# AWARENESS, PERCEPTION AND CHALLENGES OF ARTIFICIAL INTELLIGENCE INTEGRATION FOR LEARNING AMONG POSTGRADUATE STUDENTS IN FACULTY OF EDUCATION, IGNATIUS AJURU UNIVERSITY OF EDUCATION, PORT HARCOURT, RIVERS STATE

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#### **Abstract**

This study adopted a descriptive survey research design to investigate the awareness, perceptions, and challenges of AI integration for learning among postgraduate students in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State. The population of the study consists of 52 postgraduate students in the department of Curriculum Studies and Educational Technology. The entire population was used as the sample size. Researchers' self-structured questionnaire titled Artificial Intelligence Awareness Perception and Challenges Questionnaire (AIAPCAQ) was used for the study. It was adequately validated and a reliability coefficient of 0.67 was obtained. Mean and Z-tests were used in the analysis of the collected data. The study revealed that students who are interested in technology often participate in extracurricular activities such as coding clubs, robotics competitions, or STEM programmes, and these activities provided hands-on experience with AI-related tools and concepts, fostering a deeper understanding of technology utilization. Based on the findings, it was recommended that postgraduate students be encouraged to explore various AI tools, participate and engage in other activities such as coding, robotics, and STEM programmes to enhance and optimize their research endeavours.

Keywords: Artificial Intelligence, Technology Integration, Post graduate Awareness, Perception, Challenges and Learning.

#### Introduction

In recent years, growing interest and investigation have been shown in the integration of artificial intelligence (AI) into numerous facets of education. With the swift advancement of technology, educators are increasingly utilising artificial intelligence (AI) tools and strategies to improve postgraduate students' educational experiences (Johnson, 2023). For students, the use of artificial intelligence (AI) in postgraduate education is crucial since it provides a number of advantages that advance both their academic and professional growth. Artificial intelligence (AI), also

known as machine intelligence, is a branch of computer science that focuses on building and managing technology that can learn to autonomously make decisions and carry out actions on behalf of a human being (Rouse, 2024).

Artificial intelligence (AI) in educational technology refers to the application of AI techniques and technologies to enhance teaching, learning, and educational processes. AI can be utilized in various aspects of education, including personalized learning, adaptive assessments, intelligent tutoring systems, educational data mining, and natural language processing for feedback and assessment (Siemens & Baker, 2012). It encompasses various components and applications, and its use in educational teaching and learning is gaining traction. The components and diversities of AI in education:

- 1. Machine Learning (ML): Machine language algorithms enable systems to learn from data and improve performance over time without being explicitly programmed. Machine language techniques are used in educational applications for adaptive learning, personalisation of content, and predictive analytics (Mitchell, 1997).
- 2. Natural Language Processing (NLP): Natural Language Processing allows computers to understand, interpret, and generate human language. In education, natural language processing is used for automated essay grading, language learning, and chatbots for student support (Jurafsky & Martin, 2020).
- 3. Computer Vision: Computer vision enables machines to interpret visual information from the real world. In educational settings, computer vision can be used for facial recognition for attendance, gesture recognition for interactive learning, and content analysis in videos (Forsyth & Ponce, 2019).
- 4. Educational Data Mining (EDM): Educational data mining involves extracting knowledge from educational data, including student performance, interactions, and behaviors. Techniques such as clustering, classification, and sequence mining are used to analyze data and inform decision-making in education (Romero & Ventura, 2010).
- 5. Intelligent Tutoring Systems (ITS): An intelligent tutoring system is an AI system that provides personalised instruction or tutoring to students. These systems adapt to the learner's pace, style, and preferences, offering customised learning experiences (VanLehn, 2011).
- 6. Virtual Reality (VR) and Augmented Reality (AR): Virtual Reality and Augmented Reality technologies create immersive learning experiences, enhancing engagement and understanding. In education, VR and AR can simulate real-world environments, offer virtual labs, and provide interactive visualizations. (Dalgarno & Lee, 2010). These components represent the diverse applications of AI in educational teaching and learning, spanning from data analysis to personalised instruction and immersive experiences.

The integration of artificial intelligence (AI) into various sectors holds profound significance, revolutionising industries and reshaping societal landscapes. One crucial aspect lies in healthcare, where AI assists in diagnosis, treatment planning, and personalised medicine. According to a study by Esteva, Kuprel, Novoa, Ko, Swetter, Blau, & Thrun (2019), AI models outperform dermatologists in skin cancer classification, highlighting the potential to enhance

diagnostic accuracy and patient outcomes. Moreover, AI streamlines administrative tasks, reducing healthcare costs and improving operational efficiency. Hassanpour, Langlotz, & Amrhein (2019). In finance, AI algorithms analyse vast datasets to predict market trends, optimise trading strategies, and manage risks. This integration enhances decision-making processes and enables more informed investments (Sokolov, 2020). Additionally, AI's integration in education facilitates personalised learning experiences, adapting to students' individual needs and maximising their academic potential. Research by Johnson, Adams Becker, Estrada, and Freeman (2016) demonstrates AI's efficacy in providing tailored feedback and adaptive learning pathways, enhancing student engagement and performance. Furthermore, in manufacturing, AI- powered automation optimises production processes, minimises errors, and enhances product quality. A report by Deloitte (2021) emphasises AI's role in driving innovation and competitiveness within the manufacturing sector. Overall, the integration of AI across diverse domains signifies a paradigm shift towards efficiency, accuracy, and customisation, heralding a future marked by unprecedented advancements and opportunities. It further improves postgraduate education while preparing students for the opportunities and challenges brought forth by the quickly changing technology landscape. It encourages an all-encompassing approach to education by fusing technological know-how with ethical reasoning, critical thinking, and international cooperation (Dileep, 2024).

#### **Statement of the Problem**

Artificial intelligence (AI) integration in higher education presents a number of potentials and challenges that need to be carefully considered, especially from the viewpoint of postgraduate students. One major concern among postgraduate students is the possibility that automation powered by AI would result in job displacement. To help students become more confident and adaptive, it is crucial to investigate how artificial intelligence affects conventional roles in education and to get them ready for a changing market. Even though AI provides tailored learning experiences, postgraduate educators still need to explore the best ways to incorporate these technologies into their pedagogical approaches. To maximise the learning process, it is essential to recognise potential hazards and recommended practices when integrating AI into teaching techniques. Promoting productive collaboration between AI specialists and postgraduate students from diverse fields is crucial as AI develops as a cross-cutting technology. Developing a comprehensive AI integration strategy will involve assessing the degree of interdisciplinary collaboration and identifying obstacles to it.

#### Aim and Objectives of the Study

The aim of the study is to investigate Awareness, Perception and Challenges of Artificial Intelligence Integration for Learning among Postgraduate Students in Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State. Specifically, the study intends to:

- 1. Examine the awareness level of AI- Integration on postgraduate students\_ learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.
- 2. Establish postgraduate students\_ perception of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

- 3. Investigate the perceived usage of AI-Integration for postgraduate students\_ learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, and Rivers State.
- 4. Evaluate the challenges of AI-Integration on postgraduate students\_learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

#### **Research Questions**

- 1. What is postgraduate students awareness level of AI integration for learning in Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, and Rivers State?
- 2. What is the perception of postgraduate on AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State?
- 3. What is the perceived use of AI-Integration on postgraduate students\_learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State?
- 4. What are the challenges facing AI-Integration for postgraduate students\_ learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State?

#### **Hypotheses**

- Ho1: There is no significant difference between male and female postgraduate students\_awareness level of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.
- Ho2: There is no significant difference between male and female postgraduate students\_ perception on AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.
- Ho3: There is no significant difference between male and female postgraduate students\_ perceived usage of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.
- Ho4: There is no significant difference between male and female postgraduate students\_ challenges of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

#### Methodology

The study adopted a descriptive survey research design. The population of the study was 52 postgraduate students in the department of Curriculum Studies and Educational Technology. The entire population was used as the sample size. Researchers self-structured questionnaire was designed and deployed for the collection of data. The instrument was composed of twenty one (21) items in two sections. The first section covered demographic data on gender while the second section covered items on awareness, perception, perceived usage and challenges. The instruments was adequately validated and a reliability coefficient of 0.67 was obtained while the mean and Z- test was used for the analysis of the research questions and hypotheses respectively.

#### **Results and Analysis**

Research Question 1: What is the extent of postgraduate students' awareness level of AI integration for learning in Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, and Rivers State?

Table 1: Postgraduate students\_ extent of awareness of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

S/N	Items	VHE	HE	LE	VLE	Mean	SD	Remark
	Postgraduate students level of							
	Awareness of AI						0.10	
1.	Many students today are part of a	31	21	0	0	3.59	0.49	52
	generation that has grown up surrounded							
	by technology. They are often more aware							
	of AI and its applications compared to previous generations. They are familiar							
	with virtual assistants like Siri, Alexa, or							
	Google Assistant, which are powered by							
	AI algorithms.							
2.	The inclusion of AI-related topics in	40	12	0	0	3.76	0.42	52
	school curricula has increased in recent							
	years. Some educational institutions have							
	introduced courses or modules specifically							
	focused on AI, machine learning, and							
	robotics. This exposure helps students							
	understand the basics of AI and its							
3.	potential impact on various industries. Students who are interested in technology	44	8	0	0	3.84	0.36	52
3.	often participate in extracurricular	44	O	U	U	J.0 <del>4</del>	0.50	32
	activities such as coding clubs, robotics							
	competitions, or STEM programs. These							
	activities provide hands-on experience							
	with AI-related tools and concepts,							
	fostering a deeper understanding of the							
	technology	33	19	_	_	3.63	0.48	52
4.	AI-related themes frequently appear in		1,			2.02	0.10	3 <b>2</b>
	popular media, movies, and literature. Students may encounter portrayals of AI in							
	science fiction stories or movies. While							
	these portrayals may not always accurately							
	reflect the capabilities or limitations of AI,							
	they contribute to raising awareness and	20	2.4	0	0	2.52	0.40	50
	sparking curiosity about the technology	28	24	0	0	3.53	0.49	52
5.	As AI technologies become more							
	prevalent in society, there is increasing							
	awareness among students about the							
	ethical and societal implications of AI.							
	They may discuss topics such as bias in							

algorithms, privacy concerns, job automation, and the impact of AI on society. These discussions encourage critical thinking and help students develop a nuanced understanding of AI beyond its technical aspects.

Average Mean 3.67 0.44

Ignatius Ajuru University of Education postgraduate students in the Faculty of Education acknowledged the whole item as their level of awareness of artificial intelligence, as shown in Table No. 1. The reasons for this is that the mean of all the items exceeded the 2.50 criterion mean. The overall mean of 3.67 suggests that students who are interested in technology often participate in extracurricular activities such as coding clubs, robotics competitions, or STEM programs. These activities provide hands-on experience with AI-related tools and concepts, fostering a deeper understanding of the technology

### Research Question 2: What is the perception of postgraduate students' on AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, and Rivers State?

Table 2: Perception of postgraduate students for AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

S/N	Items	SA	A	SD	D	Mean	SD	Remark
	Perception of Postgraduate students' for							
	AI-Integration							
1.	Many participants highlighted AI's potential to streamline administrative tasks, such as grading assignments, managing course schedules, and providing timely feedback.  This efficiency gain was seen as liberating more time for meaningful engagement with course content	36	14	2	-	3.65	0.55	52
2.	Students value AI's capacity to personalize learning experiences and increase learning efficiency.	29	23	-	-	3.55	0.55	52
3.	AI is seen by postgraduate students as a technology that can improve teaching by providing an interactive environment.	34	18	-	-	3.65	0.47	52
4.	Postgraduate students expressed enthusiasm about AI's ability to personalize learning experiences. They appreciated AI-driven	49	3	-	-	3.94	0.23	52

5 Al	systems that adapt to their individual learning styles, pace, and preferences, enabling more effective knowledge acquisition.  can help students manage their time more effectively. Reminders, time management apps, and intelligent scheduling tools may all help students stay organized and focused on their academic work.	46	6	-	-	3.88	0.32	52	
	Average Mean					3.73	0.41		

Table No. 2, postgraduate students at Ignatius Ajuru University of Education's Faculty of Education recognized the entire item as their perception of AI integration for learning. The reasons for this is that the mean of all the items exceeded the 2.50 criterion mean. The overall mean of 3.73 shows that Postgraduate students expressed enthusiasm about AI's ability to personalize learning experiences. They appreciated AI-driven systems that adapt to their individual learning styles, pace, and preferences, enabling more effective knowledge acquisition.

### Research Question 3: What is the perceived usage of AI-Integration on Post graduate students' learning in the Faculty of Education, Ignatius Ajuru University of Education?

Table 3: Perceived usage of AI-Integration on Postgraduate students\_teaching and learning in the Faculty of Education, Ignatius Ajuru University of Education

S/N	Items	VMU	U	NVU	NU	Mean	SD	Remark
	Perceived usage of AI-Integration							
1.	Postgraduate students can access tailored	42	10	-	-	3.80	0.39	52
	information, exams, and feedback based							
	on their unique progress through AI-							
	driven adaptive learning platforms.							
2.	Artificial intelligence (AI)-driven virtual	37	15	-	-	3.71	0.45	52
	and augmented reality technologies							
	improve teaching and learning, enabling							
	graduate students to participate in							
	immersive learning settings.							
3.	AI-powered tutoring programs provide	39	13	-	-	3.75	0.43	52
	graduate students individualized							
	assistance.							
4.	Postgraduate students may now process	33	19	-	-	3.63	0.48	52
	and analyze massive volumes of data							
	more quickly than ever before thanks to							
	AI.							

Teachers and students can modify their 30 22 - - 3.57 0.49 52 teaching and learning tactics by using AI's ability to assess student data and deliver real-time feedback.
Average Mean 3.70 0.45

According to Table No. 3, postgraduate students at Ignatius Ajuru University of Education's Faculty of Education acknowledged the full item as their contribution from artificial intelligence. The reasons for this is that the mean of all the items exceeded the 2.50 criterion mean. Average mean of 3.70 suggests that postgraduate students can access tailored information, exams, and feedback based on their unique progress through AI-driven adaptive learning platforms.

## Research Question 4: What are the challenges facing AI-Integration for postgraduate students' learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State?

Table 4: Challenges of AI-Integration for postgraduate students learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

S/N	Items	SA	A	SD	D	Mean	SD	Remark
	Challenges of AI-Integration							
1.	Postgraduate students voice worries about the	46	6	0	0	3.88	0.31	52
	ethical implications of artificial intelligence,							
	including the misuse of AI-generated content,							
	prejudice in algorithms, and data privacy.							
2.	Concerns regarding the potential replacement	39	10	3	0	3.69	0.57	52
	of specific job tasks by AI technology have							
	caused some students to question the viability							
	of their chosen field in the labor market.							
3.	Inequalities in educational experiences could	29	21	2	0	3.51	0.57	
	be exacerbated by postgraduate students'							
	unequal access to AI technologies.							
4.	AI automation may cause job losses in some	26	26	0	0	3.50	0.50	
	areas, which would have an impact on the							
	labor market and workplace.							
5.	Because AI lacks human traits like creativity	44	8	0	0	3.84	0.36	
	and empathy, it is less able to comprehend							
	feelings or come up with novel ideas.							
	Average Mean					3.68	0.46	

Table No. 4 demonstrated that postgraduate students at Ignatius Ajuru University of Education's Faculty of Education accepted the entire item as their artificial intelligence challenge. The reasons for this is that the mean of all the items exceeded the 2.50 criterion mean. The overall mean of 3.68 suggests that postgraduate students voice worries about the ethical implications of artificial intelligence, including the misuse of AI-generated content, prejudice in algorithms, and data privacy.

#### **Hypotheses**

**Ho1:** There is no significant difference between male and female postgraduate students awareness level of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, and Rivers State.

Table 1.1: Table of analysis to determine the significant difference between male and female postgraduate students' awareness level of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

Group	Mean	Standard Deviation	N	Df	Standard Error	Z(Cal)	Z(tab)	Decision
Male	3.84	0.36	24					
				50	0.12	2.58	1.96	Rejected
Female	3.53	0.49	29					

The calculated value of Z ( $Z_{cal}$ ), is greater than the tabular value, hence the null hypothesis,  $H_0$  is rejected. This means that there is significant difference in postgraduate students level of awareness of male and females in Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt. The male postgraduate students level of awareness is higher than the female postgraduate students because Male (3.84) is greater than Female (3.53).

**Ho2:** There is no significant difference between male and female postgraduate students\_ perception on AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

Table 1.2: Table of analysis to determine the significant difference between male and female postgraduate students' perception on AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

Group	Mean	Standard	n	Df	Standard	Z(Cal)	Z(tab)	Decision
		Deviation			Error			
Male	3.94	0.23	27		0.11			Rejected
				50		3.54	1.96	
Female	3.55	0.55	25					

The calculated value of Z ( $Z_{cal}$ ), is greater than the tabular value, hence the null hypothesis,  $H_0$  is rejected. This means that there is significant difference in the perception of postgraduate students on AI integration in Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt. The male postgraduate students perception of AI integration is higher than the female postgraduate students because Male (3.94) is greater than Female (3.55).

**Ho3:** There is no significant difference between male and female postgraduate students perceived usage of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

Table 1:3: Table of analysis to determine the significant difference between male and female postgraduate students perceived usage of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

Group	Mean	Standard	N	Df	Standard	Z(Cal)	t(tab)	Decision
		Deviation			Error			
Male	3.80	0.39	22	50				Accepted
					0.12	1.92	1.96	
Female	3.57	0.49	30					

The calculated value of Z ( $Z_{cal}$ ), is less than the tabular value, hence the null hypothesis,  $H_0$  is Accepted. This means that there is no significant difference in postgraduate students perceived usage of AI integration in Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt. The slight difference observed between male postgraduate student (3.80) and female postgraduate students (3.57) is simply due to chance

**Ho4:** There is no significant difference between male and female postgraduate students challenges of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

Table 1:4: Table of analysis to determine the significant difference between male and female students' challenges of AI-Integration for learning in the Faculty of Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

Group	Mean	Standard	N	Df	Standard	Z(Cal)	Z(tab)	Decision
		Deviation			Error			
Male	3.88	0.31	32					Rejected
				50	0.12	3.16	1.96	J
Female	3.50	0.50	20					

The calculated value of Z ( $Z_{cal}$ ), is greater than the tabular value, hence the null hypothesis,  $H_0$  is rejected. This means that there is significant difference in the challenges faced by postgraduate students on AI integration in Faculty of Education, Ignatius Ajuru University of Education, Port

Harcourt. The male postgraduate students challenges of AI integration are higher than the female postgraduate students because Male (3.88) is greater than Female (3.50).

#### **Discussion of Findings**

Findings from the study revealed that students who enrolled in technology-focused courses or educational research projects may actively interact with artificial intelligence (AI) concepts and applications for teaching and learning. Some educational institutions also use AI to analyze student evaluations and feedback, which gives them valuable information about how well their curricula and teaching strategies are working. The results of the current study are in consistent with those of Mircea (2023), who discovered that artificial intelligence improves education by enabling learning customization, offering immediate feedback, and increasing assessment process efficiency. Therefore, by integrating artificial intelligence into online learning platforms, it is possible to tailor activities and content to the individual needs and knowledge levels of each student.

According to the study, AI is highly precise in its task execution, minimizing errors and enhancing overall accuracy; postgraduate students benefit from AI integration as it exposes them to real-world applications, which helps them close the knowledge gap between academic and practical abilities. The current study concurs with that of Monserrat, Antonia, Antoni-Luis, & Paul (2022), who discovered that the application of artificial intelligence in education can offer students individualized instruction, a flexible learning environment, knowledge, and support for students with varying needs and characteristics. The current study supports the findings of Reagan (2018), who discovered that the introduction of self-teaching classrooms at all educational institution levels can use artificial intelligence technology to improve the intelligence of Nigeria's educational system.

According to the study, AI makes it possible to provide assignments and evaluations with prompt and helpful feedback. Students value immediate feedback because it can help them comprehend concepts more fully and make timely improvements. Artificial intelligence (AI) can also help students manage their time more effectively. Reminders, intelligent scheduling tools, and time management apps can all help students stay focused and organized while completing their academic assignments. The current study supports the findings of Zouhaier (2022), who discovered that artificial intelligence outperforms humans in higher education in terms of learning styles and teaching strategies. The current study supports the findings of Chan & Hu (2023), who discovered that students acknowledged the promise of artificial intelligence for writing and brainstorming support, individualized learning support, and research analytical skills. According to the report, AI-driven tutoring systems give grad students individualized guidance, while AI-driven adaptive learning platforms give postgraduate students tailored content, evaluations, and feedback based on their unique progress. The results of this study are consistent with those of Al-Badi, Asharul, & Eid (2022), who discovered that 91 samples of respondents, including instructors, had positive perceptions about the use of artificial intelligence in personalized learning in higher education. The current study concurs with that of Bally & Anush (2023), who discovered that AI tools help postgraduate students with experimentation, literature reviews, and data analysis, leading to more effective and sophisticated research.

According to the study, postgraduate students who have unequal access to AI technology may have different educational experiences, which would exacerbate already-existing inequities. AI is not human, so it cannot be creative or empathetic, which limits its capacity to comprehend emotions or generate novel ideas. The current study supports the findings of Fuad & Didi (2021), who discovered that AI makes it possible to provide assignments and evaluations with prompt and helpful feedback. Students appreciate that they can receive feedback quickly, which can help them grasp subjects more fully and make timely improvements. The current study supports the findings of Ismail, Muhterem, Hanni, and Sanna (2022), which discovered that AI-powered augmented and virtual reality tools improve classroom experiences by enabling postgraduate students to participate in immersive learning settings. The current study supports the findings of Yuko, Izumi, Rwitajit, and Hiroaki (2023), which discovered that unequal postgraduate student access to AI technologies may lead to differences in educational experiences, hence escalating already-existing inequalities.

#### **Conclusions**

Based on the findings, the researchers concluded that extracurricular activities like coding clubs and robotics competitions provide hands-on experience with AI tools, enhancing students' understanding of the technology. Postgraduate students express both enthusiasm for AI's personalized learning potential and concerns about its ethical implications, such as algorithmic bias and data privacy issues.

#### Recommendations

Based on the conclusions, the researchers recommended that:

- Postgraduate students should be engage in extracurricular activities such as coding clubs, robotics competitions, and STEM programs. These activities provide hands-on experience with AI tools and concepts, fostering a deeper understanding of the technology and its applications.
- 2. Institutions should invest in AI-driven adaptive learning platforms that personalize learning experiences for postgraduate students. These systems should adapt to individual learning styles, pace, and preferences, enabling more effective knowledge acquisition. Encourage postgraduate students to utilize such platforms to enhance their learning experience.
- 3. Incorporate ethics education into postgraduate curricula, focusing on the ethical implications of artificial intelligence. Educate students about the misuse of AI-generated content, algorithmic biases, and data privacy concerns. Promote critical thinking and awareness among students to help them navigate the ethical challenges associated with AI technology.
- 4. Establish forums, workshops, and resources dedicated to discussing and addressing ethical concerns related to AI. Provide support for postgraduate students who may have questions or concerns about the ethical implications of AI technology. Foster a supportive community where students can openly discuss and learn from each other's perspectives.

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