



**ARTIFICIAL INTELLIGENCE TOOLS USAGE AND ACADEMIC LEARNING OF
STUDENTS AT TERTIARY INSTITUTIONS**

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Abstract

In academic learning, education is the bedrock that involves the development of student's ability and knowledge within academic environment. The study examined artificial intelligence tools usage and academic learning of students at the Federal Polytechnic, Ilaro. The study used descriptive research design. The students in the School of Management Studies represent the population of the study. The sample size was derived using multi-stage sampling. Quantitative data were gathered through online questionnaire using Google Form and analyzed using SPSS while the hypothesis was tested with Linear Regression Analysis. The outcome of the study showed that ChatGPT, GRAMMARLY, and GOOGLE GEMINI were often used by students for their academic learning. AI tools improve most of the students writing skills; and provides educational resources and academic opportunities. In addition, the challenges faced by students on AI usage in academic learning includes, the feedback gotten using AI tools are not well detailed enough for students' learning; the use of AI tools undermines critical thinking ability and value of human judgment of the respondents; and AI tools are not always accessible to students with unreliable internet connectivity. Based on the outcome of the study, the recommended that the management of the institution should encourage and educate the student on the usage of other AI tools, make more provision for learning infrastructure and better internet facilities, and stringent policies should be made to curtail abusive use to enhance independent academic learning.

Keywords: Artificial Intelligence, Artificial Intelligence Tools, Academic Learning, Technology

Introduction

Technology has become an important part of human life as time passes by. In an individual life, technology has not only influenced the personal lifestyle but has extended to how human work, interact with one another and learn. Technology has cut across virtually all the sectors in the economy, most especially the educational sector (Suh & Ahn, 2022).

Artificial Intelligence (AI) is a recent technological development which has gained more attention as a result of its unique ability to act like humans (Senin, 2021). The use of AI tools has generated a global interest because of its potential of revolutionising the different areas of the society, most especially the educational sector (Kang, 2023). AI plays an important role in facilitating academic learning. It is the modelling and designing of machine to behave like humans and perform cognitive tasks. It is a technology where machines can understand and learn logics like human beings AI simplifies the complexity of human life (Fitra, 2021a). AI tools enable students to learn using the AI education assistants such as ChatGPT, Quillbot, Grammarly and many more (Vasconcelos et al., 2023). With the aid of AI, voluminous textbooks can be presented into a more concise and readable format to help students in academic learning.

Statement of Problems

Unlike the traditional method of academic learning that followed a one-size fit all approach thereby making students receive same teachings regardless of the assimilation styles, the introduction of AI in academics has made learning more adaptive and personalized thereby considering the requirements of every students. Through AI tools, students can have access to vast amounts of information quickly. Despite these innovative development of AI, there exist some drawbacks.

The usage of AI has negative impact on the students' performance. The uncontrolled and abusive usage of AI tools by students make some students to become heavily reliant on AI thereby affecting their problem solving, critical thinking and skill development abilities. Furthermore, the privacy of the students' information is being intruded thereby giving access to the data collected to be used for unethical purposes. The study broadly examines AI tools usage and students' academic learning in tertiary institution. Specifically the study identifies the AI tools often used by students for academic learning; the benefits of AI technologies on students' academic learning; and the challenges faced by students on AI usage in academic learning. Hypothesis to show the significant relationship between AI tools usage and students' academic learning was tested. This findings will assist policymakers in education field to understand the extent to which AI has impact on the sector so that appropriate policy can be made.

Literature Review

Artificial Intelligence Usage

AI has revolutionised the interactions between individuals, organisations, and technologies, making it increasingly significant in a variety of sectors. By facilitating drug research, employing customised treatment plans, and assisting with image interpretation, artificial intelligence in medicine significantly enhances diagnostic processes (Topol, 2019). In addition to expediting transaction execution and analysis, the banking sector employs artificial intelligence technologies for automated trading, risk assessment, and fraud detection (Paramesha, 2024). In order to enhance the customer experience and maintain client engagement, chatbots employ AI and natural language to assist consumers and resolve enquiries more promptly and efficiently.

Smart factories are being propelled by a variety of AI technologies, which are causing a substantial growth in the industrial sector. These intelligent factories integrate tools that enable the implementation of quality assurance systems, predictive maintenance, and process automation (Davenport & Ronanki, 2018), thereby increasing productivity and reducing operational outages. The safety and efficiency of transportation networks are improved by the integration of artificial intelligence systems into autonomous vehicles, which enables the rapid decision-making process and the assessment of sensor input data (Garikapati & Shetiya 2024). This instrument is indispensable.

AI systems improve online learning and instruction by enabling students to study at their own convenience, delegating repetitive tasks to instructors, and providing adaptive assessments (Seo et al., 2021). In recent times, the use of AI has a substantial impact on the transformation of educational policies and practices. This shift in the educational paradigm enables a larger degree of complexity in the context of human presence, non-human presence, and online presence. The potential of artificial intelligence technology across various sectors is illustrated by smart structures (Troncoso-Pastoriza et al., 2022) and educational environments (Martínez-Comesana et al., 2023). AI has rapidly progressed in the educational sector as a result of its adaptability to changing conditions and its analytical capacity to anticipate, evaluate, and provide recommendations (Chen et al., 2022).

Theoretical Review

The study uses Technology Acceptance Model (TAM). This model enhances the usage of AI tools in academic learning. Davis (1989) propounded this model by featuring five elements: perceived utility (PU), perceived ease of use (PEU), actual usage (U), attitude towards use (AU), and behavioural intention (BI) to examine technological usage.

In application to this study, students are more likely to use AI tools in academic learning when they are convinced enough that these tools will assist them in achieving academic excellence (Scherer et al., 2019). Since, it can be observed that AI tools are user-friendly with minimal effort therefore, it is most likely to be adopted by the students. When students in the tertiary institutions have a positive perception towards AI tools, they become more inclined to utilise them. Behavioural intention is the extent to which the use of technological tool is the deliberate decision of an individual. The more the intention to use AI tools, the positive the results, beliefs and attitudes towards it (Al-Rahmi et al., 2021).

Methodology

The study used descriptive survey design. The study population (7,244) comprised the students in School of Management Studies of the Federal Polytechnic, Ilaro. The sample size was derived using multi-stage sampling. At first stage, Taro Yamane formula was used to derive 379 respondents. At the second stage, stratified random sampling technique to divide the School of Management Studies (SMS) into different department (10 department), and at the third stage, proportionate sampling method was used to determine the respondents from each of the department in the SMS. Data were collected through online questionnaire using Google Form. SPSS was used to analyse the quantitative data featuring the frequencies and simple percentage. At 0.05 level of significance, Linear Regression Analysis of SPSS was used to test the hypothesis of the study.

Results and Discussion

Out of 379 online questionnaire that were administered, 317 were adequately filled and analysed. This represent 84% of the sample size which is representative enough for the analysis. The findings in Table 1, based on the first objective identifies the AI tools often used by students for academic

learning shows that students often use ChatGPT, GRAMMARLY, and GOOGLE GEMINI for their academic learning. Other tools such as QUILLBOT, SPEECHIFY, PERPLEXITY AI, ZOTERO, MICROSOFT COPILOT are not often used by students in their academic learning. No other AI tool that is often used by the respondents apart from the listed ones.

TABLE 1: Objective 1 - AI tools often used by students for academic learning

S/N	Assertions	SA Freq. (%)	A Freq. (%)	U Freq. (%)	D Freq. (%)	SD Freq. (%)
1.	I use CHATGPT to assist my academic learning	127 (41)	141 (45)	25 (8)	15 (5)	3 (1)
2.	I use GRAMMARLY to assist my academic learning	81 (26)	128 (41)	57 (18)	38 (12)	7 (2)
3.	I use QUILLBOT to assist my academic learning	45 (15)	89 (29)	68 (22)	97 (31)	12 (4)
4.	I use SPEECHIFY to assist my academic learning	47 (15)	104 (34)	69 (22)	74 (25)	12 (4)
5.	I use GOOGLE GEMINI to assist my academic learning	77 (25)	125 (40)	49 (16)	53 (17)	7 (2)
6.	I use PERPLEXITY AI to assist my academic learning	57 (19)	81 (26)	73 (24)	81 (26)	16 (5)
7.	I use ZOTERO to assist my academic learning	34 (11)	65 (21)	71 (23)	114 (37)	21 (7)
8.	I use MICROSOFT COPILOT to assist my academic learning	48 (16)	96 (31)	65 (21)	81 (27)	16 (5)

Source: *Fieldwork, 2025*

Summarily, the findings in Table 2 focused on the second objective of the study which examines the benefits of AI tools usage on students' academic learning shows that the benefits of AI tools usage on students' academic learning includes: it helps to improve their writing skills, it makes work easier and faster than the traditional tools, it helps the students to study and prepare for examination, it helps respondents to achieve better grades in my courses, it helps to improve my understanding of complex concepts and terminologies, it helps me to learn conveniently at my own pace, it makes learning more engaging and attractive for the respondents and it provides respondents with educational resources and academic opportunities. This is evident in the

responses from the table 2 as majority of the respondents strongly agreed and agreed to these benefits.

TABLE 2: Objective 2- Benefits of AI tool usage on students’ academic learning

S/N	Assertions	SA	A	U	D	SD
1.	AI tools help to improve my Writing skills	114 (36)	149 (47)	25 (8)	25 (8)	2 (1)
2.	The use of AI tools is easier and faster than the traditional tools	48 (15)	127 (41)	26 (8)	15 (5)	96 (31)
3.	I use AI tools to study and prepare for examination	104 (33)	129 (41)	40 (13)	29 (10)	11 (4)
4.	AI tools helps me to achieve better grades in my courses	84 (27)	127 (41)	70 (23)	26 (8)	4 (1)
5.	AI tools have helped to improve my understanding of complex concepts and terminologies	114 (37)	147 (47)	37 (12)	8 (3)	5 (2)
6.	AI helps me to learn conveniently at my own pace	113 (37)	157 (51)	27 (9)	5 (2)	5 (2)
7.	AI makes learning more engaging and attractive for me	104 (34)	159 (52)	31 (11)	8 (3)	5 (2)
8.	AI provides me with educational resources and academic opportunities	97 (32)	146 (48)	41 (13)	14 (5)	7 (2)

Source: *Fieldwork, 2025*

The findings in Table 3 which focused on the third objective of the study which is to assess the challenges faced by students on AI usage in academic learning shows that the challenges faced by students on AI usage in academic learning include: the feedback gotten using AI tools are inadequate and not enough for my learning; AI tools undermines critical thinking ability of the students; AI tools in my academic learning undermines the value of human judgment; and AI tools are not accessible to students with unreliable internet connectivity. Furthermore, the findings showed that AI tools are often incompatible with students’ operating system; have limited access to the usage of AI tools due to financial constraints; difficulties in navigating and using AI tools due to its complexity; and technical difficulties while using AI tools are not part of the challenges faced by students on AI usage in academic learning.

Table 3: Objective 3 - Challenges faced by students on AI usage in academic learning

S/N	Assertions	SA	A	U	D	SD
1.	The feedback I get using AI tools are not adequate and well detailed enough for my learning	46 (15)	84 (27)	69 (22)	84 (27)	26 (8)
2.	AI tools are often incompatible with my operating system on my gadgets	44 (16)	76 (25)	71 (23)	90 (30)	23 (8)
3.	I have limited access to the usage of AI tools due to financial constraints	18 (6)	80 (26)	66 (22)	86 (28)	56 (18)
4.	The use of AI tools in my academic learning undermines my critical thinking ability	52 (17)	107 (35)	49 (16)	80 (26)	19 (6)
5.	The use of AI tools in my academic learning undermines the value of human judgment	41 (13)	108 (35)	69 (22)	77 (25)	13 (4)
6.	I experience difficulties in navigating and using AI tools due to its complexity	34 (11)	79 (28)	55 (18)	111 (36)	28 (10)
7.	I experience technical difficulties while using AI tools	39 (13)	70 (23)	54 (18)	121 (39)	25 (8)
8.	AI tools are not accessible to students with unreliable internet connectivity	69 (22)	143 (46)	39 (13)	46 (15)	13 (4)

Source: Fieldwork, 2025

Test of Hypothesis

TABLE 4: Linear Regression of AI Usage on Students' Academic Learning at the Federal Polytechnic, Ilaro

Model	R	R Square		Adjusted R Square		Std. Error of the Estimate		Change Statistics	
R Square Change	F Change	df1		df2		Sig.	F Change		
1	.787a	.619	.618	.61420	.619	583.018	1	359	.000

a. Predictors: (Constant), ICT usage

Source: SPSS outcome

The null hypothesis (H₀) is rejected and the alternative hypothesis (H₁) is accepted if P is less than 0.05. The alternative hypothesis (H₁) is adopted, and the null hypothesis (H₀) is rejected, as the p-value is 0.000, which is inferior to the significance threshold of 0.05. This implies that students are using AI tools to a significant extent for academic learning.

Conclusion

The study concluded that there exist significant relationship between AI tools usage and academic learning of students at The Federal Polytechnic, Ilaro.

Recommendations

Based on the findings of the study, the following recommendations were given:

- i. The management should create awareness on how to use other AI tools.
- ii. Students should be enlightened about the usage of AI tools in other areas such as presentation, research and field works, and many more.
- iii. Stringent policies should be made to ensure ethical usage of AI tools to promote independent learning.

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