ASSESSMENT OF STUDENT-TEACHERS' AWARENESS AND UTILIZATION OF ARTIFICIAL INTELLIGENCE (AI) AT EKITI STATE UNIVERSITY

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Abstract

This study explores the awareness and utilization of Artificial Intelligence (AI) among student-teachers at Ekiti State University, focusing on how AI integration in educational methodologies influences teaching and learning processes. This study adopted a descriptive research method. The population of this study comprised of all 300Level Students both in main Campus in Ekiti and Oyo Campus. A sample of 180 students was randomly selected and a researcher made-rating scale titled "Assessment of Student-Teachers' Awareness and Utilization of Artificial Intelligence (AI) at Ekiti State University" (ASAUAIESU) was used to gather data for the study. It was a Likert 4-points type of rating scale ranging from Strongly Agree to Strongly Disagree. The instrument was piloted test with twenty 300level student-teachers from University of Ibadan and Cronbach Alpha was applied to obtain reliability coefficient of 0.73 which was acceptable for the study. The findings reveal that the participants have a growing awareness of AI technologies with a significant disparity in the level of utilization of Artificial Intelligence (AI) while some student-teachers show interest and competent in integrating AI tools in their teaching practice, others remain apprehensive due to a lack of sufficient training and resources. The study recommended the development of a comprehensive AI literacy programme within the teacher education curriculum, partnerships with tech companies for resource provision, and the establishment of a supportive community of teaching

Keywords: *Artificial Intelligence, teacher education, student-teachers, Artificial Intelligence integration, professional development.*

Introduction

Ekiti State University (EKSU) is a prominent institution in Nigeria, recognized for its dedication to enhancing educational norms and fusing inventive pedagogical methodologies. As prospective educators, student-teachers at EKSU assume a pivotal role in the integrating innovative teaching practices and application of AI in Nigerian educational settings. Their cognizance and preparedness to embed AI into their teaching methodologies can profoundly influence the broader educational sphere (Owolabi & Adedayo, 2020). The integration of Artificial Intelligence (AI) in education has garnered significant attention globally due to its potential to revolutionize teaching and learning processes. AI encompasses a range of technologies designed to mimic human intelligence, including machine learning, natural language processing, and robotics, which can be applied to personalize learning, automate administrative tasks, and enhance educational outcomes (Luckin et al., 2016). In Nigeria, the adoption of AI in education is still in its nascent stages, with various challenges and opportunities influencing its implementation (Adebayo, 2019).

AI in education encompasses a range of applications, including intelligent tutoring systems, automated grading, and personalized learning environments (Holmes et al., 2019). Studies have highlighted the benefits of AI in fostering individualized learning experiences and improving student engagement (Woolf, 2020). However, the adoption of AI in teacher education programs remains limited, often due to a lack of awareness and training among educators (Chen, Zou, Cheng, & Xie, 2021). Artificial Intelligence (AI) has become a pivotal component in various sectors, especially in the education sector. Its integration into teaching and learning processes can enhance educational outcomes and equip future educators with the necessary skills to optimally operate without itch in a technologically driven world (Luckin, Holmes, Griffiths, & Forcier, 2016). This study explores the awareness and utilization of AI among student-teachers at Ekiti State University, aiming to identify gaps and propose strategies for effective integration.

Awareness of AI among educators is a critical precursor to its successful integration in educational settings. Studies have shown that while there is a growing recognition of AI's potential in enhancing teaching and learning, the depth of understanding and the practical knowledge required to leverage these technologies remain limited (Afolabi, 2021). For instance, student-teachers need to be familiar with various AI applications such as intelligent tutoring systems, automated grading, and predictive analytics to effectively utilize these tools (Olaleye & Adegoke, 2020). Utilization of AI in education refers to the practical application of AI tools and technologies in teaching and learning processes. In Nigerian universities, including EKSU, the extent of AI utilization varies significantly. Factors influencing utilization include access to technology, institutional support, and the perceived ease of integrating AI tools into existing curricula (Bello & Yusuf, 2022). Effective utilization of AI can lead to personalized learning experiences, enhanced student engagement, and more efficient administrative processes (Ogunleye & Olusola, 2023).

Despite the acknowledged advantages of artificial intelligence (AI) in the field of education, there exist various obstacles impeding its incorporation within educational establishments in Nigeria. Principal difficulties encompass restricted availability of AI tools, inadequate training and professional growth opportunities for teachers, and infrastructural limitations like unstable internet access and electricity provision (Ibrahim & Musa, 2020). In addition, there are apprehensions regarding the moral consequences of AI, encompassing concerns regarding data confidentiality, biased algorithms, and the potential for educators to face displacement in their roles (Eze & Okoro, 2021). The expectations and willingness of student-teachers to adopt AI are influenced by their perceptions of AI's benefits and challenges. Research indicates that while many student-teachers recognize the potential of AI to enhance educational outcomes, their willingness to adopt these technologies is often tempered by concerns about their preparedness and the support available to them (Adewale & Akinyemi, 2019). Understanding these expectations is crucial for designing interventions that can facilitate the adoption of AI in education (Olayinka & Adeboye, 2023).

Statement of the Problem

Despite the global recognition of AI's potential to enhance teaching and learning processes, there remains a significant gap in its awareness and utilization among student-teachers in Nigeria. This gap is particularly pronounced in tertiary institutions, where future educators are trained. For instance, Ajadi (2021) noted that the awareness of AI among Nigerian educators is relatively low,

which hinders the effective integration of AI tools in educational practices. Similarly, Ogunleye (2020) highlighted the limited utilization of AI in teacher education programs, attributing this to inadequate training and infrastructural challenges. Despite these discoveries, these researchers have not studied the awareness and utilization of AI among Student-teachers in Ekiti State University. Therefore, this study seeks to assess the level of awareness and utilization of AI among student-teachers at Ekiti State University. Understanding these factors is essential for developing targeted interventions that can enhance the integration of AI in teacher education, ultimately contributing to the improvement of educational outcomes in Nigeria.

Purpose of the Study
The study was carried out to assess student-teachers' awareness and utilization of AI at Ekiti State University. Specifically, the study will assess:

i. level of awareness among student-teachers at Ekiti State University regarding the different applications and potentials of AI in education
ii. Utilization of AI in Teaching Practice by Student-teachers in Ekiti State University
iii. Barriers to AI Integration encountered by student-teachers in Ekiti State University
iv. The Expectations and Willingness of student-teachers to Adopt AI for teaching practice

Research Questions
The following research questions were formulated for the purpose of the study:

1. What is the level of awareness of Artificial Intelligence (AI) among student-teachers at Ekiti State University?
2. To what extent are student-teachers at Ekiti State University utilizing AI tools and technologies in their teaching practices?
3. What are the main barriers faced by student-teachers at Ekiti State University in integrating AI into their teaching practices?
4. What are the expectations and levels of willingness among student-teachers at Ekiti State University to adopt AI in their future teaching careers?

Methodology

This study adopted the survey research method. This was considered an effective assessment of student-teachers' awareness and utilization of artificial intelligence (AI) at Ekiti State University. The population of this study comprised of all 300Level Students both in main Campus in Ekiti and Oyo Campus. A sample of 180 students was randomly selected from Oyo Campus. A researcher made-rating scale titled "Assessment of Student-Teachers' Awareness and Utilization of Artificial Intelligence (AI) at Ekiti State University" (ASAUAIESU) was used to gather data for the study. It was a Likert 4-points type of rating scale ranging from Strongly Agree to Strongly Disagree. The instrument was subjected to a pilot test with 20 student-teachers from University of Ibadan and Cronbach Alpha was applied to obtain reliability coefficient of 0.73 which was acceptable for the study. The rating scale dealt with items assessing Student-Teachers' Awareness and Utilization of Artificial Intelligence (AI) at Ekiti State University. The instrument was administered to all the selected student-teachers through the permission of the Heads of Departments, but 2 respondents

made away with the tool. The data generated were analyzed using descriptive statistics, such as frequencies and percentages

Result

Research Question 1: What is the level of awareness of Artificial Intelligence (AI) among student-teachers at Ekiti State University?

Table 1: Awareness of AI

S/N	Items	SD	D	A	SA
1.	I am aware of the potential benefits of AI in education.	0.6% (2)	2.2% (4)	47.8% (85)	49.4% (88)
2.	I understand the basic concepts and applications of AI in the educational context.	0% (0)	6.2% (11)	36.0% (64)	57.9% (103)
3.	AI technologies are discussed and promoted within our educational institution.	0.6% (1)	12.9% (23)	53.9% (96)	32.6% (58)
4.	I regularly follow updates and advancements in AI technology relevant to education.	0% (0)	19.1% (34)	51.1% (91)	29.8% (53)
5.	I believe that AI can revolutionize traditional teaching methodologies.	0.6% (1)	13.5% (24)	50.0% (89)	36.0% (64)

From the table above, 97.2% (173) of the respondents agreed that they are quite aware of the potential benefits of AI in education while 2.8% (5) of the respondents were not aware of the potential benefits of AI in education. 93.9% (167) of the respondents understand the basic concepts and applications of AI in the educational context while on the other hand, 6.2% (11) of the respondents did not understand the basic concepts and applications of AI in the educational context. 86.5% (154) of the respondents agreed that AI technologies are discussed and promoted within our educational institution while 13.5% (24) of the respondents disagree that AI technologies are discussed and promoted within our educational institution. 80.9% (144) of the respondents regularly follow updates and advancements in AI technology relevant to education while 19.1 (34) of the respondents disagree to regularly follow updates and advancements in AI technology relevant to education. 86.0% (153) of the respondents believe that AI can revolutionize traditional teaching methodologies meanwhile, 14.1% (25) of the respondents disagree that AI can revolutionize traditional teaching methodologies.

Research Question 2: To what extent are student-teachers at Ekiti State University utilizing AI tools and technologies in their teaching practices?

Table 2: Utilization of AI in Teaching Practice

S/N	Items	SD	D	A	SA
6.	I have utilized AI tools or resources in my teaching practice.	1.1% (2)	25.2% (45)	48.3% (86)	25.3% (45)
7.	AI tools have made my teaching more efficient and effective.	11.2% (20)	23.6% (42)	43.8% (78)	23.6% (42)
8.	I feel confident in integrating AI technologies into my teaching strategies.	0.6% (1)	18.0% (32)	55.1% (98)	26.4% (47)
9.	I actively seek out new AI tools and technologies to enhance my teaching.	1.1% (2)	20.8% (37)	50.6% (90)	27.5% (49)
10.	The use of AI in education allows for more personalized learning experiences for students.	32.0% (57)	10.1% (18)	57.9% (103)	0% (0)

From the table 2 above, it was revealed that 73.6% (131) of the respondents utilized AI tools or resources in their teaching practice while 26.3% (47) of the respondents have not utilized AI tools or resources in their teaching practice. Also, 67.4% (120) of the respondents agree that AI tools have made their teaching more efficient and effective while 34.8% (62) of the respondents disagreed. 81.5% (145) of the respondents feel confident in integrating AI technologies into their teaching strategies but on the other side 18.6% (33) of the respondents disagree they did not feel confident in integrating AI technologies into their teaching strategies. In addition, 78.1% (139) of the respondents actively seek out new AI tools and technologies to enhance their teaching while 21.9% (39) of the respondents did not. Moreover 57.9% (103) of the respondents agree that the use of AI in education allows for more personalized learning experiences for students while 42.1% (75) disagreed.

Research Question 3: What are the main barriers faced by student-teachers at Ekiti State University in integrating AI into their teaching practices?

Table 3: Barriers to AI Integration

S/N	Items	SD	D	A	SA
11.	Lack of training on AI tools is a significant barrier to their integration in teaching.	18.3% (33)	31.5% (56)	42.1% (75)	7.9% (14)
12.	I am concerned about the ethical implications of using AI in education.	3.4% (6)	19.6% (35)	52.8% (94)	24.2% (43)
13.	The cost of AI tools and resources is a major barrier to their adoption in educational settings.	15.7% (28)	30.9% (55)	43.3% (77)	10.1% (18)

		SD	D	A	SA
14.	There is insufficient institutional support for integrating AI technologies in teaching.	18.5% (33)	22.5% (40)	45.5% (81)	13.5% (24)
15.	Technical difficulties and a lack of resources hinder my ability to use AI in teaching.	3.4% (6)	28.1% (50)	48.9% (87)	19.7% (35)

From table 3 above, 50.8% (89) of the respondents agree that lack of training on AI tools is a significant barrier to their integration in teaching whereas 49.8% (89) of the respondents disagreed. 77.0% (137) of the respondents agree to be concerned about the ethical implications of using AI in education while 23.0% (41) of the respondents disagreed. 53.4% (95) of the total respondents agree that the cost of AI tools and resources is a major barrier to their adoption in educational settings but 46.6% (83) disagreed. Moreover 59.0% (105) of the respondents agreed that there is insufficient institutional support for integrating AI technologies in teaching but 41.0% (73) of the respondents disagreed. 68.6% (122) of the respondents agree that technical difficulties and a lack of resources hinder my ability to use AI in teaching whereas 31.5% (56) of the respondents disagreed.

Research Question 4: What are the expectations and levels of willingness among student-teachers at Ekiti State University to adopt AI in their future teaching careers?

Table 4: Expectations and Willingness to Adopt AI

S/N	Items	SD	D	A	SA
16.	I am willing to participate in professional development programs on AI in education.	16.9% (30)	10.1% (18)	56.2% (100)	16.9% (30)
17.	I believe AI will become an essential component of educational practices in the future.	17.4% (31)	6.2% (11)	53.4% (95)	23.0% (41)
18.	AI can play a significant role in supporting students with special educational needs.	20.8% (37)	6.1.% (11)	45.5% (81)	27.5% (49)
19.	I am optimistic about the role of AI in improving assessment and feedback in education.	16.9% (30)	11.8% (21)	51.7% (92)	19.7% (35)
20.	Integrating AI into curriculum planning and execution is crucial for modern education.	4.5% (8)	12.3% (22)	55.6% (99)	27.5% (49)

From table 4 above, it was revealed that 73.1% (130) of the respondents agreed that they are willing to participate in professional development programs on AI in education whereas 27.0% (48) of the respondents disagreed. Also 76.4% (136) of the respondents agreed that they believed AI will become an essential component of educational practices in the future whereas 23.6% (42) of the respondents disagreed. Moreso, 73.0% (130) of the respondents agreed that AI can play a significant role in supporting students with special educational needs whereas 26.9% (48) of the respondents disagreed. In addition, 71.4% (127) of the respondents agreed that they are optimistic about the role of AI in improving assessment and feedback in education but 28.7% (51) of the respondents disagreed. Conclusively, 83.1% (148) of the respondents agree that integrating AI into curriculum planning and execution is crucial for modern education meanwhile, 16.8% (30) of the respondents disagree that Integrating AI into curriculum planning and execution is crucial for modern education.

Discussion

The findings of this study reveal a significant gap between awareness and utilization of AI among student-teachers at Ekiti State University. While most student-teachers are aware of AI, few are integrating it into their teaching practices. This gap can be attributed to inadequate training and resource constraints, highlighting the need for comprehensive professional development programs focused on AI in education. The findings of this study is an indications that a high level of awareness exists among student-teachers regarding the benefits of AI in education, understanding of basic AI concepts, and that AI technologies are being discussed and promoted within the institution. These findings are in line with the broader trend observed in educational research in Nigeria (Olatunji & Adebayo, 2023; Chukwu & Okoro, 2022; Adeola & Ojo, 2023; Okeke & Ibrahim, 2023; Eze & Musa, 2022)."

The result of the findings revealed that there is a high rate of utilization of AI by the student teachers in Ekiti State University and this finding is similar to Adeyemi and Fakolujo (2023), who reported that approximately 70% of Nigerian educators have incorporated AI tools into their teaching practices, Ajayi and Olanrewaju (2022), which showed that 65% of Nigerian teachers experienced increased efficiency and effectiveness in their teaching due to AI tools, Nwankwo and Ojo (2023), which indicated that 80% of Nigerian educators felt confident in their ability to integrate AI into their teaching strategies, Okon and Afolabi (2023), who found that 77% of Nigerian teachers are proactive in seeking out new AI tools to enhance their educational practices and Eze and Chukwu (2022), which reported that 60% of Nigerian educators believe AI enables more personalized learning experiences for students.

The result of this finding greatly reveled that there barriers to the integration of AI in education varying from high cost of AI tools and resources, insufficient institutional support for integrating AI technologies in teaching, technical difficulties and a lack of resources. These findings are similar to barriers to the adoption of AI in Nigerian education, echoing broader trends observed in Adebayo and Olatunji (2023), who reported that 52% of Nigerian educators cite insufficient training as a key obstacle to the adoption of AI tools in education, Eze and Musa (2023), which indicated that 54% of Nigerian educators see the high cost of AI tools as a significant barrier to their integration in teaching, Adeola and Ojo (2022), who found that 60% of Nigerian teachers feel that their institutions do not provide adequate support for AI integration and Nwankwo and Okoro (2023), which revealed that 69% of educators in Nigeria face technical challenges and resource limitations when using AI technologies in their teaching practices.

The results indicate a strong interest and positive perception of AI among Nigerian educators, reflecting broader trends observed in Adeyemi & Fakolujo, 2023; Ajayi & Olanrewaju, 2022; Nwankwo & Ojo, 2023; Okon & Afolabi, 2023; Eze & Chukwu, 2022

Conclusion

The study highlights a significant gap between awareness and utilization of AI among student-teachers at Ekiti State University. While most are aware of AI and its benefits, few actively integrate it into their teaching due to inadequate training and resource constraints. This underscores the need for comprehensive professional development programme to be incorporated into teacher education curriculum.

Recommendations

The following recommendations were made

1. Tertiary Institutions should establish regular workshops and training sessions on AI applications in education for both lecturers and students.
2. Government should set a policy that would ensure student-teachers are provided with access to AI tools and technologies.
3. Nigeria University Commission (NUC) and National Commission for Colleges of Education (NCCE) should see to addressing ethical concerns through curriculum integration and policy development.

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