focused on the detailed assessment of the construct of student engagement regarding emotional engagement, behavioral engagement, and cognitive engagement. The following was the rating scale that was used with this variable.

Ethical Consideration

Ethical considerations protect the rights of respondents, ensure the research's credibility, and uphold legal and professional standards within the field. Establishing trust between the researcher and the respondents is essential, as it fosters integrity and moral responsibility throughout the research process. This study adhered to ethical guidelines based on four essential elements:

Social Value. The researcher aimed to contribute to the understanding of how digital learning tools support student engagement. By investigating these factors, the study sought to identify educational strategies and opportunities for intervention. The findings could help improve educational programs and resources, ultimately enhancing students' digital knowledge and engagement.

Informed Consent. Informed consent was obtained from respondents before data collection. They were fully

informed about the study's purpose, procedures, potential risks and benefits, confidentiality measures, and their right to withdraw at any time without penalty. Only voluntary participants were surveyed, ensuring compliance with ethical principles and respect for individuals' autonomy.

Risks, Benefits, and Safety. The study acknowledged potential risks, such as discomfort and privacy concerns related to students' engagement discussions. To minimize these risks, strict confidentiality measures were implemented, including the anonymity of responses. The well-being of respondents was prioritized; any distress or discomfort was addressed promptly, and support resources were made available when necessary. The study's benefits included encouraging students to reflect on their use of digital learning tools and enhancing their digital learning competence through increased awareness and targeted educational interventions.

Privacy and Confidentiality of information. This study complied with the Data Privacy Act of 2012, which safeguards individuals' rights regarding the processing of personal data. The collected data were securely stored and accessible only to authorized researchers. All information was kept confidential and reported in aggregate form, ensuring that no individual respondent could be identified in the results.

Data Gathering Procedure

The following steps were strictly followed in conducting the study:

Permission to Conduct the Study. The researcher drafted a formal letter requesting approval from the principal of Carlos P. Garcia Senior High School, outlining the study's purpose, participants, and overall objectives. Once approval was obtained, class advisers were informed about the study's implementation in their respective classes.

Distribution and Retrieval of Survey Questionnaire. After receiving approval, the researchers distributed the questionnaires to the selected respondents. At the initial meeting, the researchers explained the study's significance and emphasized the importance of respondents' participation. To ensure accuracy, the researchers guided respondents in completing the questionnaires. Additionally, respondents were informed that participation was voluntary and that all responses would remain anonymous during and after the study. The survey required respondents to indicate their digital learning skills and engagement by selecting the most appropriate responses.

Collation and Statistical Treatment of the Study. Once data were collected, responses were recorded in Microsoft Excel for organization and statistical analysis. The data were systematically categorized according to the study's domains to facilitate accurate statistical interpretation.

Data Analysis

The researchers used several statistical tools to analyze the data, including the mean and the Pearson product-moment correlation coefficient. Each statistical tool provided unique insights and helped interpret the relationships between the study variables comprehensively.

Mean. The mean was calculated as the sum of all values in a dataset divided by the number of values. This measure was used to assess the level of digital learning tool usage and student engagement. By computing the mean, the researchers identified central tendencies in the data, offering insights into overall digital learning tool utilization and engagement levels.

Pearson's Correlation. The Pearson product-moment correlation coefficient (Pearson's r) was used to determine the strength and direction of the relationship between digital learning tools and student engagement. This statistical measure allowed researchers to analyze how changes in the use of digital learning tools correlated with variations in student engagement, providing a deeper understanding of their relationship.

RESULTS AND DISCUSSION

This chapter presents the findings and discussion based on the data gathered. The presentation is organized based on the sequence of the problem statement in the first chapter.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue II February 2025

Level of Technological Resources

Presented in table 1 is the level of technological resources in terms of ownership of and access to ICTs, internet access, use of ICTs, social media, and perceptions of use of technology-enabled learning.

Table 1. Level of Technological Resources

Domains of Technological Resources	SD	Mean	Descriptive Level
Ownership of and Access to ICTs	0.616	3.19	High
Internet Access	0.333	3.28	Very High
Use of ICTs	0.498	3.34	Very High
Social media	0.462	3.41	Very High
Perceptions of Use of Technology-Enabled Learning	0.518	3.37	Very High
OVERALL	**0.355**	**3.32**	**Very High**

The table reveals that the overall mean value of technological resources is 3.32, with an overall standard deviation of 0.355, which is described as very high. This indicates that the use of technological resources is consistently demonstrated among senior high school students. The findings suggest that students exhibit strong and consistent engagement with technological resources. The mean score reflects a high level of familiarity and competence with these resources, enabling students to integrate technology effectively into their learning routines.

As supported by Soffer and Henderson (2022), students utilize both official (e.g., LMS) and non-official (e.g., YouTube) digital resources, emphasizing their constant engagement with technology. However, while mobile devices and social media are widely adopted among students, inadequate access to personal devices and the inability to use institutional tools like LMS hinder broader technological integration (Ssentume and Najjuma, 2018).

Moreover, the data show that the social media domain obtained the highest mean value among the four domains, with a mean score of 3.41 and a standard deviation of 0.462, which is also described as very high. This indicates that social media is always utilized by students, particularly in their frequent interactions on platforms for academic discussions, collaboration on projects, and sharing educational resources. These results suggest that social media plays a significant role in supporting student engagement and enhancing learning experiences.

This finding is supported by Al-Hariri and Al-Hattami (2017), who observed that technology use was highly prevalent among students in health colleges. Their study revealed that laptops (50%) and phones (42%) were the primary technological resources used, followed by tablets (7%) and desktop computers (0.5%). However, while social media is widely used, excessive time spent on these platforms can interfere with academic activities. Thus, while social media enhances academic collaboration, its use must be aligned with academic goals to optimize learning outcomes (Celestine and Nonyelum, 2018).

The perception of technology-enabled learning domain follows, with a mean value of 3.37 and a standard deviation of 0.518, also interpreted as very high. This indicates that technology-enabled learning is consistently demonstrated among senior high school students. Students frequently engage with digital platforms for accessing learning materials, completing assignments, and participating in interactive activities, demonstrating a strong integration of technology into their daily learning processes.

This is supported by Shinde and Jayashree (2019), who highlighted the positive effects of Technology-Enabled Learning (TEL) at SNDT Women's University. Their study on blended courses found that although both positive and negative academic outcomes were reported, students and faculty had a favorable reception toward the use

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue II February 2025

of the Moodle Learning Management System, which facilitated TEL activities. Additionally, technology-facilitated learning spaces, such as tiered environments in Australian higher education, promote cooperation and self-instruction through group work and collaboration (Kennedy-Behr and Askew, 2018).

The use of ICTs domain follows, with a mean value of 3.34 and a standard deviation of 0.498, also described as very high. This indicates that the use of ICTs is consistently demonstrated among senior high school students. Their regular use of digital tools for research, accessing online resources, and collaborating through virtual platforms highlights a strong integration of ICTs into their academic routines.

This is supported by Lazar and Samson (2017), who conducted a study at Gomal University and found that ICT tools had a positive impact on students and the learning process. Students found ICT helpful for completing assignments, organizing work through digital portfolios, and collaborating on tasks. Teachers also observed that ICT facilitates inclusion, supports students with special needs, and reduces social disparities by promoting teamwork. However, while students extensively use ICT for communication, their academic use remains limited, as they still prioritize traditional classroom instruction and textbooks for their studies (Maheswari and Arulchelvan, 2014).

The internet access domain follows, with a mean value of 3.28 and a standard deviation of 0.333, also interpreted as very high. This indicates that internet access is consistently demonstrated among senior high school students. Their frequent use of the internet for accessing educational resources, participating in online classes, conducting research, and collaborating with peers highlights the essential role of internet connectivity in supporting academic activities.

This finding is supported by Ugwelebo and Okoro (2016), who emphasized that internet access is vital for academic performance, as it enables students to obtain relevant and up-to-date information. However, socio-economic constraints still limit students' access. While the internet is essential for learning, students often face distractions from social media, gaming, and YouTube. Thus, while internet access is crucial for education, students must minimize distractions to maximize its academic benefits (Puspita and Rohedi, 2018).

However, the ownership of and access to ICTs domain had the lowest mean value among the four indicators, at 3.19, with a standard deviation of 0.616, which is still described as high. This suggests that while students generally have access to ICT tools, it may not be as consistent as in other domains. Variations in access could affect students' ability to fully participate in technology-supported learning activities.

This is supported by Ahmad and Sheikh (2021), who found that students at the University of the Punjab had access to ICT resources, positively impacting their academic success. These resources helped students complete tasks efficiently and acquire ICT-related skills. Similarly, while junior high school students had limited ownership of ICT tools, their access to flash drives highlighted the need for improved access to digital resources for enhanced learning opportunities (Biney, 2023).

Level of Student Engagement

Presented in table 2 is the level of student engagement in terms of emotional engagement, behavioral engagement, and cognitive engagement.

Table 2. Level of Student Engagement

Domains of Student Engagement	**SD**	**Mean**	**Descriptive Level**
Emotional Engagement	0.479	3.30	Very High
Behavioral Engagement	0.454	3.22	High
Cognitive Engagement	0.491	3.26	Very High
OVERALL	**0.401**	**3.26**	**Very High**

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue II February 2025

This table reveals that the overall mean value of student engagement is 3.26, with an overall standard deviation of 0.401, which is described as very high. This means that student engagement is always demonstrated among senior high school students. These findings suggest that students are highly involved and actively participate in their learning experiences. The mean score indicates that students consistently engage with academic tasks, show interest in their studies, and demonstrate motivation to perform well in their educational activities.

This is supported by Finn and Zimmer (2012), who link student engagement to academic success, higher achievement, and reduced dropout rates. Their study emphasizes the multifaceted nature of engagement and its impact on student outcomes. Similarly, Macfarlane and Tomlinson (2017) argue that the political and ethical implications of student engagement should be considered, stating that policies should go beyond effectiveness to address critiques like performativity and surveillance. This reinforces the importance of fostering high levels of engagement for improved student outcomes.

Moreover, the table shows that the domain emotional engagement obtained the highest mean value among the three domains, with a mean score of 3.30 and a standard deviation of 0.479, which is described as very high. This indicates that emotional engagement is always demonstrated among senior high school students. This finding suggests that students consistently feel emotionally connected to their learning experiences. They are likely to show a strong sense of interest, enthusiasm, and investment in their academic activities, which can enhance their motivation and overall educational performance.

This is supported by Aloka and Odongo (2018), who found a moderate positive correlation between emotional engagement and academic achievement, with students who feel safe and respected showing better outcomes. Similarly, Wang and Tu (2020) highlight that emotional engagement boosts learning persistence, particularly in online environments, and positively influences academic success. Both studies underscore the critical role of emotional engagement in improving student outcomes.

This is followed by the domain cognitive engagement, with a mean value of 3.26, which is descriptively interpreted as very high. This indicates that cognitive engagement is always demonstrated among senior high school students. This is observed in students' consistent mental effort and deep thinking applied to academic tasks. They actively participate in learning, critically analyze information, and engage in problem-solving activities, which enhance their overall learning experience and academic achievement.

This is supported by Pickering (2017), who emphasizes that cognitive engagement is essential for effective learning, as students must take responsibility for understanding the curriculum before engaging emotionally and behaviorally. Similarly, Wang and Eccles (2011), as cited by Soini and Pyhältö (2014), highlight that both environmental and individual factors, such as instructional behaviors, task challenges, and student strategies, contribute to emotional and cognitive engagement. Students who are engaged in both domains are more likely to persist and efficiently tackle challenges, leading to better academic outcomes.

However, the domain behavioral engagement had the lowest mean value among the three indicators, at 3.22, with a standard deviation of 0.454, which is still described as high. This implies that while students consistently engage in academic activities, there may be occasional variations in their active participation or involvement in specific learning tasks. This suggests that although behavioral engagement is demonstrated, it may not be as consistently exhibited as emotional or cognitive engagement, highlighting the potential need for further encouragement or motivation to enhance active participation in all learning activities.

This is supported by Lai (2021), who found that behavioral engagement is influenced by factors like task value, difficulty, and peer interaction. While interest and task utility enhance engagement, high task difficulty weakens it. Similarly, Cannata and Miller (2018) suggest that behavioral engagement varies based on peer and teacher interactions, indicating that fostering positive peer interactions and adjusting task difficulty could improve students' active participation.

Significance of the Relationship between Technological Resources and Student Engagement.

Table 3 presents the relationship between technological resources and student engagement.

Table 3. Relationship between Technological Resources and Student Engagement

		Student Engagement			
	r	r^2	**p-value**	**Decision on H_0 @ 0.05 level of significance**	**Interpretation**
Technological Resources	.614	.377	.000	Reject H_0	Significant

Table 3 reveals a significant relationship between technological resources and student engagement among senior high school students. The analysis obtained a p-value of 0.000 at a 0.05 level of significance. Thus, the null hypothesis was rejected. Therefore, a significant relationship exists between technological resources and student engagement. The r-value is 0.614, interpreted as a strong positive correlation. The analysis further reveals that 37 percent of the variance ($r^2 = 0.377$) in the student engagement of senior high school students can be attributed to their technological resources.

In comparison, other factors account for the remaining 63 percent. From the results, it is inferred that senior high school students would also have high student engagement when technological resources are high. Results observed between technological resources and student engagement among senior high school students suggest that the availability and effective use of technological tools significantly influence students' levels of engagement. As technological resources increase, students are more likely to actively participate in their learning process, demonstrating a stronger connection to their academic tasks and outcomes. This relationship highlights the significance of integrating technological resources in educational settings, as they can serve as key drivers in enhancing students' motivation, interaction, and overall academic performance.

The findings align with Morad and Marsh (2017) and D'Angelo (2018), both of which highlight the positive impact of technology on student engagement and academic outcomes. Morad and Marsh (2017) focus on how digital tools support emotional, cognitive, and behavioral engagement, while D'Angelo (2018) shows how technology enables collaboration, creativity, and academic success. Both studies agree that technology fosters a student-centered learning environment, encouraging deeper engagement with content and effective collaboration, ultimately leading to improved academic achievement.

CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions drawn from the study's findings and provides recommendations for improving educational practice and future research. The study aimed to determine the extent of technological resources and student engagement among senior high school students at Carlos P. Garcia Senior High School. Specifically, it examined whether a significant relationship exists between technological resources and student engagement, as well as the degree of this relationship. A descriptive-correlational research design was utilized, involving 100 senior high school students selected through simple random sampling. Data were gathered using adapted survey questionnaires, with strict adherence to ethical considerations. The collected data were analyzed using Mean and Pearson's r to determine the relationship between technological resources and student engagement.

The findings revealed that the extent of technological resources among senior high school students is highly demonstrated, indicating that students have reliable access to technological tools and actively integrate them into their academic activities. This suggests that technology plays a crucial role in enhancing their learning experiences. Similarly, the extent of student engagement is also highly demonstrated, implying that students consistently participate in their learning, exhibit motivation, and maintain a strong connection with their academic tasks. Furthermore, the study established a strong positive relationship between technological resources and student engagement, with an r-value of 0.614 and a p-value of 0.000, leading to the rejection of

the null hypothesis. This indicates that as technological resources increase, student engagement also rises. Additionally, 37% of the variance in student engagement can be attributed to technological resources, while other factors account for the remaining 63%. These results suggest that students with greater access to and effective use of technological resources are more likely to engage actively in their learning, fostering improved academic performance and motivation.

Based on these findings, several recommendations are proposed. Schools should prioritize improving access to modern digital tools, ensuring reliable internet connectivity, and integrating technology-enhanced learning platforms to foster student engagement. Teachers should be provided with ongoing professional development on effectively utilizing technology to facilitate active learning. Moreover, schools should create an environment that encourages student engagement by incorporating collaborative tools such as Edmodo, Google Classroom, and interactive digital resources. Regular assessments should be conducted to evaluate the impact of technological resources on student engagement, allowing for necessary adjustments based on feedback to enhance learning outcomes. Future researchers are encouraged to employ a mixed-method approach to gain deeper insights into the qualitative aspects of student engagement and technological use. Additionally, a longitudinal study is recommended to track how technological resources influence student engagement over time, providing a more comprehensive understanding of their long-term impact on academic performance.

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