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ARTIFICIAL INTELLIGENCE USAGE AND ACADEMIC PERFORMANCE OF CME AND CASE STUDENTS

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ABSTRACT

The focus of the study was to determine the relationship between artificial intelligence usage and academic performance in two different fields: the College of Marine Engineering (CME) and the College of Arts, Science, and Education (CASE). Descriptive correlational method and researcher-made questionnaire was used to gather the data of this study. The respondents were the one hundred seventy-nine (179) the 1st year and 2nd year students of the College of Maritime Education and the thirty-focus (34) College of Arts, Sciences, and Education departments of the Colegio de la Purisima Concepcion enrolled in the first semester of the academic year 2023-2024. The data gathered were analysed using the frequency, percentage and mean as descriptive statistics, t-test and Pearson r for correlational inferential for determining the significant associations of the dependent and independent variables. The study shows that there is no significant difference in the level of artificial intelligence when grouped according to age, sex, year level, and course program. Students in CME and CASE were both using artificial intelligence results as high. For the students in both course program artificial intelligence is very helpful when it comes to their study. There is a significant relationship between the level of artificial intelligence usage and the academic performance of students. The Pearson's r value of 0.358 and a significance value of 0.000 (lower than the alpha level of 0.05) lead to the rejection of the null hypothesis, indicating a significant relationship between these variables. Additionally, the conclusion drawn, stating that "the higher the level of artificial intelligence usage, the higher the level of academic performance of students.' This suggest that as the level of AI usage increase, there's a tendency for academic performance to increase as well.

Keywords: *artificial intelligence academic performance different fields*

1. Introduction

A wide range of academic disciplines is being profoundly impacted by the usage of artificial intelligence, including comprehensive instruction. The application of AI technologies within educational institutions to enhance instruction and learning has increased dramatically in recent years. The topic of AI integration is receiving more attention and discussion. It is becoming more important to comprehend how artificial intelligence (AI) affects academic achievement as technology continues to transform traditional learning environments. The rapid transformation of the educational landscape due to the introduction of AI makes it necessary to investigate how it affects students in the College of Marine Engineering as well as the College of Arts, Sciences, and Education in particular. Studies in the arts, sciences, and education are

more theoretical and diverse than marine engineering, which has different requirements because of its focus on technical knowledge and practical skills. These differences can also lead to different opportunities and challenges.

This research aimed to evaluate the association between students' academic performance and the deployment of AI in two different fields: the College of Marine Engineering (CME) and the College of Arts, Sciences, and Education (CASE). It is also imperative for educators, administrators, and policymakers to comprehend the complex correlation between the use of AI and student outcomes if they are to optimize teaching methods across a range of subject areas.

Furthermore, the work aims to provide an extensive comprehension of the evolving connection involving AI integration and academic performance by exploring the views, attitudes, and experiences of the students. By doing this, it hopes to contribute to the continuing conversation about the nexus between technology and education by providing insightful analysis that can guide evidence-based tactics for maximizing the use of AI in the College of Arts, Science, and Education; and the College of Marine Engineering.

Statement of the Problem

The general objective of this study was to identify the level of artificial intelligence usage and academic performance of CME and CASE students at Colegio de la Purisima Concepcion for the 2023–2024 school year.

Specifically, the study aimed to answer the following questions:

1. What is the level of artificial intelligence usage among the respondents?
2. What is the level of academic performance of the respondents?
3. Is there a significant difference in the level of artificial intelligence usage of the respondents when categorized according to sex, age, grade level, and course program?
4. Is there a significant difference in the level of academic performance of students when categorized according to sex, age, grade level, and course program?
5. Is there a significant relationship between artificial intelligence usage and academic performance of respondents?

Hypotheses of the Study

Based on the problems mentioned, the study tested the following assumptions:

1. There is no significant difference in the level of artificial intelligence usage of students when categorized according to sex, age, grade level, and course program.
2. There is no significant difference in the level of academic performance of students when they are categorized according to sex, age, grade level, and course program.
3. There is no significant relationship in between artificial intelligence usage and academic performance of students.

Theoretical Framework of the Study

The artificial intelligence theory of V. Yashchenko, "Theory of Artificial Intillegence (basic concepts)," 2014 Science and Information Conference, serves as the foundation for this study, London, UK, 2014, pp. 473–480, doi: 10.1109/SAI.2014.6918230. The study of the principle engaged in the creation and management of complex networks based on intricate, neural-like evolving networks is known as synthetic intelligence theory. Motivation, purposeful conduct, "perceiving" consciousness, "inadvertent and false personality that emerged from schooling and training," and consciousness are all encompassed within the broad notion of artificial intelligence," sensor, modulating, and motor systems; analysis of dynamic neural-like developing networks and neural-like elements; of short- and long-term memory structure of the functional organization of the "brain" of artificial intelligent systems; and more.

In particular, AIEd has brought up new opportunities, conflict, and positivity for educational new developments, similar to the transition to customized learning, the complexity of the educational system, and the role of the teacher. To develop intellectual learning society for behavior detection, prediction model building, learning suggestion, etc., a various kinds of AIEd techniques have been employed, including neutral language processes, neural artificial networks, learning machine, deepening learning, and algorithms of genetic. (Chen, Xie, & Hwang, 2020; Rowe, 2019). The role of the teacher, individualized learning, and the development of intricate educational framework are just a lesser of the possibilities and opportunities, potentials, and issues that AIEd has raised for advancements in education. (Starčič, 2019; Holmes et al., 2018; Baker et al., 2019). Using a range of AIEd pedagogy (e.g., including

neutral language processes, neural artificial networks, learning machine, deepening learning, and algorithms of genetic), intelligent learning environments have been developed for human behavior detection, prediction model building, learning recommendation, and other purposes (Chen, Xie, and Hwang, 2020; Rowe, 2019). AIEd has become the basic subject of study in the field of technologies and learning due to its capacity to encourage transformative of knowledge, reasoning, and culture (Hwang et al., 2020).

Conceptual Framework of the Study

The diagram below represents the relationship between the independent and dependent variables and how personal factors may affect a student's artificial intelligence usage and academic performance.

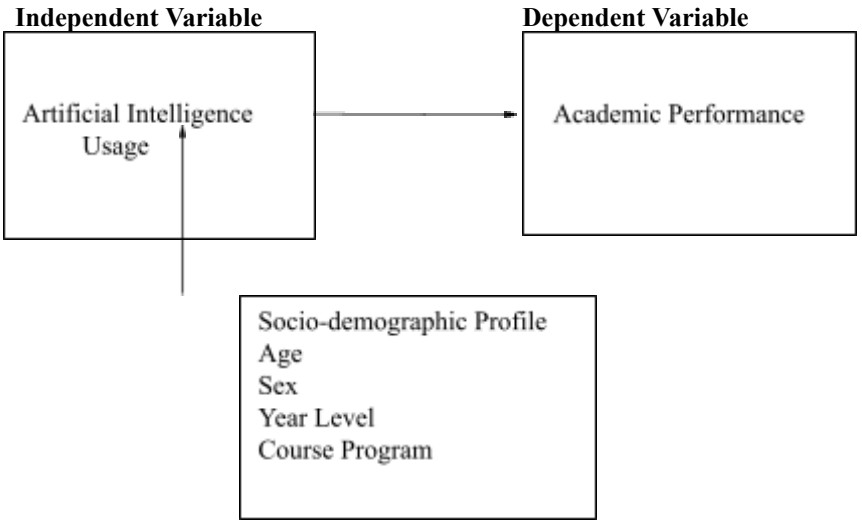

Figure 1. The schematic diagram showing the relationship of the variables considered in the study

2. Literature Review

One prominent theorist who has explored artificial Intelligence Integration (AI) and education is Dr. Sugata Mitra. Known for his groundbreaking work on "minimally invasive education," Mitra believes in the power of self-directed learning facilitated by technology. His research, particularly the "Hole in the Wall" experiment conducted in India, demonstrated that children can learn effectively in collaborative, technology-enabled environments without formal instruction. Mitra's ideas suggest that AI can significantly impact education through offering accessible, customized learning opportunities tailored to individual needs. He envisions AI in the future acting as a supportive tool in empowering students to explore and acquire knowledge autonomously, challenging traditional educational paradigms and fostering a more student-centric approach to learning.

Significant advancements in AI in education have been made within the past 25 years (Roll & Wylie, 2016). AI is commonly utilized in teaching since the development of information processing and computers methods. AI in education opens up new doors, possibilities, and obstacles in the discipline of education (Ouyang & Jiao, 2021). Education and Artificial Intelligence concentrates on achieving notable progress in teaching methods through trials in the real world and the creation of standard modular prototypes in data and statistical reasoning visualization and analytics for learning (Alam, 2021).

Providing individualized instruction or support for each student is one of the main objectives of AI in education based on their level of education, desires, or individual traits (Hwang, 2014; 2020; Hwang et al. AI additionally seeks to employ AI to enhance in education. The discourse analysis has been employed to understand and help promote computer supported collaborative education, for instance, and to accomplish achievement forecasting using educational information gathering, wherein teachers have a crucial role, and it is essential that they embrace AI. Nevertheless, ever since AI is a somewhat recent idea for educators, especially those who have limited specialization often find it difficult to implement

quick, efficient reactions to statistics from powered by artificial intelligence apps, which makes them apprehensive of AI. Therefore, it seems that increasing teachers' willingness to embrace artificial intelligence (AI) systems crucial (Chen and colleagues, 2022). Scholars, instructors, and decisionmakers, in order to take advantage of the new prospects, professionals need to collaborate and issues posed by the AI transformation and the growth of massive amounts of data. They have to work together to build the abilities and expertise that each learner needs for working in the twenty-first century, propelled by the intellectual industry (Luan et al., 2020). Artificial Intelligence in Education has brought about new opportunities for enhancing instructional environments or applications with technologies to improve learning processes.

There are actually several crucial elements of Artificial Intelligence (AI) in education, like instructor feedback, automated grading, flexible learning, and remote education, and so forth (Yufeia et al., 2020; Hwang et al., 2020). Evaluations of teachers are the learner assessment of the educator. It's a feedback technique with a lengthy been applied to teaching. Even with the transition from paper to digital surveys, the feedback process has not advanced very far. Due to the fact that student evaluation when instruction is often the most beneficial way to obtain information, it needs to be given top priority. Contemporary technologies, like conversational AI robots, the integration of machine learning and natural language processing provide fascinating chances to raise the standard of feedback (Holstein et al., 2019; Peters, 2019). The professional computer program that powers the automatic grading system AI-based program that mimics a teacher's behavior to give students grades assignments in a learning environment analyzes and assesses students' knowledge, replies, offers criticism, and develops specialized training courses. Several applications for artificial intelligence education use this program. The learner assessment score is furnished automatically by the system while they are testing for learning. This approach can help educators comprehend their circumstances in which children are learning while they are more conscious of their learning accomplishment and expertise in the field (Yufeia et al., 2020). Additionally, AI is crucial for online education. Artificial Intelligence in distance learning tries to investigate how technology might be used to close the distance between both educators and learners. Technology utilizing artificial intelligence can assist utilizing various intelligent technologies or distance learning can enhance remote learning.

To speak about the notion of artificial intelligence, it is necessary to encompass any tool or equipment used for carrying out tasks performed by humans. People build these devices in order to automate the daily duties they carry out, in an effort to complete more tasks in shorter periods of time. Popenici and Kerr (2017) characterize it as applications of computers capable of carrying out comparable tasks to those of humans, including self-correcting, learning, adapting, and synthesizing as well as applying data to intricate processing activities. Especially in the field of education, Artificial Intelligence in education, or EAI, is the application of AI to assist both programmed and customized feedback and direction in the educational field Song and Wang (2020).

In the last few years, there has been a rise in the demand for education, leading to a flourishing new area of study that combines artificial intelligence with education, which has led to an increase in the body of knowledge already available on EAI. Additionally, and revising these designations, EAI is associated with other domains, including the field of robotics implications for electronic devices with sensors (Petko, Schmid, Müller, & Jawaid et al., 2020), &Hielscher, 2019), wearables (Pyörälä et al., 2019), and online education (Singer-Brodowski, Brock, Etzkorn, & Otte, 2019; Reister & Blanchard, 2020), or both augmented reality (AR) and virtual reality (VR) (Bower, Dewitt, & Lai, 2020; Kavanagh, Wuensche, Luxton-Reilly, and Plimmer (2017)), perceptive chatbots, or interactive software representatives (Schachner, Keller, &Wangenheim, 2020), internet-based platforms, and digital assistants (Jee, 2019), independent study (Moreno, 2019).

The purpose of all these fields is the same: to study, to instruct and resolve issues (Baker, Smith, & Anissa, 2019). Numerous research has emphasized the various EAI patterns that are now prevalent (Roll & Wylie, 2016); as a result, we may emphasize how AI is used within the field of special education (Guilherme, 2017), such as the inventive connection between instructors and learners (Drigas & Ioannidou, 2013), the advancement of global patterns found in different intelligent tutoring systems (Han, Zhao, Jiang, Oubibi, & Hu, 2019), the possible application of artificial intelligence (EAI) in educational institutions (Crompton, & Greene, 2020), among other things.

Related Studies

Davis, L. et al. (2021) in their study, "Assessment of Academic Performance Metrics in Higher Education," investigated metrics akin to the evaluation of students' academic performance. Davis and

colleagues' study focused on examining the diverse metrics used in evaluating academic performance among students within higher education settings. The research delved into the various parameters and methodologies employed to assess and measure students' academic achievements. The study meticulously analyzed the different assessment criteria commonly used in higher education institutions to gauge students' learning outcomes and proficiency levels. It scrutinized the alignment between these assessment metrics and the established benchmarks for evaluating academic excellence, as represented by the observed grand mean. By investigating these academic performance metrics, Davis et al.'s research provided valuable insights into the criteria and standards used to measure students' accomplishments within higher education. The study's findings likely contributed to a nuanced understanding of how academic institutions assess and interpret students' academic achievements, potentially shedding light on the factors contributing to the observed commendable academic performance.

In another study, Garcia and Patel (2020) investigated the relationship between students' adherence to assignment deadlines and their academic success. The research sought to uncover the correlation between meeting prescribed deadlines for academic tasks and its subsequent influence on students' overall academic achievements. The study meticulously analyzed the patterns and behaviors related to deadline adherence among students. It explored how consistently meeting assignment deadlines correlated with higher academic performance and success. By examining this relationship, the research aimed to delineate the potential impact of timely task submission on students' grades, performance, and overall academic outcomes.

The findings likely shed light on the significance of punctuality and time management skills in students' academic endeavors. By exploring the correlation between meeting deadlines and academic success, Garcia and Patel's research contributed valuable insights into the importance of adherence to timelines in fostering better academic performance among students. Understanding this correlation potentially provides educators and institutions with valuable information to enhance strategies that promote timely completion of academic tasks and consequently improve students' overall academic achievements.

Thompson and colleagues' study (2019) delved into comprehending the intricate relationship between performance-based tasks and the demonstration of academic proficiency among students. The research aimed to explore how students' engagement with performance-oriented assessments correlated with their display of academic competence and mastery of subjects. The study meticulously examined the effectiveness of performance-based evaluations in assessing students' depth of understanding, critical thinking abilities, and practical application of knowledge. By investigating this relationship, the research sought to elucidate how effectively performance-oriented tasks gauged students' academic proficiency compared to conventional assessment methods.

Through this exploration, Thompson et al.'s research likely provided insights into the alignment between students' success in performance-based tasks and their overall demonstration of academic competence. The findings likely underscored the significance of these assessment strategies in measuring not just rote memorization but also the application and synthesis of knowledge. This research likely contributed to the understanding of the educational community by emphasizing the value of performance-based evaluations in comprehensively assessing students' academic proficiency, aligning with the observed successful completion of tasks by students in the context of academic excellence.

In this study we explore the potential impact of educational AI applications in personalized learning. According to Bloom (1984) students that are tutored one-to-one perform two standard deviations better than students who learn via traditional educational methods. Due to the limited number of teachers and costs associated, personalized one-to-one learning is not generally feasible from a societal point of view. Breakthroughs in the field of machine learning offer promising avenues to aid in personalized learning. AI may hence be the ‘holy grail’ in unlocking the potential of one-to-one learning, by enabling applications to offer personalized teaching to each individual student. We assess the potential impact of AI in personalized learning from a socio-technical perspective. Therefore, we investigate the technological possibilities, as well as any aspects that may impact adoption, e.g. legal, societal and ethical. To conclude we formulate policy options that can stimulate the adoption of AI-driven personalized learning applications.

The use of technology in education has a long tradition. One tipping point was the introduction of digital technologies in the classroom. This started with the use of desk-top computers in the classroom in the 1980s. Since then, digitization has permeated all the capillaries of education. Computers were interconnected via global networks, countless teaching methods and content found their way to the student via the Internet, and student tracking systems and other administrative processes were automated.

In addition, more and more other devices were introduced into education that either replace or complement the desktop computer. Parallel to the development of digital tools and their increased connectivity, the amount of data generated by digital tools and their computing power has grown enormously. This is increasingly leading to the deployment of intelligent systems that can recognise patterns in large amounts of data and that are increasingly capable of imitating human behaviour, especially human reasoning. These systems can therefore perform tasks independently, or support users in performing tasks. These recent developments in AI might revolutionize education by enabling personalized learning applications. AI system might determine the curriculum and assess the skills level of each individual student. According to Bloom (1984) students that are tutored one-to-one perform two standard deviations better than students who learn via traditional educational methods. Due to the limited amount of teachers and associated costs, personalized one-to-one learning is not generally feasible from a societal point of view. Furthermore we observe that teachers are experiencing an increased workload. AI powered learning applications could thus not only be beneficial for students but can also increase the productivity of teachers.

We investigate the possible effects of educational AI in this work technologies related to customized education. In the statement by Bloom (1984), learners that receive personalized instruction outperform by a factor of two learners who receive their education through conventional means. Because of the restricted number of instructors and related expenses, customized individually from a sociocultural perspective, learning is typically not possible. Advancements in machine learning provide prospective paths to support individualized education. Thus, AI might be the "holy grail" for discovering the possibility of personalized instruction by allowing programs to provide individualized instruction for every single learner. We evaluate the possibility effects of artificial intelligence on individualized education taken from a sociotechnical viewpoint. Thus, we look at the technology options as well as any factors like legal, social, and ethical ones that could have an effect on reproduction. Finally, we develop policy recommendations that can encourage the implementation of applications for individualized learning powered by AI. There is a long history of using technology in education. A single compliment the use of electronic devices in educational settings was the main idea. This began in the 1980s with the introduction of personal computers into educational settings.

Until then, the entire educational system has been digitized. Global networks allowed computers to be connected, and countless teaching through the Internet, techniques and information were made available to the student, and other administrative procedures and student monitoring systems were automated as well.

Additionally, an increasing number of new technologies were released innovations that either enhance or substitute personal computers in educational settings. In tandem with the advancement of digital instruments and their heightened interconnectedness, the volume of information produced and the processing capacity of digital tools has greatly expanded. This is progressively resulting in the implementation of clever programs that are able to identify trends in vast volumes of data and that can mimic behavior in people more and more, particularly human intellect. As a result, these systems are capable of doing tasks autonomously or assist people in carrying out activities. These lately AI advancements could completely transform schooling by offering customized apps for learning. An AI system might choose the course of study and evaluate the degree of proficiency of every single learner.

As stated by Bloom (1984), individualized tutored learners complete two average variances superior than learners who receive their education through conventional means. Because on a social perspective, tailored individually learning is typically impractical due to the restricted number of teachers and related expenses.

Local Literature

As previously said, artificial intelligence has already started to develop in a variety of sectors, including teaching. Without a doubt, AI is beneficial in the education industry, particularly when combined with a superior educational materials and instructions that will be helpful (Lee & Koh, 2020). AI-powered tools are able to assess students' development, determine their advantages and disadvantages and recommend suitable reading material and exercises customized to meet their requirements. This would support instructors in creating more efficient educational pathways. For example, Grammarly as an AI helper when combined with quality equipment and educational resources, can be utilized by grammar instructors in higher education, particularly as it also gives arguments on why a change is necessary. Like that AI explanations enable educators a clear understanding of what he or she is explaining, it can provide knowledge to children while also offering them information that they can utilize going forward or in the

upcoming tasks to come on. A different approach popular AI method employed by to counteract plagiarism detection utilize by the students is the commercially available Quill Bot, which emphasizes proficiency with paraphrase and other features to assist writers in producing content (Fitria, 2021). AI may benefit educators on the administrative side of the classroom as well as school administrators to lighten their duties.

AI may additionally be used to simplify administrative duties, including monitoring and grading assignments, timetable management and student advancement. The following could enable teachers to focus more on teaching and engaging with students in order to enhance the educational experience as a whole. The assumptions were outlined as instructional from the Department of Education's (DepEd) Basic Education Development Program's (BEDP) 2030 objectives. These forecasting models powered by Artificial Intelligence (AI) facilitate data-driven decision-making in schools by providing analyses and recommendations based on collected data. This allows organizations to make more informed decisions regarding the distribution of resources, development of curricula, and support for student programs.

Moreover, AI's potential application in educational institutions is meticulously crafted to guarantee that human characteristics of education, such as critical and creative thinking, is maintained in the center of the procedure. Additionally, we see that educators are facing an elevated labor force. Thus, learning apps driven by AI would not just be not only advantageous for children but also has the potential to boost teachers' output.

3. Research Method

For this investigation, the research team employed a descriptive correlational design. It described the level of Artificial Intelligence usage and the academic performance of the students. It also dealt with the significant difference on the level of AI usage and the profile of the students. Furthermore, the relationship between the level of AI usage and the academic performance was also tested. The participants in the study were identified as the officially enrolled College of Maritime Education (CME) and the College of Arts, Sciences, and Education (CASE) students of Colegio de la Purisima Concepcion for the academic year 2023-2024. The respondents were limited to a random sample (Slovin's formula) of 179 from the 341 population of CME department and 34 out of 78 population of CASE department. The needed data were gathered using the researcher-made questionnaire. The gathered data were analyzed using frequency count, mean, t-test, and Pearson-r. Frequency count and mean were used for descriptive analysis; t-test was used for the analysis of the significant difference while the Pearson-r was used for analyzing the significant relationship.

4. Results and Discussion

Profile of the Respondents

Data on the profile of the respondents are reflected in Table 1. The profile of the respondents encompassed a total of 213 individuals. In terms of sex, the distribution showed majority of the respondents were males (179 = 84%), and 34 (16%) were females. In terms of age, 119 (55.8%) respondents belonged to the age category of 19 and below while 94 (44.1%) respondents belonged to the age category of 20 and above. For the year level distribution, 108 (50.7%) respondents were first year, while 105 (49.3%) were second year. Furthermore, in terms of the course or program, 33 (15.5%) respondents were affiliated with CASE while 180 (84.5%) of the respondents were from CME.

Table 1. Socio-demographic profile of the respondents

Categories	Frequency	Percent
Sex		
Male	179	16.0
Female	34	84.0
Total	**213**	**100.0**
Age		
19 years old and below	119	55.9
20 years old and above	94	44.1
Total	**213**	**100.0**
Year Level		

1st Year	108	50.7
2nd Year	105	49.3
Total	**213**	**100.0**
Course/Program		
CASE	33	15.5
CME	180	84.5
Total	**213**	**100.0**

Level of Artificial Intelligence Usage

The grand mean of the artificial intelligence usage in Table 2 is 3.54, verbally interpreted as "often." The data disclosed students moderate to high utilization of AI in their academic endeavors. Students frequently employed AI for tasks like checking the grammar; adding data for work; counter-checking the accuracy of work; supplementing ideas and thoughts in writing tasks; reconstructing essays; composing letters; and in doing assignments. Additionally, AI played a moderate role in students' social media contents as well as in editing their curriculum vitae.

Findings show that students utilized AI to support their academic tasks and to verify work accuracy. Reliance on the help of AI in fixing errors in academic outputs and supplementing ideas for broader understanding of concepts is evident in the result of the survey. AI plays a significant role in the academic endeavors of students.

Table 2. Level of artificial intelligence usage of the respondents

Statements	Mean	Verbal Interpretation
I use AI in/for…		
1. writing letters	3.45	Often
2. completing my assignments	3.53	Often
3. checking the grammar of my work	3.81	Often
4. reconstructing my essays	3.59	Often
5. paraphrasing my written works.	3.56	Often
6. my social media contents.	3.40	Sometimes
7. providing additional data for my work.	3.62	Often
8. editing my curriculum vitae.	3.33	Sometimes
9. supplementing my ideas and thoughts in my writings.	3.56	Often
10. counter checking the accuracy of my work.	3.61	Often
Grand Mean	**3.54**	**Often**

Academic Performance

Table 3 displays data indicating the academic performance of the students as "very good" (mean = 4.12) The result suggests commendable academic achievements among the respondents. The result also suggests that students consistently do their best in their academic endeavors by submitting commendable outputs, meeting deadlines for their assignments, and participating in class discussion to share valuable insights. The result further indicates that students demonstrated best efforts in passing exams and performance-based tasks, affirming their enthusiasm for learning and achieving positive academic performance.

Table 3. Academic performance of the respondents

Indicator	Mean	Verbal Interpretation
Academic Performance	4.12	Very Good

Differences in the Level of Artificial Usage of Students and Some Variables

The results of the statistical analysis concerning different variables and their association with the level of artificial intelligence usage of the students is shown in Table 4. The variables examined include sex, age, year level, and course/program. The findings established significant difference between the level of usage of artificial intelligence and some variables in terms of sex, age, and course/program of the respondents. The values for sex (t-value=2.236, p=0.026), age (t-value=2.085, p=0.038), and course/program (t-value=3.059, p=0.003) all denote statistically significant differences since the p=values were lower than 0.05 level of significance, thus, rejecting the null hypothesis for variables sex, age, and course/program. However, the variable year level failed to establish significant difference (t-value=1.192, p=0.623), implying the absence of statistically relevant discrepancy in artificial intelligence usage among students based on their year level. The null hypothesis for variable year level is accepted.

Table 4. Difference in the level of artificial intelligence usage and profile of the respondents.

Profile	Significant value	t-Value	Probability
Sex	2.236	0.026	Significant
Age	2.085	0.038	Significant
Year Level	1.192	0.623	Not Significant
Course Program	3.059	0.003	Significant

Findings indicate that the use of artificial intelligence for academic purposes varied significantly according to some variables such as age, sex and course or program. The result on variable sex indicates a notable difference in the usage of artificial intelligence between male and female students. For variable age, the result reveals a significant difference in the usage of artificial intelligence among students who are 19 years of age and below and those who are 20 years of age and above. In the level of artificial intelligence usage between students when grouped according to course or program, the result signifies a substantial discrepancy in AI usage. Specifically, CME students demonstrated higher level of artificial intelligence usage compared to CASE students. This implies that CME students often use AI apps in accomplishing their academic requirements and tasks. Considering the level of artificial intelligence usage of the students and the variable year level, the result shows no significant difference indicating the idea that the usage of artificial intelligence for academic purposes is practiced to the same extent by students regardless of their year level.

Differences in the Level of Academic Performance of Students and Some Variables

The results of the statistical analysis concerning different variables and their association with the academic performance of students is shown in Table 5. The variables examined include sex, age, year level, and course/program. The results failed to establish significant difference between the level of usage of artificial intelligence and some variables in terms of sex, age, year level, and course/program of the students since the p=values were higher than the alpha level of significance (0.05). The values for sex (t-value=0.003, p=0.998), age (t-value=0.434, p=0.664), year level (t-value=0.568, p=0.571), and course/program (t-value=1.435, p=0.153), all present no significant difference, thus, accepting the null hypothesis.

Table 5. Differences in the level of academic performance of students and some variables.

Profile	Significant value	t-Value	Probability
Sex	0.003	0.998	Not Significant
Age	0.434	0.664	Not Significant
Year Level	0.568	0.571	Not Significant
Course Program	1.435	0.153	Not Significant

The findings on the difference between academic performance and some variables indicate that the profile of the students in terms of sex, age, year level and course or program is not an indicator of a

high or low academic performance. The result implies that regardless of backgrounds, students can achieve high academic performance because of hard work, enthusiasm, and resourcefulness.

Relationship between Artificial Intelligence Usage and Academic Performance of Students

Result on the relationship between artificial intelligence usage and academic performance of students is shown in Table 5. There is a significant correlation between the level of artificial intelligence usage and academic performance of students. The obtained Pearson's r value of 0.358 had a significant value of 0.000 which is lower than 0.05 alpha level of significance. The null hypothesis which indicates that there is no significant correlation between the level of artificial intelligence usage and academic performance of students is rejected.

Table 6. Relationship between the level of Artificial Intelligence and Academic Performance of students.

Variable	N	Pearson's r	Significance Value	Probability
Artificial Intelligence Usage Academic Performance	213	0.358	0.000	Significant

The result suggests that the higher the level of artificial intelligence usage, the higher the academic performance of students. The statement of Lee & Koh (2020) that AI is beneficial in the education industry, particularly when combined with a superior educational materials and instructions that will be helpful, supports the idea that students' use of artificial intelligence enables them to have better academic performance. This idea is also supported by Dr. Sugata Mitra's suggestion that AI can significantly impact education through offering accessible, customized learning opportunities tailored to individual needs. His research, particularly the "Hole in the Wall" experiment conducted in India, demonstrated that children can learn effectively in collaborative, technology-enabled environments without formal instruction.

5. Conclusion and Implications

The result of the study disclosed a moderate to high students' utilization of AI in their academic endeavors. Students frequently employed AI for tasks like checking the grammar; adding data for work; counter-checking the accuracy of work; supplementing ideas and thoughts in writing tasks; reconstructing essays; composing letters; and in doing assignments. Additionally, AI played a moderate role in students' social media contents as well as in editing their curriculum vitae. Reliance on the help of AI in fixing errors in academic outputs and supplementing ideas for broader understanding of concepts was evident in the result of the survey. AI plays a significant role in the academic endeavors of students. The result of the study also suggested commendable academic achievements, signifying that students consistently do their best in their academic endeavors by submitting commendable outputs, meeting deadlines for their assignments, and participating in class discussion to share valuable insights. The result further indicated that students demonstrated best efforts in passing exams and performance-based tasks, affirming their enthusiasm for learning and achieving positive academic performance.

Significant difference was revealed in the level of artificial intelligence usage and some variables in terms of sex, age, and course/program of the students. However, the variable year level failed to establish significant difference, implying the absence of statistically relevant discrepancy in artificial intelligence usage among students based on their year level. Results concerning some variables - sex, age, year level, and course/program - and their association with the academic performance of students failed to establish significant difference. The significant relationship was evident between the artificial intelligence usage and academic performance of students.

Students' academic performance is significantly influenced by artificial intelligence usage. With the increasing utilization of AI in education, students find it easy to submit commendable outputs. AI tools provide them help and support for their individual academic needs. Easy access and availability of educational resources twenty-four hours a day enable the students to gather contents for their assignments, making it easier for them to submit and present topics on time. Because of AI tools assistance students can have a much better academic performance.

On the other hand, heavy reliance on AI tools can have a detrimental effect. Students depending on AI for answers will no longer give importance to the development of their critical thinking skills and

problem-solving skills. In addition, overdependence on the help of AI will diminish other fundamental skills of students in the form of writing, evaluating, analyzing and synthesizing texts. With the convenience of AI tools doing tasks for students, these mentioned skills will no longer equipped students in their future endeavors.

References

Alam, M. K. (2020). "A Systematic Qualitative Case Study: Questions, Data Collection, NVivo Analysis and Saturation. Qualitative Research in Organizations and Management: An International Journa"l, 16, 1-31.

Bower, Dewitt, & Lai, 2020; Kavanagh, Wuensche, Luxton-Reilly, and Plimmer (2017) "Impacts of Artifical Intelligence On Students' Academic Performance"

Baker, Smith, & Anissa, (2019) "Exploring the impact of Artifcial Intelligence and robots on higher education through literature‐based design fictions"

Chen et al (2022) "A Review of Artificial Intelligence (AI) in Education during the Digital Era" Computational Sciences on Student Performance: Systematic Review and Meta-analysis" Schachner, Keller, &Wangenheim, (2020) "Artificial Intelligence-Based Conversational Agents for Chronic Conditions: Systematic Literature Review"

Crompton, & Greene, (2020) "Psychological foundations of emerging technologies for teaching and learning in higher education"

Drigas & Ioannidou, (2013) "Artificial intelligence in special education: A decade review"

Dr. Sugata Mitra (2012) "Hole in the Wall"

Fitria, (2021) "Artificial Intelligence (AI) In Education: Using AI Tools for Teaching and Learning Process"

Guilherme, (2017) "AI and education: the importance of teacher and student relations" v.34

Han, Zhao, Jiang, Oubibi, & Hu, (2019) "Intelligent tutoring system trends 2006-2018: A literature review"

Holstein et al; Peters, (2019). "Co-Designing a Real-Time Classroom Orchestration Tool to Support Teacher–AI Complementarity"

Hwang et.al (2014; 2020) "Vision, challenges, roles and research issues of Artificial Intelligence in Education"

Lee & Koh, (2020) "Artificial Intelligence in the Philippine Educational Context: Circumspection and Future Inquiries"

Luan et al., (2020). "A Review of Artificial Intelligence in Education"

Ouyang & Jiao, (2021) "Artificial intelligence in education: The three paradigms" V2

Popenici and Kerr (2017) "Exploring the impact of artificial intelligence on teaching and learning in higher education"

Petko, Schmid, Müller, & Jawaid et al., (2020) "Analysing the Impact of Artificial Intelligence and Computational Sciences on Student Performance: Systematic Review and Meta-analysis"

Roll & Ruth Wylie (2016) "Evolution and Revolution in Artificial Intelligence in Education" V.26

Singer-Brodowski, Brock, Etzkorn, & Otte, 2019; Reister & Blanchard, 2020 “Analysing the Impact of Artificial Intelligence and Computational Sciences on Student Performance: Systematic Review and Meta-analysis”
Song and Wang (2020) “The Effects of Short Video-Assisted Teaching Model on English Language Learners’ Affect: Evidence from the Longitudinal Study”

Yufeia et al., (2020) “Review of the Application of Artificial Intelligence in Education”