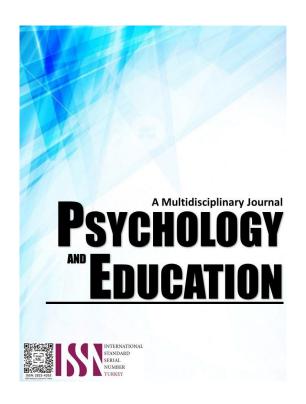# ARTIFICIAL INTELLIGENCE: ITS INFLUENCE ON ACADEMIC PERFORMANCE OF GRADE 11 SENIOR HIGH SCHOOL STUDENTS

Artificial Intelligence: Its Influence on Academic Performance of Grade 11 Senior High School Students

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Abstract

This study examined the impact of Artificial Intelligence (AI) on the academic performance of students enrolled in selected External Units of Mindanao State University (MSU) during the first semester of the 2024–2025 academic year. Employing a quantitative, descriptive-correlational research design, data were gathered through a structured survey questionnaire. Descriptive statistics were used to analyze demographic variables such as age, sex, academic strand, and general average grades. Pearson's r-correlation coefficient assessed the relationship between AI use and academic performance, while linear regression analysis was conducted to identify potential predictors of academic success. Findings revealed that students actively engaged with various AI tools to support their educational endeavors and reported perceived enhancements in their learning behaviors and motivational levels. Despite these positive perceptions, statistical analysis indicated no significant correlation between AI influence and students' academic performance. Furthermore, variables such as age, sex, academic strand, and the use of AI applications did not significantly predict academic outcomes. The results suggested that while AI technologies contributed to shaping learning behaviors and motivational strategies, their direct effect on measurable academic success remains inconclusive.

Keywords: *artificial Intelligence (AI), academic performance, learning behavior, motivational learning, descriptive-correlational study*

Introduction

The integration of Artificial Intelligence (AI) into education presents a complex landscape filled with both opportunities and challenges. As educational institutions increasingly adopt AI technologies, they face significant hurdles that can impact teaching, learning, and administration. Understanding these challenges is crucial for effectively harnessing AI's potential while ensuring equitable access and ethical use in educational settings.

The influence of artificial Intelligence (AI) on students' academic performance is multifaceted, significantly affecting their attitudes towards learning, motivation for study habits, and overall educational experiences. AI technologies have been demonstrated to enhance personalized learning, boost engagement, and improve academic outcomes by tailoring instruction to individual learning needs. This integration of AI into education not only fosters a more adaptive learning environment but also encourages students to develop better study habits and a positive attitude towards their academic pursuits (Mallillin, 2024).

Artificial Intelligence is one aspect of Information Technology that is employed as a means to enhance student learning achievement (Pabubong, 2021; Supriyadi & Asih, 2021). Artificial Intelligence or commonly abbreviated as AI is an application and instructions that are connected to computer programming to be able to do something that in the view of humans is intelligent or can be understood as a lesson on how to make computers able to do things that are currently done better than human who do it (Alghafiqi, 2022; Ghazmi, 2021; Shasmito et al., 2021). The foundation and installation of Artificial Intelligence is very broad, including the field of education. Learning using this AI system is learning that has been modified so that it can improve student learning achievement and focus.

Artificial Intelligence (AI) is transforming education, including personalized learning experiences, through platforms like ChatGPT. These AI tools engage students like human tutors, enhancing efficiency and effectiveness. However, concerns arise about potential drawbacks such as hindering critical thinking and reducing human interaction (Greene-Harper, 2023).

The study emphasized the significance of investigating the influence of Artificial Intelligence (AI) on senior high students at selected MSU External Units, due to concerns regarding its potential impact on their independent thinking. With AI becoming increasingly prevalent in education, there's a worry that students might over-reliance on these tools, hindering the development of vital skills such as problem-solving and critical thinking.

The research focused on Grade 11 students to identify specific challenges and opportunities within their learning environment. The influence of Artificial Intelligence (AI) on the academic performance of the students could lead to an over-reliance on technology. This could mean that the students are less likely to develop important skills like critical thinking and problem solving because they are relying on technology to do the work for them (Wang Siu, 2017).

The main purpose of this study was to evaluate the effect that learning aids driven by artificial Intelligence (AI) have risen to prominence in the education setting. In this age, this is characterized by the rapid advancement of technology. The use of AI in education settings has given rise to a growing body of debate, the foundation of which is that the technologies potentially improve education as a whole. However, in order to properly capitalize on the benefits of AI while also effectively addressing the possible negative effects. Therefore,

it is essential to have a comprehensive understanding of the impact that both of these factors have.

The study investigated how artificial Intelligence influences students' academic performance. Additionally, this study aimed to fill the gap by examining how AI applications affect students' academic achievement and proposes strategies to minimize potential negative effects on their learning outcomes.

Research Objectives

This study aimed to investigate the influence of artificial Intelligence to the academic performance of the students in selected MSU External Units. Specifically, this study sought to answer the following:

1. To determine the demographic profile of the respondents in terms of:
    1.1. age;
    1.2. sex;
    1.3. strand; and
    1.4. artificial intelligence applications.
2. To determine the influence of artificial Intelligence in terms of:
    2.1. personal learning behavior; and
    2.2. motivational learning mechanism.
3. To identify the academic performance of the learners.
4. To evaluate the General Average Grade (1st semester 2024-2025).
5. To determine the significant relationship between the Artificial Intelligence and academic performance of the respondents.
6. To examine which variables such as demographic profile and influence of Artificial Intelligence best predict the academic performance of learners.
7. To craft an action plan based from the result of the data.

Methodology

Research Design

This study utilized a descriptive-correlational research design. A descriptive research design was used to understand and determine the influence of artificial intelligence on personal learning behavior and motivational learning mechanisms. On the other hand, correlational research is a non-experimental approach that focuses on understanding the association or correlation between two or more variables without manipulating them, as defined by Hassan (2023). The choice of this design was driven by the need to examine and analyze the correlation between the influence of AI on the academic performance of students. The variables under consideration were the respondent's demographic profile and the influence of AI on academic success in terms of personal learning behavior and motivational learning mechanism.

Respondents

The study was conducted at MSU-Balindong CHS and its nearby municipalities, such as MSU-Tugaya and MSU Marantao. The target respondents were Grade 11 senior high school students from different strands of selected MSU-external units. They were selected because older/senior high school students may derive more significant benefits from AI personalized learning compared to younger age students who might need additional support to engage effectively with technologies.

The researcher used the Raosoft calculation with a 0.05 margin of error and a response distribution of 90% to determine the number of sample respondents from the total population. To determine whether respondents are AI or non-AI users, the researcher employed a simple random sampling technique to ensure representative sampling. This approach can effectively capture the diversity of experiences and attitudes towards AI among different populations. Also, a Simple Random Sampling method was employed to ensure that every student had an equal chance of being selected. The researcher used the fishbowl technique to select respondents being selected.

Procedure

The researcher modified a questionnaire by making the negative statements positive and categorized it based on personal learning behavior and motivational learning. This questionnaire was based on the study of the following sources: Leovigildo Lito D. Mallillin (2024), and Mohd Elmagzoub Eltahir and Frdose Mohd Elmagzoub Babiker (2024). A survey questionnaire was used to determine students' perceptions of the influence of AI on their academic performance. The questionnaire consists of three parts. Part I collects demographic information from respondents. Part II: Ask the respondent about AI-driven applications. Parts III assess the Influence of Artificial Intelligence on Student's Academic Performance using the Likert Scale Strongly Disagree (1), Disagree (2), Agree (3), Strongly Agree (4).

The researcher ensures the validity and reliability of the questionnaires through the approval of the research adviser and other panelists, and they underwent pilot testing at Balindong National High School, which resulted in valid and reliable results. Upon approval of the questionnaire, the researcher conducted a survey questionnaire in March 2025. However, before administering the questionnaire, the

researcher obtained permission from the Office of the Vice Chancellor for Academic Affairs and the school principal as a courtesy, and also requested the respondents' cumulative grades for the first semester from their adviser to determine their academic performance. Meanwhile, the researcher also sought consent from students. The researcher had assured the respondent's confidentiality of the information that they would provide. The questionnaires collected right after the respondents had answered them. The gathered data were tallied, analyzed, and interpreted by the researcher afterwards.

Data Analysis

To interpret data effectively, the researcher employed the following:

For objectives 1 & 3, Frequency and percentage distribution were used to determine the demographic profile of respondents in terms of age, sex, strand, preferred AI Apps, and identify the academic performance of the learners.

For objective 2, Weighted Mean and standard deviation were utilized to determine the influence of artificial intelligence on personal learning behavior and motivational learning mechanisms.

For objective 4, Pearson's r Correlation was used to determine the significant relationship between artificial Intelligence and academic performance of the learners

For objective 5, Regression analysis was used to determine the influenced of AI and demographic profiles that significant predict the academic performance of the respondents.

Ethical Considerations

Generally, the best practices in research ethics were observed in the conduct of this study. Participants were not required to answer all parts of the questionnaire; instead, they were allowed to decline to provide answers on items that they found difficult. Fortunately, however, none of them declined. Having answered such items, respondents were assured that everything would be kept with utmost secrecy and confidentiality. Using the SPC Free Prior Informed Consent Form, participants' free consent to participate in the study was requested prior to answering the questionnaire.

To ensure the accuracy of the responses, the respondents were given ample time to answer the questionnaire. This study strictly adhered to all relevant provisions stipulated in Republic Act No. 10173, otherwise known as the Data Privacy Act of 2012. As provided in this law, anonymity, privacy, and confidentiality would be observed, and individual responses/information would not be disclosed and divulged to protect the rights of every respondent.

Results and Discussion

This section presents the data gathered to answer the study's problems. It also analyzed and interpreted the data collected by the researcher to solve the issues in the study.

Demographic Profile of the Respondents in terms of Age, Sex, Strand, General Average Grade (1st semester 2024-2025), and Artificial Intelligence Applications

Table 1. *Age*

Age	Frequency	Percentage (%)
15 – 16 years old	28	29.2
17 - 18 years old	62	64.6
19 – 20 years old	6	6.3
Total	96	100.0

Table 1 presents a demographic profile of the respondents in terms of age. The data showed that the majority of the respondents were aged 17-18 years old, constituting 64.6%, followed by 29.2% of the sample aged 15-16 years old, and 6.3% of the sample fell into the 19-20 years old age group. It implied that the majority, or 64.6% of the respondents, were 17-18 years old. Correlating age with the usage of AI and its impact on students' success is complex. Empirical research indicated that age may positively correlate with AI knowledge and attitudes, implying that older students could possess a more profound comprehension and more favorable perceptions of AI, thereby potentially enhancing their academic performance (Tin, 2024). Conversely, alternative research indicated that age did not exert a significant influence on the overall effect of AI on learning experiences or levels of engagement, signifying a broader appeal of AI tools across various age demographics (Capinding & Dumayas, 2024) (Ezeoguine & Eteng-Uket, 2024). With regards to age and AI knowledge, mature or older students generally exhibited a higher level of AI knowledge and a more positive disposition towards AI. This facilitated improved academic outcomes (Tin, 2024). The adoption frequency of AI tools such as ChatGPT is elevated among older adolescents, indicating a heightened familiarity and perceived utility in academic endeavors (Klarin et al., 2024).

However, age and AI impact on learning notwithstanding the relationship between age and AI knowledge, age did not markedly influence the overall effect of AI on learning experiences, motivation, or engagement (Capinding & Dumayas, 2024; Ezeoguine & Eteng-Uket, 2024). AI tools are regarded as enhancing personalized learning and critical thinking across different age cohorts, with no significant age-related discrepancies in these perceptions (Capinding & Dumayas, 2024).

Although older students may possess greater AI knowledge, academic achievement does not reveal a substantial correlation with AI utilization or perceived effectiveness, suggesting that other determinants may play a more pivotal role in academic success (Klarin et al., 2024). The impact of AI on academic writing is considerable. However, age is not a critical factor in the efficacy of AI tools in enhancing writing competencies (Dingal et al., n.d.).

While age may affect AI knowledge and attitudes, its influence on the overall efficacy of AI in promoting student success is not substantial. This observation indicates that AI tools possess a wide-ranging appeal and functionality across diverse age groups, highlighting the necessity for inclusive AI integration within educational frameworks to ensure equitable learning opportunities for all students.

Table 2. *Sex*

Sex	Frequency	Percentage (%)
Male	21	21.9
Female	75	78.1
Total	96	100.0

Table 2 shows the sex distribution of the respondents. The sample was predominantly female, making up 78.1% of the respondents, compared to 21.9% who were male. This sex distribution revealed that the particular academic strands surveyed had a higher female enrollment. A survey revealed by the National Statistic Office in 2020, children aged below 15 years had a sex ratio of 108 males for every 100 females, while those aged 1564 years old had a sex ratio of 107 males for every 100 females. Of the total household population in 2020, 19,867 (51.4%) were males, while 18,774 (48.6%) were females. The influence of sex on the role of Artificial Intelligence (AI) in fostering student success is complex, highlighting notable disparities in attitudes, engagement, and perceived efficacy of AI tools among male and female students. Empirical studies suggest that sex acts as a moderator in the association between AI self-efficacy and attitudes toward AI, with females frequently demonstrating a more favorable disposition towards the educational role of AI (Guipitacio et al., 2025).

In terms of gender differences in attitudes and engagement, female students are inclined to endorse current AI technologies for educational purposes, whereas male students exhibited a heightened interest in the innovation of novel AI solutions (Fihris et al., 2024).

Regarding engagement, females displayed a greater willingness to leverage AI effectively within their academic pursuits, while males tend to be more proactive in the domain of technological advancement (Fihris et al., 2024).

In terms of motivation, AI applications such as intelligent tutoring systems contributed positively across genders. However, studies have shown that female students derived greater benefit from personalized feedback and learning paths tailored to their individual needs, leading to higher levels of motivation and sustained interest in learning (Elbadiansyah et al., 2024; Rohana et al., 2024).

For perceived effectiveness of AI tools, both genders recognized AI writing tools as effective; however, the patterns of adoption and utilization diverge, with no substantial differences observed in their perceived effectiveness (Iddrisu et al.,2025). Female students reported a more pronounced influence of AI on social interactions compared to their male peers (Capinding & Dumayas, 2024). Also, one of the most notable distinctions lies in social interaction. Female students are more likely than their male counterparts to view AI as a facilitator for collaboration and networking. This suggested a greater reliance on AI for the social aspects of learning, where tools that encouraged communication and group work can significantly enhance their educational experience (Capinding & Dumayas, 2024).

When it comes to academic performance, AI proved effective in identifying students who are struggling and delivering timely, targeted interventions. These interventions are beneficial for all students but may be especially effective when aligned with gender-specific learning behaviors (Mallillin, 2024). Furthermore, AI's adaptive learning mechanisms support the development of better study habits and more positive attitudes toward learning. Female students, in particular, seem to respond with heightened motivation when engaged in AI-driven, personalized learning environments (Rehman & Kang, 2024).

Implications for educational frameworks, these gender disparities are imperative for the formulation of educational policies and for ensuring equitable access to AI resources, which can enhance student achievement across diverse demographics (Iddrisu et al., 2025). Conversely, despite the existence of gender differences, the overall optimistic perception of AI among students indicated a shared readiness to integrate AI into educational contexts, potentially eclipsing individual variations in engagement and attitudes.

Table 3. *Academic Strand*

Strand	Frequency	Percentage (%)
Accountancy, Business, and Management	13	13.5
General Academic Strand	83	86.5
Total	96	100.0

Table 3 presents the academic strand of respondents. A majority, 86.5% of students, were enrolled in the general academic strand (GAS), which covered a broad curriculum. These students used AI for general academic tasks. A smaller proportion, 13.5% of students, fell in the Accountancy, Business and Management (ABM) strand, which implied that students were more likely to interact with AI for business and financial analytics that could enhance their academic performance.

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A research study by Mallillin (2024) examined the impact of AI on students' academic performance across various strands. The study found that AI effectively targets specific learning needs, facilitates comprehensive learning experiences, and enhanced student motivation and study habits. These benefits suggest that AI integration can positively impact academic success across various academic disciplines.

A research study by Micabalo et al. (2024), focusing on fourth-year Bachelor of Science in Business Administration (BSBA) students, assessed the impact of AI-powered study tools, such as ChatGPT and Grammarly, on academic outcomes and motivation. The findings indicated that the integration of AI tools had a positive impact on students' academic performance and motivational levels, underscoring the potential of AI to enhance learning experiences in business education.

The effectiveness of AI tools can vary across academic strands. For instance, in the HUMSS strand, AI tools like ChatGPT can aid in organizing concepts and enhancing engagement, while in the STEM strand, AI can assist in problem-solving and conceptual understanding. Across different strands, students generally perceive AI integration positively, recognizing its potential to enhance learning experiences and academic performance.

Table 4. *Artificial Intelligence Applications*

Applications	Frequency	Percentage (%)
ChatGPT	52	54.2
Cici	38	39.6
Xodo.AI	1	1.0
Tiktok Tako	1	1.0
Meta	4	4.2
Total	96	100.0

Table 4 displays the artificial intelligence applications used by the respondents. The results presented that Chat GPT is the most commonly used AI application, with 54.2% (52 respondents) using it. CiCi is the second most used application, with 39.6 % (38 respondents). However, 4.2% of respondents (4 students) used Meta applications, and only 1 respondent used Xodo.AI and TikTok Tako. This implied that the low usage of these applications indicated limited awareness or a lack of perceived academic utility compared to mainstream tools like ChatGPT.

Given the predominance of Chat GPT and CiCi, it is likely that these applications significantly contribute to student learning by providing explanations, generating ideas, summarizing information and assisting with academic writing. The use of AI for quick information retrieval and problem-solving may enhance productivity and comprehension, especially for students struggling with complex subjects.

In the field of education, ChatGPT is a powerful tool that can be used to create educational content and assist language learning. This tool can automatically generate various texts, including papers, abstracts, and textbooks, with little human intervention, making it an important resource for educators and students. By utilizing artificial intelligence technology, educators can incorporate ChatGPT as part of a diversified teaching tool to achieve a more engaging and innovative teaching experience. Additionally, students can use Chat GPT for self-inquiry, further exploring knowledge points, and constructing a genuinely intelligent educational system. Therefore, there are many voices supporting the application of this intelligent tool in education. However, it should be recognized that the application of Chat GPT in the field of education also faces numerous challenges, including data quality, knowledge reserves, privacy protection, and ethical issues (Hao Yu, 2023).

Accordingly, at the University of Cambridge, Professor Bhaskar Vira pointed out that university students should fully utilize artificial intelligence technology, such as Chat GPT and other new tools, and should not be limited. These technologies can help students better master knowledge and improve learning efficiency. However, to ensure that students adhere to academic integrity when using these new technologies, schools need to make appropriate adjustments to teaching methods and examination standards (Stephens, 2023).

Similarly, Professor John Villasenor at the University of California allowed students to use ChatGPT in assignments. However, more importantly, it is essential to teach students how to use these technologies correctly and effectively, ensuring that their learning process is both meaningful and efficient (Villasenor, 2023). Compared to restricting students from using these AI tools to save time and effort, it is a better choice to integrate these tools into the education system. It allowed students to learn and use them in a correct and responsible environment. However, it is essential to balance the rights of students to independently use these tools with the requirements of academic integrity, so that students can use these tools properly and responsibly.

Also, Astagisa et al. (2022) concluded that the role of Artificial Intelligence greatly supported the process of developing educational technology and is useful in developing learning methods. Ruiz-Rojas et al. (2024) stated that Artificial Intelligence (AI) is deeply integrated into the educational context, highlighting its relevance in higher education and its potential to improve students' critical thinking; Critical thinking appears to be a key component, indicating that the implementation of AI in education should focus on technology and the development of higher cognitive skills in students; and Tools like ChatGPT and chatbots are emerging as essential components in educational innovation, suggesting a growing interest in generative technologies and their impact on teaching and learning.

Influence of Artificial Intelligence in terms of Personal Learning Behavior and Motivational Learning Behavior

Table 5. *Influence on Personal Learning Behavior*

Indicator	Mean	Description
1. I noticed many improvements in my academic performance due to artificial intelligence tools or technologies.	3.02	Agree
2. AI can adapt to my learning needs which can enhance engagement and motivation.	2.92	Agree
3. AI positively enhances my learning and engagement by allowing me to engage with content that challenges my thinking and expands my ideas.	2.97	Agree
4. AI-driven applications enhance my learning by providing grammatically feedback or correcting grammar.	3.19	Agree
5. AI helps me complete my homework.	3.00	Agree
6. AI-driven applications enhance my efficiency in academic tasks by providing plain language explanations.	2.94	Agree
7. AI-driven applications enhance my personalized learning and educational analytics effectively providing intelligent tutoring systems including real time feedback, hints and scaffolding.	2.86	Agree
8. AI provides my personalized learning experiences by adapting to my learning needs, and allows me to track progress at my own pace.	2.97	Agree
9. AI helps me to understand and process textual learning materials better or faster.	3.08	Agree
10. AI helps me summarize or simplify information into a shorter or less complex form.	3.12	Agree
11. AI controls my behavior and guides me towards the most relevant topics.	2.67	Agree
12. AI facilitates my management of tasks, duties and my report related topics.	2.90	Agree
Weighted Mean	2.97	Agree

Legend: 3.25–4.00 = Strongly Agree; 2.50–3.24 = Agree; 1.75–2.49 = Disagree; 1.00–1.74 = Strongly Disagree

Table 5 presents a descriptive analysis of how students perceived the influence of artificial Intelligence on their personal learning behavior. The result showed several indicators that received higher mean scores indicating that students found AI as most helpful in the following areas:

Grammar and writing Support. The highest-rated statement, "AI-driven applications enhance my learning by providing grammatically feedback or correcting grammar," has a weighted mean of 3.19. This revealed that students found AI platforms (like Grammarly, ChatGPT or other grammar checking software) significantly useful in improving their writing skills.

Summarization and simplification of information, which has a weighted mean of 3.12. This implies that AI tools are valued for breaking down complex information, making learning more understandable and manageable. Understanding and Processing textual materials has a weighted mean of (3.08), which means that AI's ability to clarify difficult content and improve comprehension of students' learning. The completion of Assignments has a weighted mean of 3.0, indicating that AI helps students complete assignments efficiently.

Tracking progress and personal learning has a mean (2.97) that implies AI's ability to adapt to students' learning needs and facilitate self-paced learning, which is positively significant in relation to student learning progress. Additionally, Intelligent tutoring systems and real-time feedback mechanisms are considered contributing factors to this perception.

Whereas, the weaker Influence or the lowest-rated indicator is "AI controls my behavior and guides me towards the most relevant topics" which has a 2.67, indicated that while AI provides guidance, students do not feel it exerts strong control over their learning direction.

The overall perception of the influence of AI on students' performance has a weighted mean of 2.97, falling within the "Agree" category, indicating that students generally perceive AI as beneficial to their learning behavior. AI is positively influencing students' personal learning behaviors, particularly in terms of efficiency, writing, and comprehension support. The role of AI in directing learning behavior (e.g., topic selection and engagement control) appears less prominent, meaning students may still prefer autonomy over AI-guided learning pathways.

The influence of artificial Intelligence (AI) on writing and comprehension is multifaceted, significantly enhancing various aspects of the writing process while also raising ethical and pedagogical concerns. The study by Román-Acosta (2024) indicated that AI has a significant influence on writing, enhancing textual cohesion, grammatical precision, and clarity in academic writing. When used as a support tool, AI can improve the overall quality of texts, although its effectiveness is context-dependent and requires appropriate human intervention. Additionally, while AI offered clear benefits, it also raised ethical and legal challenges that needed to be addressed to ensure responsible use in educational settings, ultimately impacting comprehension and the writing process. Meanwhile, a study by Jamshed et al. (2024) highlighted that AI tools, such as ChatGPT, significantly enhanced writing skills among English language learners by providing personalized feedback and targeted corrections. Over eight weeks, students using ChatGPT showed marked improvement in grammar and composition, particularly in reducing common writing errors.

Additionally, students expressed a preference for AI feedback, associating it with noticeable advancements in their writing proficiency

and grammatical accuracy, thus indicating a positive influence of AI on writing and comprehension in language learning contexts. However, the integration of AI in writing processes also necessitated a reevaluation of originality and intellectual property, as the proliferation of AI-generated content challenges traditional notions of authorship (Hutson, 2024).

AI has significantly enhanced the summarization and simplification of information by utilizing generative models like GPT and BERT, which produce concise, informative abstracts while maintaining essential content, thereby improving accuracy, efficiency, and productivity in processing large volumes of textual data (Kuznietsov & Kyselov, 2024).

Thus, the integration of AI applications like ChatGPT significantly impacted the accuracy of understanding and processing textual materials across various languages. ChatGPT enhanced translation efficiency and quality, particularly in specialized fields such as legal, medical, and scientific texts, by improving terminological accuracy and cultural appropriateness. However, its effectiveness varies depending on the complexity and stylistic nuances of the text, such as poetry, where human intervention remains crucial. This integration also influences educational practices, necessitating adjustments in curricula to effectively incorporate AI tools. ChatGPT has been shown to improve the efficiency and quality of translations in specialized fields by aiding in the development of specific translation competencies among students (Preciado et al., 2024).

This integration of ChatGPT in educational settings, particularly in language courses, necessitated a shift in pedagogical methodologies to enhance student learning outcomes and align with institutional objectives (Choi, 2024). AI tools are increasingly being incorporated into curricula, requiring educators to adapt and optimize their teaching strategies to leverage these technologies effectively.

According to Kharis et al. (2024), AI enhanced student learning behavior by improving self-confidence, learning speed, and task efficiency. However, it raised concerns about academic integrity and critical thinking, necessitating careful monitoring to maintain academic rigor across various educational contexts and learning environments.

Table 6. *Motivational Learning Mechanism*

Indicator	Mean	Description
1. I feel more motivated to engage with AI-driven methodologies because they offer new opportunities for personalized learning experiences.	2.81	Agree
2. Using AI-driven applications motivate me to explore and discover new knowledge and ideas.	3.02	Agree
3. The integration of AI-driven applications increases my enthusiasm for learning needs.	2.92	Agree
4. AI boosts my learning motivation and interest by providing valuable feedback for my learning.	2.88	Agree
5. AI motivates my creativity by helping brainstorm ideas and organize my thoughts.	2.95	Agree
6. AI elevates my critical thinking through personalized learning by critically interprets AI generated content and address potential biases.	2.82	Agree
7. AI improves my self-confidence, learning speed, and effectiveness.	2.80	Agree
8. AI increases my motivation by making more interactive and enjoyable.	2.78	Agree
9. AI helps my ability to apply language skills in real world contexts.	2.96	Agree
10. AI encourages me to perform well in class.	2.78	Agree
11. AI improves accuracy of guiding me towards the suitable academic paths.	2.89	Agree
12. AI motivates my thoughtful analysis or problem solving, which can positively impact my overall academic performance.	2.86	Agree
13. AI helps me provides accurate or leading information.	3.01	Agree
14. AI helps me fast track my researches.	3.05	Agree
15. AI tools help me differentiate their different views to things.	2.97	Agree
16. AI helps me identify what particular subject is used for a particular AI tool.	2.90	Agree
17. AI helps me extract information immediately.	3.05	Agree
18. AI provides me with immediate feedback which enhances my engagement and understanding of course concepts.	3.08	Agree
Weighted Mean	2.92	Agree

Legend: *3.25–4.00 = Strongly Agree; 2.50–3.24 = Agree; 1.75–2.49 = Disagree; 1.00–1.74 = Strongly Disagree*

Table 6 presents the influence of artificial Intelligence in terms of the motivational learning mechanism of the respondents. The result indicated that AI-driven learning mechanisms positively influence students' motivation, with a weighted mean of 2.92 (categorized as "Agree"), meaning that students frequently experience motivational benefits from AI tools. The responses suggested that AI contributed significantly to learning by enhancing engagement, facilitating knowledge discovery, and providing immediate feedback.

Also, the findings showed that the highest mean indicator or the key strengths of AI in motivation were the following: AI provided immediate feedback, which had a mean of (3.08), the highest rated, which helped students understand concepts quickly and stay engaged in learning. AI supports research and fast information retrieval (Mean: 3.05). This suggests that AI enables students to fast-track research and access reliable information, thereby making learning more efficient. AI encouraged knowledge exploration (Mean: 3.02). This implies that students feel motivated to discover new ideas and perspectives through AI driven applications.

However, the lowest indicators or influences of AI in Motivation were the following: AI's ability to make learning interactive is limited (Mean: 2.78). It showed that students did not find AI as engaging as classroom discussions, peer activities or interactive learning experiences. AI did not significantly influence classroom performance (Mean: 2.78) – Motivation to perform well in class still relied

on traditional academic factors, such as grades, teacher feedback, and peer competition. AI's role in self-confidence and learning speed is moderate (Mean: 2.80) – AI helps in understanding content, but students may still need teacher guidance to build self-confidence. AI-driven applications positively influence students' learning motivation by enhancing efficiency, accessibility, and personalized learning. However, for AI to be fully effective, it should be integrated with engaging and interactive educational strategies to maximize its motivational impact on student learning.

The integration of Artificial Intelligence (AI) in education has revolutionized the way students learn and engage with academic content. AI tools, such as intelligent tutoring systems, adaptive learning platforms, and generative AI, have been increasingly adopted to enhance student motivation and improve academic performance. This response examines the role of AI in motivational learning and its impact on academic outcomes, drawing on insights from various research studies.

AI plays a significant role in enhancing student motivation by providing personalized learning experiences, real-time feedback, and adaptive learning pathways. According to a study by Rehman and Kang, (2024), AI tools like ChatGPT have been shown to improve student engagement and motivation in online learning environments significantly. The study found that students who used AI tools reported higher levels of academic engagement and motivation compared to those who did not use such tools.

Another study by Lestariningrum et al. (2024), highlighted the importance of technology engagement as a mediating variable in the relationship between AI use and academic performance. The study found that AI, when combined with digital material accessibility, positively influences students' academic performance by enhancing their competence, autonomy, and intrinsic motivation.

Additionally, the use of AI tutors has also been shown to improve student motivation by providing individualized learning experiences and continuous feedback. Dembitska et al. (2024) found that AI tutors can enhance students' motivation by offering real-time support and feedback, which helps students stay engaged and motivated throughout their learning process.

The impact of AI on academic performance has been well-documented in numerous studies. A study by Eltahir and Babiker (2024) found that AI-powered personalized learning tools significantly improved the academic performance and knowledge retention of pre-service student teachers. The study employed a quasi-experimental design and found that students in the experimental group, who utilized AI-powered tools, outperformed those in the control group in terms of academic performance and knowledge acquisition.

While AI has shown promising results in enhancing student motivation and academic performance, there are several challenges and considerations that need to be addressed. One of the primary concerns is the potential over-reliance on AI tools, which can reduce creativity and critical thinking skills. A study by Elbadiansyah et al. (2024), found that while AI tools can enhance student engagement and motivation, they can also lead to a reduction in creativity and critical thinking if not used appropriately.

Another challenge is the ethical and technical aspects of AI implementation in education. A study by Dembitska et al. (2024) highlighted the importance of addressing ethical concerns, such as privacy and fairness, when implementing AI tools in educational settings. The study also emphasized the need for an integrated approach to AI implementation, where technologies complement traditional teaching methods rather than replacing them.

Additionally, the study by Mohamed et al. (2024), found that cultural and academic differences can influence the effectiveness of AI tools in enhancing student motivation. The study found significant differences in motivation levels among students from different cultural backgrounds, highlighting the need for culturally sensitive AI implementations.

AI has the potential to significantly enhance student motivation and academic performance by providing personalized learning experiences, real-time feedback, and adaptive learning pathways. However, it is crucial to address the challenges and considerations associated with AI implementation, such as ethical concerns, over-reliance on AI tools, and cultural differences. By optimizing AI tools and addressing these challenges, educators and policymakers can create more effective and inclusive learning environments that cater to the diverse needs of students.

Academic Performance of the Learners

Table 7. *Academic Performance*

Range	Frequency	Percentage	Description
90 – 100	16	16.7	Outstanding
85 – 89	60	62.5	Very Satisfactory
80 – 84	20	20.8	Satisfactory
75 - 79	0	0	Fairly Satisfactory
Below 75	0	0	Did not Meet Expectations
Total	96	100	

Table 7 presents the academic performance of the respondents. The result showed that the majority of students (62.5%) achieved a "Very Satisfactory" performance. Most of the students had a grade in the 85-89 range, meaning they performed well but did not reach the outstanding performance of 90-100. A smaller group (16.7%) achieved an "Outstanding" performance, with only 16 out of 96 students reaching the top performance category, indicating that AI's influence was deemed beneficial but not universally transformative. This suggests that other factors (e.g., study habits, intrinsic motivation, teacher interaction) play a significant role in achieving top

performance. However, no students scored below 79 "Fairly satisfactory" or did not meet expectations. This mean that the complete absence of students in the lowest categories implied that AI helping lower-achieving students stay on track. Moreover, the integration of AI into educational settings has led to measurable improvements in academic performance and efficiency. Studies have shown that AI tools can reduce study hours while increasing GPAs, suggesting that students are able to achieve better academic outcomes with the support of AI technologies (Ward et al., 2024; Eltahir & Babiker, 2024).

AI-powered tools such as automated grading systems and intelligent tutoring platforms have been particularly effective in enhancing academic performance. These tools not only provide immediate feedback but also offer personalized learning experiences that cater to individual student needs (Eltahir & Babiker, 2024; Aravindh & Singh, 2024). Additionally, AI-driven analytics have enabled educators to identify areas where students may need additional support, allowing for proactive interventions (Sajja et al., 2023; Taşkın, 2025).

Relationship between the Artificial Intelligence and Academic Performance of the Respondents

Table 8. *Relationship[1] between Influence of Artificial Intelligence and Academic Performance*

	r	p-value	Level of Significance	Decision
Personal Learning Behavior	0.095	0.357	Not Significant	Failed to reject Ho
Motivational Learning Mechanism	0.633	<0.001	Significant	Reject Ho

Legend: *1 = based on Pearson's r Correlation; ns = P > 0.05; * = P < 0.05; ** = P < 0.01; *** = P < 0.001*

Table 8 displays the relationship between the influence of artificial Intelligence and the respondents' academic performance. The results showed that the respondents' academic performance was significantly correlated with the influence of artificial intelligence on motivational learning mechanisms. Thus, the null hypothesis was rejected, which states that there was no significant relationship between the respondents' academic performance and the influence of artificial Intelligence on motivational learning mechanisms.

AI influences student learning behavior by enhancing personalized learning experiences, facilitating adaptive assessments, and providing realtime feedback. It promotes collaboration and communication in diverse educational contexts, addressing individual learning needs and optimizing outcomes through data-driven insights and analytics (Goenka et al., 2024). Also, AI influences student learning behavior by monitoring engagement, providing real-time feedback, and enabling personalized interventions across various educational contexts. This adaptability enhances retention and fosters skill development, ultimately promoting a more tailored and effective learning experience for students (Öncü et al., 2024). Moreover, the paper entitled "The Influence of AI-assisted Progressive Interactive Teaching on Students Learning Motivation" suggested that AI can significantly enhanced students' learning motivation by providing personalized and interactive educational experiences. AI assisted teaching methods adapt to individual learning styles and paces, fostering engagement and interest. This progressive approach encouraged active participation, making learning more enjoyable and effective, ultimately leading to improved motivation among students in educational settings (Qiao & Lee, 2024).

AI influences motivational learning in educational settings by personalizing content and providing real-time feedback, which enhances engagement and caters to individual learning needs. Students reported that AI tools made learning more engaging and helped them better understand concepts. Additionally, AI-driven analytics assist educators in identifying students requiring extra attention, fostering a supportive learning environment. However, concerns about over-reliance on AI and the potential reduction of human interaction in teaching highlight the need for a balanced approach to integration (Khan & Maher, 2023).

AI-assisted learning enhances motivational learning in educational settings by personalizing the learning experience based on individual student backgrounds, subjects, modalities, and environments. This adaptive approach allows AI to recognize trends and make informed decisions that cater to each learner's unique needs, fostering engagement and motivation. By integrating machine intelligence with natural learning styles, AI creates teachable moments that resonate with students, ultimately leading to a more effective and motivating educational experience (Hishan, 2022).

Variables such as Demographic Profile and influence of Artificial Intelligence That Best Predict the Academic Performance of Learners

Table 9. *Variables[1] that Best Predict Respondents Academic Performance*

Indicator	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	2.744	1.035		2.650	.010
Age	-.053	.119	-.047	-.443	.659
Sex	.107	.161	.072	.663	.509
Strand	.127	.201	.071	.632	.529
Artificial Intelligence Applications	-.040	.060	-.074	-.671	.504
Personal learning Behavior	-.059	.364	-.022	-.162	.872
MotivationalLlearning Mechanism	-.272	.311	-.125	-.873	.385
R = 0.192	R2 =0.037		F = 0.566	Sig. = 0.756	

Legend: *1 = based on Linear Regression; ns = P > 0.05; * = P < 0.05; ** = P < 0.01; *** = P < 0.001.*

Table 9 presents the variables that best predict respondents' academic performance. The demographic profile and the influence of artificial Intelligence did not affect the respondents' academic performance, implying that no variables affected their academic

performance.

The R2 value of 0.037 implied that the demographic profile and influence of artificial Intelligence can explain 37.0% of the variance in the respondents' academic performance. Hence, 63.0% of the learners' academic performance difference can be attributed to other variables not included in the regression model.

The regression analysis is insignificant, with an F-value of 0.566 and a p-value of 0.756. Therefore, the null hypothesis stating that "the respondents' demographic profile and influence of artificial intelligence did not significantly predict the academic performance" was not rejected.

The regression analysis showed that neither the demographic profile nor the influence of artificial intelligence significantly predicted academic performance, as indicated by the high p-value (0.756) and the low R^2 value (0.037), which means that only 37.0% of the variance is explained. This suggested that other unexamined factors play a more substantial role in shaping students' academic success.

The findings aligned with several educational theories, suggesting that other significant factors beyond demographic characteristics and AI exposure influence academic performance:

First, Self-regulated Learning Theory (Zimmerman, 1989) suggests that academic success is more dependent on self-regulated learning skills, such as goal setting, time management, and metacognitive strategies, rather than external factors like demographic profile or AI tools.

Second, Socio-Cultural Theory (Vygotsky, 1978) which emphasized that social interactions and cultural contexts shape learning. Family support, peer influence, and teacher guidance may play a stronger role in determining academic success than AI applications.

Third, the Technology Acceptance Model (Davis, 1989) states that simply having access to AI does not guarantee improved performance; the perceived usefulness and integration of AI tools into effective learning strategies are more important.

Four, Cognitive Load Theory (Sweller, 1988) states that AI tools can introduce cognitive overload if not properly adapted to learners' needs. Their effectiveness depends on how they are used rather than their presence alone.

Conclusions

The research substantiated that demographic characteristics and the influence of Artificial Intelligence did not play a significant role in predicting academic performance. With an R^2 value of almost half of the variable, it is evident that the majority of the variance in academic achievement is likely attributable to other factors not encompassed within this model. Future research should focus on more direct determinants of student success, including learning behaviors, motivational factors, and socioenvironmental influences, among other factors.

In light of the findings, the research underscored several critical implications. The identified factors did not serve as robust predictors of academic success, indicating that educators and policymakers ought to explore variables beyond these to gain a deeper understanding of what genuinely influences student performance. AI applications in isolation did not ensure improved learning outcomes, suggesting that appropriate guidance, pedagogical design, and seamless integration into educational frameworks are imperative.

Motivation and self-directed learning behaviors alone are insufficient; other components, such as teacher involvement, study habits, and assessment methodologies, may be more pivotal. Future Researchers should encompass additional variables, such as socioeconomic status, parental engagement, mental well-being, and instructional strategies, to cultivate a more holistic comprehension of academic performance. Moreover, based on the findings presented, it is recommended that educational institutions actively integrate artificial Intelligence (AI) tools that enhance motivational learning mechanisms into the academic environment.

The significant positive correlation between AI's influence on motivational learning and academic performance highlighted the potential of AI to serve as an effective tool in improving student outcomes. Therefore, schools and universities should invest in AI-driven educational technologies—such as personalized learning platforms, gamified learning environments, and intelligent tutoring systems—that are specifically designed to boost student motivation. These tools can help create engaging, adaptive, and student-centered learning experiences that contribute to better academic performance.

In contrast, since the influence of AI on personal learning behavior did not show a significant relationship with academic performance, it is recommended that efforts to improve students' personal study habits should not rely solely on AI interventions. Instead, these should be complemented by mentorship programs, teacher support, and behavioral training to provide holistic support for student learning. Lastly, continuous monitoring and evaluation of AI's impact on both motivation and performance should be conducted to guide future improvements and ensure that educational technology investments yield meaningful academic benefits.

In light of the significant relationship between artificial Intelligence (AI) and motivational learning mechanisms that positively impact academic performance, it is recommended that the following stakeholders should be involved in the program.

Students/AI Users: (1) Utilize wisely the use of AI tools that enhance motivation (e.g., personalized study apps, gamified learning platforms, AI tutors) to support academic tasks; (2) Set learning goals within AI platforms to take advantage of their adaptive feedback

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and motivational tracking systems; (3) Reflect on how AI tools are helping improve focus, engagement, and understanding, and use this insight to optimize study habits.

Educators: (1) Incorporate AI-powered tools in the ICT subjects on how to use these in students' learning effectively; (2) Incorporate AI-powered tools into lesson plans that promote student motivation and track progress; (3) Undergo professional development, especially ICT teachers, focused on the use of AI in education to better guide students in using these technologies effectively; (4) Monitor students' engagement and performance with AI tools to identify who benefits most and who may need additional support; (5) Encourage and guide less tech-savvy students in using AI tools as a means of promoting equity in digital learning environments.

School Administrators or Heads: (1) Support the integration of motivational AI tools into the curriculum by providing the necessary infrastructure, licenses, and training; (2) Develop policies and guidelines that promote ethical and effective use of AI in teaching and learning; (3) Invest in training programs for both teachers and students to build competence and confidence in using AI educational technologies; (4) Regularly evaluate the impact of AI tools on academic performance and student motivation to inform data-driven decisions on future implementations.

Educational Policymakers: (1) Prioritize the integration of AI-driven technologies into the national or institutional education frameworks; (2) Develop national guidelines for AI integration in education by establishing clear policies that encourage the adoption of AI tools focused on enhancing student motivation and engagement, promoting ethical, equitable, and responsible use of AI across educational institutions; (3) Support funding for AI-enhanced learning tools by allocating budgets and providing assistance for the procurement and development of AI platforms designed to improve motivational learning, particularly in public schools and underserved communities; (4) Implement teacher and student capacity-building programs by mandating and supporting continuous professional development for educators on the effective use of AI in the classroom, and fund digital literacy programs to help students maximize AI tools for academic success; (5) Encourage research and pilot programs by promoting evidence-based policymaking through funding pilot projects and longitudinal studies on the impact of AI on different learning dimensions, especially motivational and behavioral outcomes; (6) Ensure inclusive and equitable access to AI tools by creating policies that address the digital divide, ensuring that all learners—regardless of socio-economic status—have access to the necessary technology and internet connectivity to use AI tools effectively.

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