

Artificial Intelligence on the Learning Performance of Senior High School Students

Sweetny Mejain D. Acerda¹, Isabella Rose B. Badilla², Jasmine V. Autentico³, Melly Joy R. Balongag⁴, Archie V. Abacahan⁵, Erwin C. Bagaan⁶, Cleandy Jane R. Obquia, MAED⁷

College of Teacher Education, Don Carlos Polytechnic College, Don Carlos, Bukidnon, Philippines

DOI: <https://doi.org/10.47772/IJRISS.2026.100700715>

Received: 12 July 2026; Accepted: 17 July 2026; Published: 11 August 2026

ABSTRACT

This study examined the use of artificial intelligence (AI)-based learning tools and their relationship to the learning performance of Senior High School students at Kibatang National High School. Specifically, it aimed to determine the types of AI-based learning tools used by students, assess the level of AI utilization in terms of frequency of use and learning purposes, identify the students' level of learning performance, and determine whether there is a significant relationship between the use of AI-based learning tools and learning performance. The study employed a quantitative descriptive-correlational research design. A total of 100 Senior High School students, consisting of 50 Grade 11 and 50 Grade 12 students, participated in the study. Data were collected through a survey questionnaire, while the students' General Weighted Average (GWA) was used to determine their learning performance. The gathered data were analyzed using appropriate statistical tools at the 0.05 level of significance.

The findings revealed that ChatGPT was the most commonly used AI-based learning tool, followed by Google Gemini, QuillBot, and Brainly, while Grammarly, Perplexity AI, and Quizlet were moderately used. The level of AI utilization in terms of frequency of use obtained a mean score of 3.79 with a descriptive rating of Agree, while the level of use based on learning purposes obtained a mean score of 3.83, also interpreted as Agree, indicating a high level of AI utilization among the respondents. In terms of learning performance, most students obtained a General Weighted Average (GWA) ranging from 88 to 92. However, the results further revealed that there was no significant relationship between the use of AI-based learning tools and the learning performance of Senior High School students. The study concluded that students prefer AI applications that provide immediate, accessible, and versatile academic support across various learning tasks and subject areas.

Keywords: Artificial Intelligence, AI-Based Learning Tools, Learning Performance, Senior High School Students, Academic Achievement

INTRODUCTION

Background of the Study

Classrooms are rapidly evolving as artificial intelligence (AI), ranging from adaptive tutors to generative chat agents, increasingly reshapes how Senior High School students study, practice, and accomplish academic tasks. AI tools now function as learning support systems that help students understand lessons, complete assignments, and prepare for assessments. As digital technologies become more integrated into school practices, AI tools have become a critical component of contemporary secondary education, particularly for facilitating personalized learning and flexible access to academic assistance. Various tools such as ChatGPT, Google Gemini, QuillBot, Brainly, Grammarly, Perplexity AI, Quizlet, Duolingo, Photomath, and other AI-supported platforms are now widely used by students for academic purposes.

Despite the widespread adoption of AI-powered study aids and learning platforms, academic outcomes among Senior High School students remain mixed. Some learners demonstrate improved engagement and performance, while others show surface-level understanding and increased reliance on AI-generated responses, potentially

masking actual learning difficulties. This inconsistency raises concerns regarding the actual effectiveness of AI tools in improving students' academic performance and highlights the need to determine whether AI use truly contributes to meaningful learning outcomes.

Understanding the relationship between AI tool usage and students' learning performance is important because AI has become a common educational resource among learners. Determining how AI tools influence academic achievement can provide valuable insights for students, teachers, school administrators, and policymakers in promoting responsible and effective use of AI in education. Furthermore, the findings may help schools maximize the benefits of AI technologies while minimizing potential drawbacks associated with overreliance on AI-generated outputs.

Recent educational studies consistently report that students commonly use artificial intelligence tools for learning purposes such as summarizing lessons, generating ideas, clarifying difficult concepts, and preparing for examinations, and that the extent of use varies according to the type of AI tool and academic purpose. Literature also shows that learning performance is commonly measured using students' academic grades and school-based performance indicators, which reflect actual learning outcomes in formal education. However, despite the growing use of AI tools in education, insufficient empirical evidence exists at the school level regarding which AI tools genuinely enhance learning performance and under what conditions they are most effective. This gap highlights the need for further investigation into the relationship between students' use of AI tools and their academic outcomes.

Based on the reviewed literature, the present study considers the use of artificial intelligence tools, in terms of frequency of use, types of tools utilized, and learning purposes, as the independent variable, while students' learning performance as reflected in their academic grades serves as the dependent variable. The study aims to examine the relationship between students' use of artificial intelligence tools and their learning performance.

This study was conducted during the fourth quarter of School Year 2025–2026 at Kibatang National High School, Don Carlos, Bukidnon, focusing on Senior High School students. Specifically, it involves Grade 11 and Grade 12 learners and seeks to examine the relationship between students' use of artificial intelligence tools and their learning performance as reflected in their General Weighted Average (GWA). The findings of this study are expected to contribute to the growing body of knowledge on AI-assisted learning and provide valuable information regarding the role of artificial intelligence in supporting academic achievement among Senior High School students.

Statement of the Problem

This study sought to examine the relationship between the use of artificial intelligence learning tools and the learning performance of Senior High School students.

Specifically, this study sought to answer the following questions:

1. What are the types of AI tools used by the Senior High School students?
2. What is the level of use of artificial intelligence-based learning tools among Senior High School students in terms of;
 - a. frequency of use; and
 - b. learning purposes?
3. What is the level of learning performance of Senior High School students?
4. Is there a significant relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students in terms of:
 - a. frequency of use; and
 - b. learning purposes?

Objectives of the Study

The main objective of this study was to examine the relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students.

Specifically, this study aimed to:

1. Determine what types of tools used by the Senior High School Students
2. Determine the level of use of artificial intelligence-based learning tools among Senior High School students in terms of:
 - a. frequency of use; and
 - b. learning purposes
3. Identify the level of learning performance of Senior High School students.
4. Ascertain whether there is a significant relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students in terms of;
 - a. frequency of use; and
 - b. learning purposes.

Hypothesis of the Study

This study aimed to examine the relationship between the use of AI-based learning tools and students' learning performance, particularly in terms of frequency of use and learning purposes. The following hypotheses were formulated:

Ha1: There is a significant relationship between the use of AI-based learning tools in terms of frequency of use and learning purposes, and students' learning performance in terms of frequency of use.

Ha2: There is a significant relationship between the use of AI-based learning tools in terms of frequency of use and learning purposes and students' learning performance in terms of learning purposes.

Significance of the Study

This study was significant because it provides empirical evidence on how the use of artificial intelligence-based learning tools relates to the learning performance of Senior High School students, thereby offering a clear basis for strengthening the integration of artificial intelligence in secondary education instruction.

For school administrators, the findings of this study may serve as a reference in reviewing and improving school policies, instructional guidelines, and support systems related to the use of artificial intelligence-based learning tools, particularly in identifying appropriate and responsible practices that promote students' learning performance.

For teachers and classroom practitioners, the results may guide the development of instructional strategies, learning activities, and assessment practices that meaningfully integrate artificial intelligence-based learning tools to support lesson delivery, learning engagement, and academic progress monitoring.

For Senior High School students, this study may help them become more aware of how their use of artificial intelligence-based learning tools relates to their academic performance, enabling them to adopt more purposeful and responsible learning practices.

For curriculum planners and education policymakers, the findings may provide evidence-based input for curriculum development, digital learning initiatives, and quality assurance efforts aimed at improving students' learning performance through the appropriate use of artificial intelligence in schools.

For future researchers, this study may serve as a reference for related investigations on artificial intelligence-based learning tools, learning performance, and other learner or instructional factors that may influence academic outcomes in secondary education.

Scope and Delimitations of the Study

This study focused on determining the relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students at Kibatang National High School, Kibatang, Don Carlos, Bukidnon, during the School Year 2025-2026. The scope of the study was limited to the assessment of the use of artificial intelligence-based learning tools in terms of frequency of use, type of tools utilized, and learning purposes, and to the assessment of learning performance of the respondents based on selected academic performance indicators. This study was delimited to the use of a survey questionnaire to measure the use of artificial intelligence-based learning tools and the use of existing academic records to determine the learning performance of the respondents, and excludes classroom observations, interviews, focus group discussions, experimental interventions, and longitudinal tracking of learning performance.

Definition of Terms

For clarity and consistency, the following terms were operationally defined as used in this study:

Artificial intelligence-based learning tools refer to digital applications or platforms that use artificial intelligence functions, such as automated feedback, content recommendation, intelligent tutoring, or generative assistance, which students use to support their learning activities.

Frequency of use refers to how often Senior High School students use artificial intelligence-based learning tools for school-related tasks within a given period.

Learning performance refers to the level of academic achievement of Senior High School students as reflected in selected academic performance indicators obtained from official school academic records.

Learning purposes refer to the specific academic reasons for which students use artificial intelligence-based learning tools, such as studying lessons, completing assignments, preparing for examinations, and understanding difficult concepts.

Senior High School students refer to learners officially enrolled in the Senior High School level at Kibatang National High School, Kibatang, Don Carlos, Bukidnon, during the conduct of the study.

Type of tools utilized refers to the categories of artificial intelligence-based learning tools used by students, such as generative tools, intelligent tutoring systems, automated practice and assessment tools, and other AI-supported learning applications.

THEORETICAL FRAMEWORK

This chapter presents the theoretical framework of the study. It is subdivided into four sections namely: Review of Related Literature and Studies, Conceptual Framework, Research Paradigm and Hypotheses.

Review of Related Literature and Studies

Frequency of Use

A systematic review by Lo, Hew, and Jong (2024) revealed that students commonly use ChatGPT and similar tools for summarizing learning materials, generating ideas, clarifying concepts, and preparing for assessments, with usage patterns ranging from occasional consultation to regular daily use. Similarly, a meta-analysis conducted by Wang and Fan (2025) indicated that students' engagement with AI tools is shaped by the learning context and specific purposes, such as problem solving, content explanation, and writing support, suggesting that frequency and type of use vary across disciplines and tasks.

Experimental studies further illustrate how students employ AI tools during learning activities. Urban et al. (2024) found that students frequently used ChatGPT during structured sessions for idea generation, solution checking, and refinement of responses, emphasizing its role as a cognitive support tool. Fütterer et al. (2023) reported that students across multiple countries used ChatGPT for drafting written work, brainstorming, summarizing information, and seeking explanations, with regular engagement for school-related tasks. Similarly, Ravšelj et al. (2024) documented widespread reliance on generative AI tools for assignment preparation, concept clarification, and revision activities.

In the Philippine context, similar patterns are observed, though institutional and cultural factors influence engagement. Espartinez (2024) found that Filipino students primarily used ChatGPT for idea generation, content drafting, and comprehension support, with frequency influenced by ethical acceptability and perceived usefulness. Fabro (2024) reported that senior high school and college students in Region I most frequently used generative AI tools for grammar checking, summarizing lessons, and creating presentations, emphasizing purposes related to academic efficiency.

Evidence from studies specifically involving Senior High School students confirms that AI tools are increasingly integrated into subject-specific learning activities. Jalon (2024) observed repeated use of ChatGPT in programming lessons for code explanation, debugging, and practice. The Quirino State University research team (2024) found frequent use of AI tools for note summarization, concept explanation, and presentation preparation. Pattung (2025) reported that Grade 12 students regularly used ChatGPT, Photomath, Grammarly, and Canva for assignments, exam preparation, and homework tasks.

Additional studies highlight the growing role of AI tools in independent learning. Kasneci et al. (2023) noted frequent use of large language models such as ChatGPT for summarizing readings, generating explanations, and obtaining step-by-step solutions. Cotton, Cotton, and Shipway (2024) explored how students interact with generative artificial intelligence tools in academic settings. Their findings indicated that students regularly rely on AI tools for drafting written outputs, organizing ideas, and editing academic texts. The study further revealed that the frequency of AI tool usage is strongly influenced by students' perceptions of the usefulness of these technologies in improving academic productivity and reducing the time required to complete school-related tasks.

Learning Purposes

Additional studies highlight the growing role of AI tools in independent learning. Kasneci et al. (2023) noted frequent use of large language models such as ChatGPT for summarizing readings, generating explanations, and obtaining step-by-step solutions. Cotton, Cotton, and Shipway (2024) explored how students interact with generative artificial intelligence tools in academic settings. Their findings indicated that students regularly rely on AI tools for drafting written outputs, organizing ideas, and editing academic texts. The study further revealed that the frequency of AI tool usage is strongly influenced by students' perceptions of the usefulness of these technologies in improving academic productivity and reducing the time required to complete school-related tasks. Similarly, Baidoo-Anu and Owusu Ansah (2023) examined the role of ChatGPT as an educational support tool and reported that students widely use the platform for explanation of difficult concepts, brainstorming ideas for assignments, and obtaining examples for academic writing. Their study highlighted that generative AI tools function as supplementary learning resources that extend beyond traditional textbooks and classroom instruction.

A study conducted by AlAfnan et al. (2024) investigated university students' utilization of AI-based writing assistants and learning tools. The results showed that students frequently employ artificial intelligence applications to revise essays, correct grammatical errors, and structure their academic arguments. The researchers noted that AI tools significantly enhance students' learning efficiency, particularly when used to support independent study and assignment preparation. Further evidence was presented by Chan and Hu (2023), who analyzed students' engagement with ChatGPT in educational contexts. Their study revealed that learners primarily use AI tools for academic problem solving, concept explanation, and review of lesson materials. The researchers concluded that the increasing accessibility of generative AI technologies has transformed the way students approach learning tasks, enabling them to obtain immediate feedback and personalized learning support.

Learning Performance of Senior High School Students

Recent empirical evidence highlights the level of learning performance among Senior High School students, focusing on how academic achievement is described and examined across different learning contexts. Learning performance in the reviewed studies is commonly measured using students' academic results, subject-specific achievement scores, and standardized or school-based indicators of academic attainment. These studies provide an important empirical basis for understanding how learning performance is shaped by instructional strategies, learner characteristics, psychosocial factors, and learning environments.

Foreign studies consistently show that the learning performance of Senior High School students is influenced by both instructional practices and learner-related factors. In a school-based study conducted in Ghana, Mensah et al. (2024) reported that students' academic performance is significantly associated with classroom practices, teacher efficiency, and the quality of instructional delivery. Their findings indicate that variations in teaching support and learning conditions correspond to differences in students' academic outcomes. Similarly, Kassim et al. (2024) examined the effects of five teaching strategies on the academic performance of senior high school students in financial accounting and found that learner-centered and interactive strategies produced higher achievement scores compared with traditional approaches. This highlights that students' learning performance is sensitive to pedagogical design and the way learning activities are structured.

Beyond instructional approaches, learner characteristics also play a role. Carroza-Pacheco et al. (2025) investigated the relationship between academic performance and resilience among secondary education students and reported that students with higher resilience tend to demonstrate better academic performance. These findings suggest that non-cognitive factors contribute meaningfully to learning performance.

Local studies in the Philippine context further describe learning performance and identify school-related and behavioral factors associated with academic outcomes. Rujonel (2024) examined the influence of classroom decors on academic performance and involvement of Senior High School students in Central Visayas and found that classroom environment features are associated with students' academic performance and engagement. Similarly, a study on the perceived impact of social media (Author unknown, 2024) revealed that patterns of social media use affect academic performance, with excessive or unregulated use potentially undermining study habits and focus. Meanwhile, Abao-an (2026) found that students' vocabulary knowledge depth and reading comprehension strongly influence academic performance in language-related subjects, demonstrating that foundational skills translate into observable differences in achievement.

Several empirical studies further examine factors affecting learning performance among Senior High School students. Kim and Kim (2023) investigated academic achievement among secondary school students and found that learning engagement and access to academic support resources significantly influence performance. Students who actively engage with learning materials and utilize supportive tools demonstrate higher achievement. Similarly, Hattie (2023) analyzed large-scale datasets and reported that effective learning strategies, feedback mechanisms, and access to supportive learning environments are strongly related to improved student outcomes. García-Martínez et al. (2024) observed that students who adopt structured learning strategies and regularly use academic support resources tend to achieve higher grades, emphasizing that integrating digital learning technologies positively impacts learning when used as part of structured activities.

Local evidence reinforces these findings. De Guzman (2024) reported that study habits, learning resources, and classroom engagement significantly influence academic performance in Philippine public schools. Santos and Mendoza (2025) found that Grade 11 students who actively utilize digital learning platforms and online resources achieve better outcomes compared with those relying solely on traditional materials. These studies suggest that the effective use of digital and AI-supported learning tools enhances students' academic performance by providing additional support beyond classroom instruction.

Relationship Between AI Tool Usage and Learning Performance

This section presents empirical evidence on whether the use of artificial intelligence-based learning tools is significantly related to students' learning performance. The reviewed studies focus on generative artificial

intelligence and intelligent learning applications and examine their effects on academic achievement using experimental, quasi-experimental, and correlational approaches. Together, these studies provide a strong basis for understanding how artificial intelligence use may influence learning outcomes among students and for justifying the present investigation among Senior High School learners.

At the international level, large-scale syntheses provide consistent evidence that the use of artificial intelligence tools is positively associated with learning performance. Deng et al. (2024), in a systematic review and meta-analysis of experimental studies on ChatGPT, reported a significant overall effect of generative artificial intelligence on students' academic performance. Their findings indicate that students who used ChatGPT as part of learning activities generally achieved higher posttest and performance scores than those who relied on traditional learning approaches. The study also emphasized that the strength of the relationship varies depending on how the tool is integrated into instruction, the type of learning task, and the level of learner support provided. Similarly, Dong et al. (2025) conducted a meta-analysis examining the effect of artificial intelligence interventions on students' academic achievement and found a statistically significant positive association between artificial intelligence use and learning performance. Their analysis further revealed that educational level and type of artificial intelligence application moderate the observed effects, suggesting that meaningful learning gains are more likely when artificial intelligence tools are aligned with instructional goals and learning content.

Evidence from the Philippine context further supports the existence of a significant relationship between artificial intelligence-based learning tools and learning performance among Senior High School students. Cayetano et al. (2025) investigated the use of ChatGPT as a personalized learning tool in answering atomic structure assessments among Grade 11 STEM students and found a significant improvement in posttest scores after exposure to the ChatGPT-supported learning intervention. Their quasi-experimental results indicate that the integration of artificial intelligence tools into science learning activities can lead to measurable gains in students' academic performance. In a similar school level study, Muktar (2025) examined the use of artificial intelligence applications in pre-calculus among Grade 11 STEM students and reported significant differences in test scores between students who used artificial intelligence tools and those who did not. The findings demonstrate that students who engaged with artificial intelligence-based learning applications achieved higher mathematics performance, providing localized empirical evidence of a significant relationship between artificial intelligence use and learning outcomes.

Further reinforcing these findings, Agbong Coates (2024) examined the integration of ChatGPT in learning activities and its association with personalized learning outcomes in a Philippine educational setting. Using correlational and regression analyses, the study showed that the extent of ChatGPT integration significantly predicted students' learning indicators, including academic performance measures. The results suggest that students who more actively engaged with artificial intelligence supported learning activities tended to demonstrate higher learning outcomes, even after controlling for other instructional factors.

CONCEPTUAL FRAMEWORK

This study was anchored on established learning and technology adoption theories that explain how the use of artificial intelligence-based learning tools may influence the learning performance of Senior High School students. In this framework, the level of use of artificial intelligence-based learning tools, described in terms of frequency of use, type of tools utilized, and learning purposes, is treated as the independent variable, while learning performance is the dependent variable. The proposed relationships are explained through the Technology Acceptance Model, Self-Regulated Learning Theory, Cognitive Load Theory, and Social Constructivist Theory.

The Technology Acceptance Model, developed by Fred Davis explains how learners decide to adopt and continuously use a technology based on its perceived usefulness and perceived ease of use (Davis, 1989). In the context of this study, students are more likely to use artificial intelligence-based learning tools frequently when they believe that these tools help them accomplish academic tasks more efficiently and are easy to operate. This theory supports the assumption that students' frequency of use and choice of artificial intelligence tools are shaped by their perceptions of academic value. When students perceive artificial intelligence tools as useful for

studying, completing assignments, or clarifying lessons, sustained usage becomes more likely, which may subsequently influence their learning performance.

The relationship between the use of artificial intelligence-based learning tools and learning performance is further explained by the Self-Regulated Learning Theory proposed by Barry Zimmerman. According to Zimmerman (2002), effective learners actively plan, monitor, and regulate their learning processes. Artificial intelligence-based learning tools, such as intelligent tutors and generative assistants, may support self-regulated learning by enabling students to set learning goals, receive immediate feedback, and check their understanding during study sessions. In this study, the learning purposes for which students use artificial intelligence tools, such as reviewing lessons, preparing for tests, or checking solutions, are viewed as manifestations of self-regulation strategies. Students who use artificial intelligence tools purposefully and strategically are therefore expected to demonstrate better learning performance.

Cognitive processing mechanisms are explained through Cognitive Load Theory advanced by John Sweller. Cognitive Load Theory posits that learning is affected by the amount of mental effort imposed on working memory during learning tasks (Sweller, 1998). Artificial intelligence-based learning tools can reduce extraneous cognitive load by providing step-by-step explanations, automated feedback, and simplified representations of complex information. In this framework, the type of artificial intelligence tools utilized, such as intelligent tutoring systems, automated problem solvers, and generative explanation tools, is assumed to influence how cognitive load is managed during learning activities. When artificial intelligence tools effectively reduce unnecessary mental demands, students are more likely to process essential information, which can result in improved learning performance.

The learning process supported by artificial intelligence tools is also explained by Social Constructivist Theory associated with Lev Vygotsky. Vygotsky (1978) emphasized that learning occurs through guided interaction and support within the learner's zone of proximal development. Artificial intelligence-based learning tools can function as digital scaffolds by providing prompts, examples, explanations, and feedback that assist learners in accomplishing tasks that they may not yet be able to complete independently. In this study, the use of artificial intelligence tools for learning purposes such as concept clarification, guided practice, and problem solving, is viewed as a form of scaffolded learning support that may enhance students' academic performance.

Research Paradigm

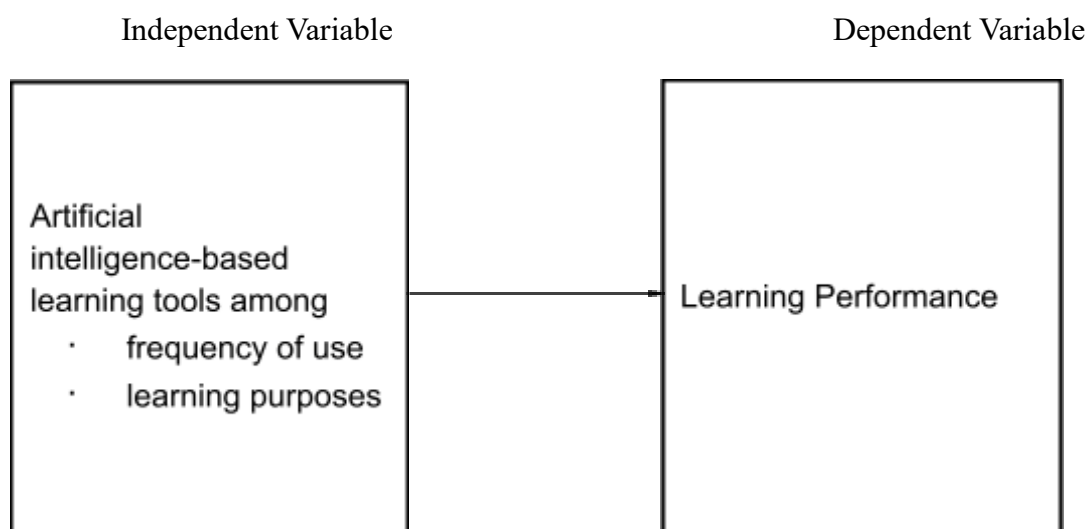


Figure 1. Schematic diagram showing the relationship between independent and dependent variables.

METHODOLOGY

This chapter elaborates on the methodology of the study. It presents the set of procedures and techniques that the researchers employed in gathering and analyzing the data in the study. It includes research design, locale of the

study, respondents of the study, instrumentation, data gathering procedure, scoring procedure, and statistical treatment of data.

Research Design

This study employed a quantitative, descriptive-correlational research design to determine the relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students at Kibatang National High School, Kibatang, Don Carlos, Bukidnon. The descriptive component of the design was used to establish the level of use of artificial intelligence-based learning tools in terms of frequency of use, type of tools utilized, and learning purposes, as well as the level of learning performance of the students based on selected academic performance indicators. The correlational component was applied to examine whether a significant relationship exists between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students.

Locale of the Study

The study was conducted at Kibatang National High School, located in Barangay Kibatang, Don Carlos, Bukidnon, Philippines. The school is a public secondary institution offering the Senior High School program and caters to learners from Barangay Kibatang and nearby communities. It accommodates students from different academic strands and socio-economic backgrounds and provides access to basic information and communication technology facilities and internet connectivity, allowing students to use digital learning platforms and AI-based tools for academic activities.

Kibatang National High School represents a typical rural public Senior High School where digital learning resources and emerging educational technologies are gradually integrated into classroom instruction and independent learning. Conducting the study here allowed the researcher to examine the level of AI tool usage, including frequency, type, and purpose, and its association with the learning performance of Senior High School students within a real school context.

Map of the Locale of the Study



Figure 2. Map of Kibatang Don Carlos, Bukidnon showing the location of Kibatang National High School.

Respondents of the Study

The respondents of this study consisted of one hundred (100) Senior High School students who were officially enrolled at Kibatang National High School, located in Barangay Kibatang, Don Carlos, Bukidnon, during the conduct of the study. The respondents were composed of fifty (50) Grade 11 students and fifty (50) Grade 12 students, drawn from the different academic strands offered by the school to ensure adequate representation of the Senior High School population. Only students who were currently enrolled, actively attending classes, and willing to participate in the study were included. The respondents were selected using an appropriate sampling technique to obtain a sample that sufficiently represented the Senior High School students of the school. These students were considered suitable respondents since they had access to digital devices and online learning platforms and were exposed to various artificial intelligence tools for academic purposes.

Research Instrument

This study utilized a structured survey questionnaire developed by the researchers to gather the necessary data on the use of artificial intelligence-based learning tools and the learning performance of Senior High School students. The questionnaire was constructed based on the variables of the study and supported by relevant literature on artificial intelligence in education and students' learning practices.

Before the questionnaire was distributed to the actual Senior High School student respondents, it was first reviewed by experts through a content validation process to ensure that the questions were clear, relevant, and aligned with the objectives of the study. The researchers then revised the questionnaire based on the feedback and suggestions provided by the validators. Once the necessary revisions were completed, the questionnaire was pilot tested with a group of respondents who had similar characteristics to the target participants but were not included in the actual study. This was done to check if the questionnaire was easy to understand and to determine whether it could consistently measure the variables of the study before it was administered to the actual respondents.

The questionnaire consisted of three parts aligned with the variables of the study. The first part identified the types of artificial intelligence tools used by the respondents through a checklist of commonly used AI-based learning applications. This section addressed the first research question of the study regarding the types of AI tools used by Senior High School students.

The second part of the questionnaire measured the level of use of artificial intelligence-based learning tools among the respondents in terms of frequency of use and learning purposes. The statements in this section were formulated by the researchers based on the identified indicators of the study and on existing literature regarding the use of artificial intelligence in learning. These statements described how often students used AI tools for school-related activities and the specific academic purposes for which these tools were utilized, such as studying lessons, completing assignments, reviewing topics, and clarifying difficult concepts.

Data on the learning performance of the respondents was obtained through self-reported academic information included in the questionnaire. The respondents were asked to indicate their current General Weighted Average (GWA), which served as the indicator of their learning performance in the study. The use of self-reported GWA allowed the researcher to obtain a general measure of the students' academic achievement while maintaining the confidentiality of official school records.

Scoring Procedure

The responses to the items measuring the utilization of Artificial Intelligence (AI)-based learning tools were gathered using a five-point Likert scale. The respondents were asked to indicate the extent to which they agreed with each statement by selecting the response that best represented their experiences and perceptions. The scale used in the study consisted of the following: 5 – Strongly Agree, 4 – Agree, 3 – Neutral, 2 – Disagree, and 1 – Strongly Disagree.

The weighted mean was used to determine the level of utilization of AI-based learning tools among the respondents. Mean scores ranging from 4.50 to 5.00 were interpreted as Strongly Agree, indicating that the use of AI-based learning tools was Always observed. Mean scores from 3.50 to 4.49 corresponded to Agree, which implied that AI-based learning tools were Often utilized. Scores ranging from 2.50 to 3.49 were interpreted as Neutral, suggesting that the respondents Sometimes used these tools. Likewise, mean scores between 1.50 and 2.49 were interpreted as Disagree, indicating that the utilization of AI-based learning tools was Rarely observed, while scores from 1.00 to 1.49 were interpreted as Strongly Disagree, signifying that such tools were Never utilized. The scoring matrix used in the interpretation of the level of use of AI-based learning tools is presented in Table below.

Scale	Range	Descriptive Rating	Qualitative Interpretation
5	4.50 – 5.00	Strongly Agree	Always
4	3.50 – 4.49	Agree	Often
3	2.50 – 3.49	Neutral	Sometimes
2	1.50 – 2.49	Disagree	Rarely
1	1.00 – 1.49	Strongly Disagree	Never

The overall level of utilization of AI-based learning tools was determined using the same weighted mean ranges. A mean score of 4.50 to 5.00 indicated Very High Utilization, while a score ranging from 3.50 to 4.49 represented High Utilization. Mean scores between 2.50 and 3.49 indicated Moderate Utilization, whereas scores from 1.50 to 2.49 and 1.00 to 1.49 corresponded to Low Utilization and Very Low Utilization, respectively. These classifications enabled the researchers to determine the extent to which AI-based learning tools were utilized by the respondents in their academic activities. The interpretation used for the level of utilization is presented in Table below.

Scale	Range	Descriptive Rating	Qualitative Interpretation
5	4.50 – 5.00	Strongly Agree	Very High Utilization
4	3.50 – 4.49	Agree	High Utilization
3	2.50 – 3.49	Neutral	Moderate Utilization
2	1.50 – 2.49	Disagree	Low Utilization
1	1.00 – 1.49	Strongly Disagree	Very Low Utilization

A General Weighted Average ranging from 90 to 100 was classified as Outstanding and interpreted as Very High Learning Performance, indicating excellent academic achievement and a high level of mastery of the learning competencies. Grades ranging from 85 to 89 were described as Very Satisfactory and interpreted as High Learning Performance, reflecting above-average academic achievement. A GWA ranging from 80 to 84 was categorized as Satisfactory, which indicated Moderate Learning Performance and signified that the expected learning outcomes had been adequately attained.

Moreover, grades ranging from 75 to 79 were classified as Fairly Satisfactory and interpreted as Low Learning Performance, suggesting that the minimum academic standards had been met. Meanwhile, a General Weighted Average below 75 was categorized as Did Not Meet Expectations and interpreted as Very Low Learning Performance, indicating that the desired competencies and learning outcomes had not been sufficiently achieved.

The classification of the respondents' General Weighted Average into different performance levels provided a basis for assessing their academic achievement and for examining the relationship between the utilization of AI-based learning tools and their learning performance. The grading system and its corresponding interpretations are presented in Table below.

GWA Range	Descriptive Rating	Interpretation
90 – 100	Outstanding	Very High Learning Performance
85 – 89	Very Satisfactory	High Learning Performance
80 – 84	Satisfactory	Moderate Learning Performance
75 – 79	Fairly Satisfactory	Low Learning Performance

Below 75	Did Not Meet Expectations	Very Low Learning Performance
----------	---------------------------	-------------------------------

Administration of the Research Instrument

The study utilized a structured survey questionnaire developed by the researchers to gather data on the use of artificial intelligence-based learning tools and the learning performance of Senior High School students. Prior approval to administer the questionnaire was secured from the school head and the concerned authorities.

The purpose, procedures, and nature of participation were clearly explained to school administrators, teachers, parents or guardians, and student participants. Informed consent was obtained from all respondents and, when required, from their parents or legal guardians. Participation was voluntary, and respondents were informed that they could refuse or withdraw at any time without academic penalty or negative consequences.

Confidentiality and anonymity were maintained by assigning numerical codes to respondents and excluding personally identifiable information from the instruments. All data were securely stored and handled with special care, and the findings were reported honestly for academic and institutional improvement purposes.

Data Gathering Procedure

After securing approval, an official list of eligible Senior High School students was obtained from the school registrar. Respondents were selected using purposive random sampling to ensure adequate representation of the Senior High School population.

The selected students were oriented on the purpose and procedures of the study. The researcher-developed questionnaire on the use of artificial intelligence-based learning tools was administered at a scheduled time approved by the school. Upon completion, the questionnaires were collected, checked, and coded.

Data on learning performance were obtained separately from the school registrar using the respondents' official academic grades and selected school records. These records were matched only through the assigned numerical codes. All data were securely organized and prepared for statistical analysis in accordance with confidentiality and data protection requirements.

Statistical Treatment Used

The data collected in this study were analyzed using appropriate descriptive and inferential statistical tools to address the specific research questions of the study.

For Research Question 1, which sought to identify the types of artificial intelligence tools used by Senior High School students, frequency counts and percentages were used. These statistical measures described the distribution of the different artificial intelligence tools utilized by the respondents.

For Research Question 2, which aimed to determine the level of use of artificial intelligence-based learning tools among Senior High School students in terms of frequency of use and learning purposes, the weighted mean and standard deviation were employed. The weighted mean determined the overall level of use for each sub-variable, while the standard deviation described the variability of responses. The results were interpreted using the established five-point Likert scale interpretation matrix.

For Research Question 3, which sought to determine the level of learning performance of Senior High School students, frequency counts and percentages were used to describe the distribution of the respondents' self-reported General Weighted Average (GWA) based on the DepEd grading descriptors.

For Research Question 4, which examined whether there was a significant relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students in terms of frequency of use and learning purposes, the Pearson Product-Moment Correlation Coefficient (r) was used to determine the strength and direction of the relationship between the variables. The level of significance was set

at 0.05 to determine whether the relationship was statistically significant. The results served as the basis for accepting or rejecting the null hypothesis of the study.

Ethical Consideration

The researchers conducted the study in accordance with ethical research principles to ensure the protection of the respondents' rights, privacy, and well-being. Prior to the conduct of the study, a formal letter requesting permission to conduct the research was submitted to the school principal for approval. After obtaining the principal's approval, the researchers coordinated with the Senior High School advisers to seek their permission and assistance in administering the survey questionnaire to the respondents.

Before the distribution of the questionnaire, the purpose of the study, its objectives, and the procedures involved were clearly explained to the respondents. Participation in the study was entirely voluntary, and informed consent was obtained before they answered the questionnaire. The respondents were also informed that they had the right to decline participation or withdraw from the study at any time without any consequences.

The researchers ensured that the privacy and confidentiality of the respondents were protected throughout the study. The questionnaire did not require the respondents to provide their names or any personally identifiable information, thereby maintaining their anonymity. All information gathered was treated with strict confidentiality and was used solely for academic and research purposes.

In compliance with the Data Privacy Act of 2012 (Republic Act No. 10173), all collected data were securely handled and stored. Only the researchers had access to the completed questionnaires and electronic records. The data will be retained only for the completion of the study and will be properly disposed of in accordance with the institution's data management practices.

Presentation, Analysis, And Interpretation Of Data

This chapter presents, analyzes, and interprets the data gathered in the study on the relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students. The results are organized according to the specific research questions and are supported by appropriate statistical treatments. Data are presented using tables and corresponding explanations to clearly describe the findings.

Types of AI Tools Used by the Senior High School Students

This section presents the types of artificial intelligence-based learning tools used by Senior High School students. Identifying the specific tools utilized by the respondents provides a clear overview of the most commonly adopted artificial intelligence applications in their academic activities. The results are presented using frequency and percentage to show the distribution of responses and to determine which tools are most preferred among the students.

Table 1. Distribution of AI Tools Used by Respondents

AI Tools	Frequency (f)	Percentage %
ChatGPT	98	98%
Google Gemini	39	39%
Quillbot	35	35%
Brainly	27	27%
Grammarly	15	15%
Perplexity AI	10	10%
Quizlet	8	8%
PDF	6	6%
Duolingo	5	5%
Photomath	5	5%
Math Space	3	3%

Natiol AI	3	3%
Wolfram Alpha	2	2%
Qanda	1	1%
Perusall	1	1%

Table 1 presents the distribution of artificial intelligence (AI)-based learning tools used by Senior High School students. The results show that ChatGPT was the most widely used AI tool, with a frequency of 98 respondents, representing 98% of the total respondents. This indicates that almost all students are familiar with and actively use ChatGPT for their academic activities. It was followed by Google Gemini with 39 respondents (39%), QuillBot with 35 respondents (35%), and Brainly with 27 respondents (27%). Other AI tools such as Grammarly (15%), Perplexity AI (10%), and Quizlet (8%) were used by a smaller but notable proportion of students. The remaining tools, including PDF AI, Duolingo, Photomath, Math Space, Notion AI, Wolfram Alpha, Qanda, and Perusall, were utilized by only a few respondents.

The findings indicate that students prefer AI tools that are easy to access, user-friendly, and capable of assisting with multiple academic tasks. The exceptionally high percentage of ChatGPT users suggests that it has become a primary learning companion among Senior High School students. Its ability to provide explanations, generate ideas, summarize information, answer questions, and assist with assignments makes it highly attractive for academic use. Similarly, the relatively high usage of Google Gemini and QuillBot demonstrates students' preference for tools that support information gathering, paraphrasing, and writing-related tasks.

The large gap between ChatGPT and the other AI tools suggests that students tend to favor general-purpose AI platforms over specialized applications. While tools such as Photomath and Wolfram Alpha are designed specifically for mathematics and Duolingo focuses on language learning, students appear to rely more on versatile AI systems that can address a wide range of academic needs. This pattern reflects a growing trend in which learners seek convenient and comprehensive digital tools that can provide immediate assistance across different subjects.

Overall, the results reveal that AI usage among Senior High School students is heavily concentrated on a few dominant platforms, particularly generative AI tools. The widespread adoption of ChatGPT indicates that AI has become an important component of students' learning experiences. These findings suggest that students are increasingly integrating AI technologies into their study habits, research activities, writing tasks, and academic problem-solving processes.

These findings align with the study of Lo, Hew, and Jong (2024), which reported that students commonly use ChatGPT and similar tools for summarizing materials, generating ideas, and clarifying concepts, highlighting the widespread adoption of generative AI in learning. Similarly, Fütterer et al. (2023) found that students across different countries predominantly use ChatGPT for drafting written work, brainstorming, and seeking explanations, indicating its global dominance as a learning tool.

In the Philippine context, Espartinez (2024) revealed that students frequently use ChatGPT for idea generation, content drafting, and comprehension support, while Fabro (2024) reported that learners commonly use generative AI tools for grammar checking, summarizing lessons, and creating academic outputs. Furthermore, Pattung (2025) identified that Senior High School students regularly use tools such as ChatGPT, Grammarly, and Canva, with usage centered on assignment completion, studying, and academic task management, supporting the present findings that general-purpose AI tools are the most preferred among students.

Artificial Intelligence-Based Learning Tools Among Senior High School Students

This section presents the level of use of artificial intelligence-based learning tools among Senior High School students. The extent of use is examined in terms of frequency of use and learning purposes to provide a comprehensive understanding of how students engage with artificial intelligence in their academic activities. The results are presented using the weighted mean and are interpreted based on the established descriptive ratings and qualitative interpretations.

Table 2. Level of Use of AI-Based Learning Tools in Terms of Frequency of Use

Indicators	Mean	Descriptive Rating	Qualitative Interpretation
1. I use AI tools when I do not understand a topic discussed in class.	4.27	Agree	Often
2. I use AI tools before starting my homework to understand the instructions clearly.	4.16	Agree	Often
3. I use AI tools to check my grammar and sentence construction.	4.10	Agree	Often
4. I use AI tools when answering difficult academic questions.	4.03	Agree	Often
5. I use AI tools when working on research-related tasks.	3.98	Agree	Often
6. I use AI tools to search for additional information about my lessons.	3.94	Agree	Often
7. I use AI tools for my schoolwork on a regular basis.	3.87	Agree	Often
8. I use AI tools whenever I need quick explanations for school topics.	3.83	Agree	Often
9. I use AI tools when completing assignments and projects.	3.81	Agree	Often
10. I use AI tools when I need step-by-step explanations.	3.81	Agree	Often
11. I use AI tools when studying my lessons at home.	3.75	Agree	Often
12. I use AI tools for school-related tasks several times a week.	3.75	Agree	Often
13. I use AI tools during group or collaborative school tasks.	3.72	Agree	Often
14. I use AI tools whenever I feel I need academic support.	3.72	Agree	Often
15. I use AI tools to help me meet deadlines faster.	3.64	Agree	Often
16. I use AI tools as part of my daily study routine.	3.63	Agree	Often
17. I use AI tools when preparing for quizzes or examinations	3.54	Agree	Often
18. I use AI tools when my teacher assigns complex tasks.	3.53	Agree	Often
19. I use AI tools when reviewing lessons after class.	3.50	Agree	Often
20. I use AI tools when reviewing lessons after class.	3.20	Agree	Sometimes
OVERALL MEAN	3.79	Agree	Often

Legend:

Scale	Range	Descriptive Rating	Qualitative Interpretation
5	4.50-5.00	Strongly Agree	Always
4	3.50-4.49	Agree	Often
3	2.50-3.49	Neutral	Sometimes
2	1.50-2.49	Disagree	Rarely
1	1.00-1.49	Strongly Disagree	Never

Table 2 presents the level of use of artificial intelligence (AI)-based learning tools among Senior High School students in terms of frequency of use. The table reveals an overall mean of 3.79, which falls within the range of 3.50–4.49, corresponding to the descriptive rating of “Agree” and the qualitative interpretation of “Often.” This

means that the respondents generally agreed that they frequently use AI-based learning tools in their academic activities. The result indicates that AI tools have become a common and regularly utilized resource that supports students in accomplishing school-related tasks and enhancing their learning experiences.

Among the indicators, the highest mean score was obtained by “I use AI tools when I do not understand a topic discussed in class” with the mean of 4.27. This mean falls within the “Agree” descriptive rating and is qualitatively interpreted as “Often.” The result suggests that students frequently rely on AI tools to clarify lessons and improve their understanding of concepts that they find difficult or confusing. The second highest-rated indicator, “I use AI tools before starting my homework to understand the instructions clearly” with the mean of 4.16, also received a descriptive rating of “Agree” and a qualitative interpretation of “Often.” This indicates that students regularly use AI tools to ensure that they understand assignment requirements before beginning their work. Likewise, “I use AI tools to check my grammar and sentence construction” with the mean of 4.10 was interpreted as “Agree” and “Often,” showing that AI tools are commonly used to improve the quality and accuracy of students’ written outputs.

Most of the remaining indicators obtained mean scores ranging from 3.50 to 4.03, all of which fall under the descriptive rating “Agree” and the qualitative interpretation “Often.” These results indicate that students frequently use AI tools for answering difficult questions, conducting research-related tasks, searching for additional information, completing assignments, studying lessons, collaborating with classmates, meeting deadlines, and preparing for assessments. The consistency of these ratings demonstrates that AI tools play an important role in supporting various aspects of students’ academic work.

On the other hand, the lowest mean score was recorded by “I use AI tools during online classes” with the mean of 3.20. This mean falls within the range of 2.50–3.49, corresponding to the descriptive rating “Neutral” and the qualitative interpretation “Sometimes.” This suggests that students neither strongly agree nor disagree that they use AI tools during online classes and that such use occurs only occasionally. The lower score may indicate that students are more focused on participating in teacher-led discussions during online sessions or that opportunities to use AI tools in real time during class are limited.

The data indicate that students frequently use AI tools in various academic contexts, as all indicators fall within the “Agree” range. A noticeable pattern emerges in the highest-ranked indicators, which are associated with situations where students experience difficulty, confusion, or uncertainty. These include understanding lessons, clarifying instructions, and addressing challenging academic tasks. In contrast, lower mean scores are observed in more structured or routine learning activities such as reviewing lessons, preparing for examinations, and participating in online classes.

These findings suggest that the use of AI tools among students is situational rather than habitual. Students tend to rely on AI primarily as an on-demand academic support system, activating its use when they encounter learning difficulties rather than integrating it consistently into all study routines. This reflects an adaptive learning behavior in which AI is utilized to reduce complexity, clarify concepts, and enhance task efficiency. However, the relatively lower usage in structured learning environments implies that AI tools are not yet fully embedded in formal or teacher-guided instructional processes. Overall, students appear to use AI more as a problem-solving aid than as a continuous tool for deep learning and reinforcement.

These findings are consistent with previous studies. Lo, Hew, and Jong (2024) reported that students commonly use AI tools such as ChatGPT for summarizing lessons, clarifying concepts, and preparing for academic tasks, with usage varying depending on learning needs. Similarly, Urban et al. (2024) found that students engage with AI tools for idea generation, solution checking, and response refinement, emphasizing their role as cognitive support during challenging tasks. Fütterer et al. (2023) also revealed that students predominantly use AI tools for drafting, brainstorming, and seeking explanations, particularly when dealing with complex or unfamiliar content. Local studies further support these results, as Fabro (2024) found that Filipino students frequently use AI for summarizing, grammar checking, and task completion, while Espartinez (2024) noted that AI usage is influenced by its perceived usefulness in addressing academic difficulties.

Learning Purposes

Table 3 presents the level of use of artificial intelligence (AI)-based learning tools among Senior High School students in terms of learning purposes. The overall mean of 3.84 corresponds to the descriptive rating “Agree” and the qualitative interpretation “High Utilization.” This means that, on average, students agree that they use AI-based learning tools for various academic purposes, indicating that these technologies have become a regular and important part of their learning activities. The result suggests that students frequently rely on AI tools to support their studies, accomplish academic requirements, and enhance their learning experiences.

Table 3. Level of Use of AI-Based Learning Tools in Terms of Learning Purposes

Indicators	Mean	Descriptive Rating	Qualitative Interpretation
1. I use AI tools to improve my overall academic performance.	4.12	Agree	High Utilization
2. I use AI tools to better understand my lessons.	4.09	Agree	High Utilization
3. I use AI tools to increase my confidence in answering academic tasks.	4.02	Agree	High Utilization
4. I use AI tools to gather ideas for essays, reports, or projects.	3.94	Agree	High Utilization
5. readings I use AI tools to summarize long lessons or.	3.93	Agree	High Utilization
6. I use AI tools to generate examples or practice questions.	3.89	Agree	High Utilization
7. I use AI tools to study more efficiently.	3.88	Agree	High Utilization
8. I use AI tools to receive instant feedback on my answers.	3.87	Agree	High Utilization
9. I use AI tools to compare different explanations of a topic.	3.87	Agree	High Utilization
10. I use AI tools to clarify answers and check my solutions.	3.84	Agree	High Utilization
11. I use AI tools to improve the quality of my school outputs.	3.84	Agree	High Utilization
12. I use AI tools to complete assignments and projects.	3.82	Agree	High Utilization
13. I use AI tools to explore topics beyond what is discussed in class.	3.82	Agree	High Utilization
14. I use AI tools to understand difficult concepts in science subjects	3.77	Agree	High Utilization
15. I use AI tools to support independent learning outside the classroom.	3.75	Agree	High Utilization
16. I use AI tools to solve mathematical problems.	3.74	Agree	High Utilization
17. I use AI tools to organize ideas and information for school tasks.	3.73	Agree	High Utilization
18. I use AI tools to improve my writing skills.	3.69	Agree	High Utilization
19. I use AI tools to enhance my critical thinking skills.	3.66	Agree	High Utilization
20. I use AI tools to review lessons and prepare for quizzes or examinations.	3.62	Agree	High Utilization
OVERALL MEAN	3.84	Agree	High Utilization

Legend:

Scale	Range	Descriptive Rating	Qualitative Interpretation
5	4.50 – 5.00	Strongly Agree	Very High Utilization
4	3.50 – 4.49	Agree	High Utilization
3	2.50 – 3.49	Neutral	Moderate Utilization
2	1.50 – 2.49	Disagree	Low Utilization
1	1.00 – 1.49	Strongly Disagree	Very Low Utilization

Among the indicators, the highest-rated statement is “I use AI tools to improve my overall academic performance” with a mean of 4.12, which falls within the descriptive rating of “Agree” and the qualitative interpretation of “High Utilization.” This indicates that students strongly recognize AI tools as valuable resources for achieving better academic outcomes. Similarly, “I use AI tools to better understand my lessons” with the mean of 4.09 and “I use AI tools to increase my confidence in answering academic tasks” with the mean of 4.02 also received high ratings. These findings suggest that students primarily utilize AI tools to enhance comprehension, strengthen learning, and build confidence in completing school-related tasks.

Other indicators, such as gathering ideas for essays and projects with the mean of 3.94, summarizing lessons and readings with the mean of 3.93, generating examples or practice questions with the mean of 3.89, and studying more efficiently with the mean of 3.88, likewise obtained descriptive ratings of “Agree” and qualitative interpretations of “High Utilization.” These results imply that students use AI tools not only to improve understanding but also to increase productivity and efficiency in accomplishing academic requirements.

Although all indicators were interpreted as High Utilization, relatively lower mean scores were observed for “I use AI tools to enhance my critical thinking skills” with the mean of 3.66, “I use AI tools to improve my writing skills” with a mean of 3.69, and “I use AI tools to review lessons and prepare for quizzes or examinations” with the mean of 3.62. Despite still falling within the “Agree” range, these lower means suggest that students are somewhat less likely to use AI tools for activities that require deeper cognitive engagement, reflection, skill development, and long-term retention of knowledge compared to more immediate academic tasks.

The findings suggest that students use artificial intelligence-based learning tools as multi-functional academic support systems aimed at improving performance, understanding content, and increasing confidence in completing academic tasks. However, the lower emphasis on critical thinking and exam preparation implies that AI tools may be used more for task completion and comprehension support rather than for deep learning, reflection, and long-term knowledge retention. This indicates that while AI tools are highly utilized, their role may be more aligned with efficiency and assistance rather than the full development of higher-order thinking skills.

These findings are consistent with Kasneci et al. (2023), who reported that students frequently use AI tools for summarizing readings, generating explanations, and obtaining solutions to academic problems, emphasizing their role in supporting understanding and task completion. Similarly, Cotton, Cotton, and Shipway (2024) found that students rely on generative AI tools for drafting outputs, organizing ideas, and improving academic productivity, indicating that AI tools are widely used to enhance efficiency in completing school-related tasks.

In addition, Baidoo-Anu and Owusu Ansah (2023) highlighted that students commonly use AI tools for brainstorming, concept explanation, and academic writing support, reinforcing their function as supplementary learning resources. Local studies also support these results. Fabro (2024) reported that students frequently use AI tools for grammar checking, summarizing lessons, and creating academic outputs, while Pattung (2025) found that Senior High School students utilize AI tools primarily for assignment preparation, studying, and academic task management.

Learning Performance of Senior High School Students

This section presents the level of learning performance of Senior High School students based on their General Weighted Average (GWA). The data are analyzed using frequency and percentage to describe the distribution of students’ academic performance. The results provide an overview of the students’ achievement levels and serve as a basis for examining their relationship with the use of artificial intelligence-based learning tools.

Table 4. Distribution of Learning Performance of Senior High School Students

Grade	Frequency (f)	Percentage (%)
96	2	2%
95	5	5%
94	1	1%

93	5	5%
92	11	11%
91	9	9%
90	19	19%
89	17	17%
88	15	15%
87	8	8%
86	4	4%
85	1	1%
84	1	1%
83	1	1%
80	1	1%
Total	100	100%

Table 4 presents the distribution of the learning performance of Senior High School students based on their General Weighted Average (GWA). The results show that the largest group of respondents obtained a grade of 90, with 19 students (19%), followed by those who received a grade of 89, with 17 students (17%), and 88, with 15 students (15%). Additionally, 11% of the students obtained a grade of 92, while 9% earned a grade of 91. On the other hand, only a small number of respondents received grades below 85, with each grade level accounting for only 1% to 4% of the total sample.

The data show that the majority of students are concentrated within the 88 to 92 grade range, indicating a clustering of performance at the upper-middle to high achievement levels. The distribution is slightly negatively skewed toward higher grades, meaning more students are performing well rather than poorly. The relatively low frequencies in the lower grade brackets suggest that only a few students are experiencing academic difficulty. This pattern reflects a generally strong academic performance among the respondents, with most students achieving satisfactory to very satisfactory levels based on standard grading interpretations.

The data show that the majority of students are concentrated within the 88 to 92 grade range, indicating a clustering of performance at the upper-middle to high achievement levels. The distribution is slightly negatively skewed toward higher grades, meaning more students are performing well rather than poorly. The relatively low frequencies in the lower grade brackets suggest that only a few students are experiencing academic difficulty. This pattern reflects a generally strong academic performance among the respondents, with most students achieving satisfactory to very satisfactory levels based on standard grading interpretations.

The findings indicate that Senior High School students demonstrate consistently high levels of academic performance, with the majority achieving grades that fall within the satisfactory to very satisfactory range. This suggests that students possess a stable academic foundation, which may be influenced by effective instructional practices, access to learning resources, and supportive learning environments. Given this context, any relationship between AI tool usage and learning performance must be interpreted carefully, as students are already performing well. This implies that artificial intelligence tools may function more as performance enhancers rather than as interventions for low-performing students.

These findings are supported by Kim and Kim (2023), who reported that students' academic achievement is significantly influenced by access to learning resources and engagement with learning materials, both of which contribute to higher performance levels. Similarly, Hattie (2023) emphasized that effective learning strategies and supportive learning environments are strongly associated with improved academic outcomes among students. In the local context, De Guzman (2024) found that study habits, access to learning resources, and classroom engagement significantly influence the academic performance of Senior High School students. Furthermore, Santos and Mendoza (2025) reported that students who actively utilize digital learning platforms and educational resources tend to achieve better academic outcomes, suggesting that access to supportive tools contributes to improved performance.

Correlation Analysis between the Artificial Intelligence-Based Learning Tools and the Learning Performance of Senior High School Students

This section presents the relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students. The analysis focuses on determining whether a significant relationship exists between the variables in terms of frequency of use and learning purposes. The results are presented using the Pearson Product-Moment Correlation Coefficient (r) and corresponding p -values to establish the strength and significance of the relationships.

Table 5. Relationship Between Artificial Intelligence-Based Learning Tools (Frequency of Use and Learning Purposes) and Learning Performance of Senior High School Students

Independent Variables correlated with Learning Performance	Pearson	Probability	Interpretation	Decision
Artificial Intelligence-Based Learning Tools (Frequency of Use)	0.190	0.058	No significant relationship	Reject H_{a1}
Artificial Intelligence-Based Learning Tools (Learning Purposes)	0.185	0.066	No significant relationship	Reject H_{a2}

Table 5 presents the relationship between artificial intelligence-based learning tools, in terms of frequency of use and learning purposes, and the learning performance of Senior High School students. The computed Pearson correlation coefficients are $r = 0.190$ for frequency of use and $r = 0.185$ for learning purposes, indicating weak positive relationships with learning performance. These findings suggest that as students increase their use of artificial intelligence tools, whether in terms of how often they use them or the purposes for which they are applied, their academic performance tends to improve slightly. However, the strength of these relationships remains weak.

Despite the observed positive trends, the corresponding p -values of 0.058 and 0.066 are greater than the 0.05 level of significance, indicating that the relationships are not statistically significant. This implies that the observed associations are not strong enough to establish a reliable relationship and may have occurred by chance. Therefore, the null hypothesis is not rejected, and the alternative hypothesis is rejected. This indicates that there is no significant relationship between artificial intelligence-based learning tools and the learning performance of Senior High School students.

The findings imply that while artificial intelligence tools may assist students in accomplishing academic tasks, neither the frequency of use nor the intended learning purposes significantly influence academic performance. This suggests that the effectiveness of artificial intelligence tools depends more on how they are utilized rather than how often they are used or the specific purposes they serve. Hence, meaningful engagement, proper guidance, and structured integration into the learning process are essential in achieving improved academic outcomes.

These findings are strongly supported by existing literature. According to Dong et al. (2025), artificial intelligence tools exhibit a positive but inconsistent relationship with academic achievement, as their effectiveness varies depending on the context, manner, and depth of their use. The study emphasized that simple or frequent exposure to AI tools does not automatically translate into improved academic performance, highlighting the importance of strategic and guided application. Similarly, according to Deng et al. (2024), artificial intelligence significantly enhances learning performance when it is integrated into structured and well-designed instructional activities. Their findings stress that meaningful engagement, rather than mere access or frequency of use, plays a crucial role in determining learning outcomes.

Furthermore, according to Cayetano et al. (2025), students demonstrate significant improvements in academic performance when artificial intelligence tools are utilized within guided and systematically structured learning environments. This suggests that without proper instructional support and clear academic direction, the benefits of artificial intelligence tools may not be fully realized. In addition, according to Agbong-Coates (2024), the extent and quality of artificial intelligence integration are significant predictors of learning outcomes. The study highlighted that deeper engagement and purposeful use of AI tools are necessary to produce measurable academic improvements, reinforcing the idea that passive or surface-level use is insufficient.

Overall, the results indicate that artificial intelligence-based learning tools serve as supportive educational resources; however, they do not function as primary determinants of students' academic success. The findings revealed that there is no statistically significant relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students. Therefore, the null hypothesis is not rejected, while the alternative hypothesis is rejected. This suggests that the impact of artificial intelligence tools on academic performance depends largely on how effectively they are integrated into the teaching and learning process rather than on their frequency of use or intended purposes alone.

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusions, and recommendations of the study on the relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students.

Summary of Findings

This study examined the relationship between the use of artificial intelligence (AI)-based learning tools and the learning performance of Senior High School students at Kibatang National High School during the School Year 2025–2026.

The findings revealed that Senior High School students utilized various AI-based learning tools. Among these, ChatGPT emerged as the most commonly used tool, followed by Google Gemini, QuillBot, and Brainly. Grammarly, Perplexity AI, and Quizlet showed moderate levels of use, while the remaining AI tools were utilized by only a small proportion of the respondents. In terms of frequency of use, the respondents demonstrated a high level of AI tool utilization, obtaining an overall weighted mean of 3.79 with a descriptive rating of "Agree," indicating that students often used AI tools in their academic activities. Similarly, the level of AI tool use in terms of learning purposes was high, with an overall weighted mean of 3.84 and a descriptive rating of "Agree." This result indicates that students highly utilized AI tools for different learning purposes.

The findings further showed that the learning performance of the respondents was generally high. Most students obtained General Weighted Average (GWA) scores ranging from 88 to 92. The highest concentration of grades was recorded at 90, followed by grades 89 and 88. A considerable number of students also achieved grades within the range of 91 to 92, while only a few respondents obtained grades below 85.

The results of the Pearson Product-Moment Correlation analysis revealed a weak positive relationship between the frequency of AI tool use and learning performance, with a correlation coefficient of 0.190 and a p-value of 0.058. Likewise, a weak positive relationship was found between the learning purposes of AI tool use and learning performance, with a correlation coefficient of 0.185 and a p-value of 0.066. However, both relationships were found to be not statistically significant at the 0.05 level of significance.

Conclusions

Based on the findings of the study entitled Artificial Intelligence and the Learning Performance of Senior High School Students, it was concluded that Senior High School students utilize a variety of artificial intelligence-based learning tools in their academic activities. Among the identified AI tools, ChatGPT emerged as the most commonly used platform, followed by Google Gemini, QuillBot, and Brainly. This indicates that students prefer

AI applications that provide immediate, accessible, and versatile academic support across different learning tasks and subject areas.

The study further concluded that the level of utilization of artificial intelligence-based learning tools among Senior High School students is high in terms of both frequency of use and learning purposes. The overall weighted mean of 3.79 indicates that students often use AI tools in their academic activities, while the overall weighted mean of 3.84 indicates a high level of utilization for various learning purposes. These findings suggest that AI tools have become valuable supplementary resources that support students in understanding lessons, completing academic requirements, and facilitating independent learning.

The findings also revealed that the learning performance of Senior High School students is generally high. Most respondents obtained General Weighted Average (GWA) scores ranging from 88 to 92, with the highest concentration of grades recorded at 90, followed by 89 and 88. This indicates that students demonstrate satisfactory to very satisfactory academic achievement, reflecting a strong academic foundation and consistent learning performance.

Finally, the study concluded that there is no statistically significant relationship between the use of artificial intelligence-based learning tools and the learning performance of Senior High School students in terms of both frequency of use and learning purposes. Although weak positive relationships were observed between frequency of use and learning performance ($r = 0.190$, $p = 0.058$) and between learning purposes and learning performance ($r = 0.185$, $p = 0.066$), both relationships were not statistically significant at the 0.05 level.

This suggests that while AI-based learning tools serve as useful academic support resources, their utilization alone does not significantly influence students' academic performance. Therefore, other factors such as study habits, motivation, self-regulated learning, teacher support, and learning environment may play a more substantial role in determining students' learning outcomes.

Recommendations

Considering that Senior High School students utilize various artificial intelligence-based learning tools, particularly ChatGPT and other generative AI applications, school administrators may review and strengthen school policies and guidelines governing the appropriate, ethical, and responsible use of artificial intelligence in educational settings. Such policies may help ensure that AI tools are used to support learning while maintaining academic integrity and responsible digital practices.

Given the high level of utilization of artificial intelligence-based learning tools in terms of frequency of use and learning purposes, teachers and classroom practitioners are encouraged to integrate AI tools into instructional strategies, learning activities, and assessment practices in a structured and purposeful manner. Teachers may provide guidance on the effective use of AI technologies to promote critical thinking, problem-solving, creativity, and independent learning rather than mere task completion.

Since the respondents demonstrated generally high levels of learning performance, Senior High School students are encouraged to continue utilizing artificial intelligence-based learning tools as supplementary learning resources while maintaining active engagement in the learning process. Students should develop responsible learning habits by using AI tools to enhance understanding, strengthen academic skills, and support self-directed learning rather than relying on them as substitutes for personal effort and critical analysis.

As the study found no statistically significant relationship between artificial intelligence-based learning tool utilization and learning performance, curriculum planners and education policymakers may focus on developing balanced educational initiatives that promote AI literacy, digital citizenship, and responsible technology integration. In addition, educational programs should continue to address other factors that contribute to academic success, such as study habits, learner motivation, self-regulated learning, and instructional quality, which may have a greater influence on students' academic performance.

Finally, future researchers may conduct similar studies involving larger sample sizes, different educational settings, or additional variables related to learning performance. Further investigations may explore factors such as motivation, study habits, digital literacy, self-regulated learning, and teacher support to provide a more comprehensive understanding of the determinants of academic achievement. Experimental and longitudinal studies may likewise be undertaken to examine the long-term effects of artificial intelligence-based learning tools on students' learning outcomes.

REFERENCES

1. Abao-an, D. D. (2026). Level of vocabulary knowledge depth and reading comprehension of Senior High School: Basis for reading intervention program. Zenodo. <https://doi.org/10.5281/zenodo.18125970>
2. Afidchao, D. T., Bigayan, J. J. C., Galindez, M. S. S. M., Jimenez, E. J. B., Macam, F. K. C., Orias, C. E. L., Balonquita, M. C., & Bernardino, R. M. (2023). Perceived effectiveness of artificial intelligence-powered calculators on the academic performance of senior high school STEM students in mathematics [Dataset/report]. Zenodo. <https://doi.org/10.5281/zenodo.8104870>
3. Agbong-Coates, I. J. G. (2024). ChatGPT integration significantly boosts personalized learning outcomes: A Philippine study. *International Journal of Educational Management and Development Studies*, 5(2), 165–186. <https://doi.org/10.53378/353067>
4. AlAfnan, M. A., Dishari, S., Jovic, M., & Lomidze, K. (2024). ChatGPT as an educational tool: Opportunities, challenges, and recommendations for higher education. *Journal of Applied Learning and Teaching*, 7(1), 1–14. <https://doi.org/10.37074/jalt.2024.7.1.6>
5. Baidoo-Anu, D., & Owusu Ansah, L. (2023). Education in the era of generative artificial intelligence: Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI*, 7(1), 52–62. <https://doi.org/10.61969/jai.1337500>
6. Carroza-Pacheco, A. M., León-del-Barco, B., & Bringas Molleda, C. (2025). Academic performance and resilience in secondary education students. *Journal of Intelligence*, 13(5), 56. <https://doi.org/10.3390/jintelligence13050056>
7. Cayetano, N. A. V., De Dios, F. C., Francisco, L. M., Hernandez, I. Z. N., Sequito, F. L. V., Sevilla, S. M. C., & Sison, L. B. (2025). The effect of ChatGPT 3.0 as a personalized learning tool in answering atomic structure assessments. *American Journal of Education and Technology*, 4(3), 1–11. <https://doi.org/10.54536/ajet.v4i3.4700>
8. Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges of ChatGPT in higher education. *Educational Technology Research and Development*, 71(6), 3145–3165. <https://doi.org/10.1007/s11423-023-10296-0>
9. Cotton, D. R. E., Cotton, P. A., & Shipway, J. R. (2024). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, 61(2), 228–239. <https://doi.org/10.1080/14703297.2023.2190148>
10. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
11. De Guzman, A. B. (2024). Factors affecting the academic performance of Senior High School students in public secondary schools in the Philippines. *Philippine Journal of Education*, 98(2), 45–59.
12. Deng, R., Jiang, M., Yu, X., Lu, Y., & Liu, S. (2024). Does ChatGPT enhance student learning? A systematic review and meta-analysis of experimental studies. *Computers & Education*, 227, 105224. <https://doi.org/10.1016/j.compedu.2024.105224>
13. Dong, L., Tang, X., & Wang, X. (2025). Examining the effect of artificial intelligence in relation to students' academic achievement: A meta-analysis. *Computers & Education: Artificial Intelligence*, 8, 100400. <https://doi.org/10.1016/j.caeai.2025.100400>
14. du Plooy, E., Casteleijn, D., & Franzsen, D. (2024). Personalized adaptive learning in higher education: A scoping review of key characteristics and impact on academic performance and engagement. *Heliyon*, 10(21), Article e39630. <https://doi.org/10.1016/j.heliyon.2024.e39630>
15. Espartinez, A. S. (2024). Exploring student and teacher perceptions of ChatGPT use in higher education: A Q-Methodology study. *Computers and Education: Artificial Intelligence*, 7, Article 100264. <https://doi.org/10.1016/j.caeai.2024.100264>

16. Fabro, R. B. B. (2024). Perceptions and extent of utilization of generative artificial intelligence among Filipino students. *International Journal of Education and Research*, 12(7), 119–128. <https://ijern.com/journal/2024/July-2024/09.pdf>
17. Fütterer, T., Fischer, C., Alekseeva, A., Chen, X., Tate, T., Warschauer, M., et al. (2023). ChatGPT in education: Global reactions to AI innovations. *Scientific Reports*, 13, Article 15310. <https://doi.org/10.1038/s41598-023-42227-6>
18. García-Martínez, I., Fernández-Batanero, J. M., Cobos-Sanchiz, D., & Luque-de la Rosa, A. (2024). Digital technologies and academic performance in secondary education: Evidence from recent educational research. *Education and Information Technologies*, 29, 5673–5692. <https://doi.org/10.1007/s10639-023-12011-4>
19. Hattie, J. (2023). *Visible learning: The sequel – A synthesis of over 2,100 meta-analyses relating to achievement*. Routledge.
20. Jalon, J. B., Jr. (2024). ChatGPT as a learning assistant: Its impact on students' learning of Python programming. *ERIC / Education Resources Information Center* (EJ1465724). <https://files.eric.ed.gov/fulltext/EJ1465724.pdf>
21. Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerger, M., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., ... Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
22. Kassim, M. A., Marfo, S., & Abu, K. (2024). Assessing the impact of five teaching strategies on the academic performance of senior high school students in financial accounting: A case study in Wa. *Social Sciences & Humanities Open*, 10, Article 101259. <https://doi.org/10.1016/j.ssaho.2024.101259>
23. Kim, H., & Kim, M. (2023). Factors influencing academic achievement among secondary school students. *Educational Sciences*, 13(4), 358. <https://doi.org/10.3390/educsci13040358>
24. Lo, C. K., Hew, K. F., & Jong, M. S. Y. (2024). The influence of ChatGPT on student engagement: A systematic review and future research agenda. *Computers & Education*, 219, Article 105100. <https://doi.org/10.1016/j.compedu.2024.105100>
25. Mensah, R. O., Amponsah, K. D., Adiza Babah, P., & Jibril, H. S. (2024). Factors affecting students' academic performance and teachers' efficiency in Ghana: A case study of Wa Senior High School. *Cogent Arts & Humanities*, 11(1), Article 2412944. <https://doi.org/10.1080/23311983.2024.2412944>
26. Muktar, R. (2025). Impact of artificial intelligence applications on mathematics learning among Grade 11 STEM students at Mindanao State University-Sulu. (Precalculus study). Zenodo. <https://doi.org/10.5281/zenodo.15608460>
27. Pattung, A. G. (2025). Use of generative AI tools among Senior High School Grade 12 students: Inputs for policy recommendations. *ISRG Journal / conference paper (full text)*. <https://isrgpublishers.com/wp-content/uploads/2026/01/ISRGJAHSS1003602025.pdf>
28. Quirino State University research team. (2024). Unlocking the future of learning: Assessing students' awareness and usage of AI tools. *International Journal of Information and Education Technology*, 14(8), 1137–1145. <https://www.ijiet.org/vol14/IJiet-V14N8-2142.pdf>
29. Ravšelj, D., Umek, L., Brezovar, N., Keržič, D., & Aristovnik, A. (2024). Higher education students' perceptions of ChatGPT: A global study of early reactions. (Open access; global survey article referenced on PMC). (Full text) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11798494/>
30. Rujonel F. (2024). The impact of classroom decors on academic performance and involvement of Senior High School students in Central Visayas, Philippines. Zenodo. <https://doi.org/10.5281/zenodo.14272776>
31. Santos, R. M., & Mendoza, L. P. (2025). Digital learning platforms and academic performance of Grade 11 students in public secondary schools. *Asia Pacific Journal of Educational Research*, 8(1), 112–126.
32. Schiel, J. (2023). High-school students' use and impressions of AI tools (report). Lumina Foundation. <https://www.luminafoundation.org/wp-content/uploads/2024/01/High-School-Students-Use-and-Impressions-of-AI-Tools.pdf>
33. Sweller, J. (1998). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257–285. https://doi.org/10.1207/s15516709cog1202_4

34. Urban, M., Děchtěrenko, F., Lukavský, J., Hrabalová, V., Svacha, F., Brom, C., et al. (2024). ChatGPT improves creative problem-solving performance in university students: An experimental study. *Computers & Education*, 215, Article 105031. <https://doi.org/10.1016/j.compedu.2024.105031>
35. Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
36. Wang, J., & Fan, W. (2025). The effect of ChatGPT on students' learning performance, learning perception, and higher-order thinking: Insights from a meta-analysis. *Humanities and Social Sciences Communications*, 12, Article 621. <https://doi.org/10.1038/s41599-025-04787-y>
37. Wang, S., Wang, F., Zhu, Z., Wang, J., Tran, T., & Du, Z. (2024). Artificial intelligence in education: A systematic literature review. *Expert Systems with Applications*, 252, 124167. <https://doi.org/10.1016/j.eswa.2024.124167>
38. Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice*, 41(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2