The Frequency of AI Utilization and Academic Performance in Social Studies among Secondary Students

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ABSTRACT

The integration of Artificial Intelligence (AI) in education has transformed learning methodologies, particularly in enhancing student performance through personalized and interactive content delivery. This study investigates the correlation between the frequency of AI utilization and academic performance in Social Studies among junior high school students in a private school in Valencia City, Bukidnon. Utilizing a quantitative-correlational research design, the study surveyed 50 purposively selected Grade 10 students. A researcher-made questionnaire gauged AI usage frequency, while academic performance was measured using students' quarterly grades. The findings revealed a high level of AI utilization (mean = 3.59) and a very satisfactory academic performance (mean = 89.38). Pearson correlation analysis indicated a significant moderate positive relationship between AI utilization and academic performance ($r = 0.529$, $p < 0.01$). These results suggest that increased frequency of AI engagement contributes positively to academic outcomes in Social Studies. The study highlights the importance of integrating AI tools into the educational process and recommends their strategic implementation to optimize learning outcomes.

Keywords: Artificial Intelligence, AI utilization, academic performance, Social Studies, secondary education, technology in education

INTRODUCTION

Artificial Intelligence (AI) has emerged as a transformative force in education, reshaping how content is delivered, learned, and assessed. Defined as the capability of machines to perform cognitive functions typically associated with human intelligence—such as learning, reasoning, and problem-solving—AI is now an integral part of digital learning ecosystems (Holmes et al., 2019). AI-powered educational tools such as intelligent tutoring systems, chatbots, learning analytics platforms, and personalized feedback engines offer enhanced interactivity and engagement in the learning process.

In the field of Social Studies, AI has significant potential to enrich instruction by simplifying complex concepts, providing historical simulations, automating feedback, and recommending learning materials tailored to individual learning styles. As students increasingly engage with AI applications like ChatGPT, Google Assistant, and AI-based educational games, the traditional boundaries of classroom learning are expanding. However, the pedagogical implications of this technology especially in the Philippine secondary school context—remain underexplored.

In the Philippine education system, while technological innovations are gradually being introduced, access and implementation vary widely. There is growing anecdotal evidence that AI tools are used by students for assignments, test preparations, and information gathering. Yet, empirical studies examining how frequently

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these tools are used and their direct impact on student achievement are scarce, especially in Social Studies where critical thinking, comprehension, and analysis are vital.

This study aims to address this gap by investigating the frequency of AI utilization among junior high school students and analyzing its relationship to their academic performance in Social Studies. Specifically, it seeks to:

1. Determine the frequency of AI utilization among secondary students in Social Studies.
2. Assess their academic performance in the subject; and
3. Examine the correlation between AI usage frequency and academic performance.

The findings aim to inform educators, school administrators, and policymakers about the pedagogical potential of AI and its role in fostering academic success.

METHODOLOGY

Research Design

This study adopted a descriptive-correlational research design. This approach was chosen as it allows for the measurement of existing conditions and the statistical determination of relationships between variables without manipulating any factors (Creswell & Creswell, 2018). It is particularly appropriate for educational research that aims to establish associative relationships, such as between AI usage and academic performance.

Participants

The study was conducted in a private secondary school in Valencia City, Bukidnon. The population consisted of Grade 10 students, from which 50 respondents were selected using purposive sampling. These students were chosen based on their exposure to AI tools in their learning activities, ensuring that all respondents had a basic familiarity with AI applications.

Research Instrument

The primary data-gathering tool was a researcher-made questionnaire designed to measure the frequency of AI utilization. The questionnaire included ten items covering a range of AI tools and their uses in educational contexts (e.g., homework assistance, concept explanation, test preparation). Responses were recorded using a 4-point Likert scale: 1 – Never, 2 – Seldom, 3 – Often, and 4 – Always.

To ensure content validity, the instrument underwent evaluation by three educational technology experts. Reliability testing was conducted through a pilot study involving 10 students, yielding a Cronbach's alpha of 0.89, indicating high internal consistency. Students' academic performance in Social Studies was measured using their final quarterly grades, which were obtained with school permission and informed consent.

Data Collection Procedures

Formal approval was secured from the school administration. Ethical protocols were observed, including informed consent, anonymity, and voluntary participation. The questionnaire was administered in person, and responses were collected within a one-week period.

Data Analysis

Descriptive statistics (mean and standard deviation) were used to determine the general level of AI utilization and academic performance. Pearson product-moment correlation coefficient was employed to identify the strength and significance of the relationship between AI usage and performance.

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RESULTS AND DISCUSSION

Frequency of AI Utilization

The results revealed that students had a high frequency of AI tool usage in their Social Studies classes (M = 3.59, SD = 0.38). Respondents indicated frequent use of AI-powered tools such as ChatGPT for explaining historical events, Google Assistant for quick fact-checking, and educational websites with AI-based quizzes for practice tests. The high mean score suggests that AI tools have been integrated into the students' regular study routines, particularly for tasks requiring supplemental learning or clarity on complex topics.

This finding supports the assertion of Luckin et al. (2016) that AI, when properly used, can scaffold student learning and increase engagement. Notably, students cited ease of access to information, 24/7 availability of AI tools, and faster feedback as primary reasons for use.

Academic Performance in Social Studies

The academic performance of students was categorized as very satisfactory, with a mean grade of 89.38 (SD = 3.48). Most students achieved scores in the 85–91 range, indicating strong understanding and mastery of Social Studies competencies. These results suggest that students are not only performing well but may also be benefiting from enhanced learning strategies supported by AI.

Correlation Between AI Utilization and Academic Performance

A significant moderate positive correlation was found between AI usage frequency and academic performance ($r = 0.529$, $p = 0.000$). This indicates that students who frequently engage with AI tools tend to perform better academically in Social Studies. The relationship implies that AI does not merely serve as a passive information source but actively contributes to knowledge acquisition and academic growth.

This finding is consistent with Holmes et al. (2019), who argued that intelligent systems improve learning outcomes by promoting deeper engagement, individualized pacing, and formative feedback. However, the moderate strength of the correlation also implies that while AI is a contributing factor, other variables such as student motivation, teacher quality, and access to learning materials play crucial roles in academic performance.

The study highlights the potential of AI to augment traditional learning processes, but it also raises caution against over-reliance. Without critical evaluation of AI-generated information, students may adopt misconceptions or develop surface-level understanding. Thus, the integration of AI should be accompanied by guided instruction, digital literacy training, and teacher facilitation.

CONCLUSION

The findings of this study confirm that the frequency of AI utilization is positively and significantly associated with academic performance in Social Studies among secondary students. Students who regularly use AI tools for studying, comprehension, and review purposes tend to achieve higher grades in the subject. This reinforces the growing body of literature that views AI as a powerful educational aid, especially when aligned with curriculum goals and learner needs.

However, the results also underscore the importance of structured implementation. While AI offers accessibility and personalization, its educational impact is maximized when integrated thoughtfully into the teaching-learning process. The study recommends that educators be trained on how to effectively incorporate AI tools into instructional design, and that students be equipped with the skills to critically engage with AI resources.

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RECOMMENDATIONS FOR FUTURE RESEARCH

Further studies may explore the long-term effects of AI use across various subjects and demographics. A mixed-methods approach could enrich findings by exploring students' attitudes, challenges, and learning behaviors related to AI usage. Additionally, experimental designs could examine causality and the differential impact of specific AI tools on academic achievement.

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