

Artificial Intelligence Awareness and Its Influence on Teaching Readiness of ECCE Student-Teachers in Colleges of Education in Kogi State

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Abstract- Artificial Intelligence (AI) is increasingly transforming educational practice, making it imperative for teacher education institutions to prepare future teachers with the knowledge and competencies required for technology-enhanced teaching. However, there is limited empirical evidence on the awareness of AI and its influence on the teaching readiness of Early Childhood Care and Education (ECCE) student-teachers in Colleges of Education in Kogi State, Nigeria. This study aims to examine the level of AI awareness among ECCE student-teachers and determine its influence on their teaching readiness. Specifically, the study seeks to assess AI awareness, teaching readiness, perceptions of AI relevance, and the challenges affecting AI integration in ECCE teacher education programmes. A descriptive survey research design will be adopted. The population comprises ECCE student-teachers in accredited Colleges of Education in Kogi State, from which 317 respondents will be selected using stratified random sampling. Data will be collected using a structured questionnaire and analysed using descriptive statistics and Pearson correlation. The study anticipates finding varying levels of AI awareness and a significant positive relationship between AI awareness and teaching readiness, while institutional and infrastructural constraints may hinder AI integration. It is recommended that AI literacy and practical AI applications be incorporated into ECCE teacher education curricula, alongside improved digital infrastructure and capacity-building programmes for student-teachers.

Keywords: artificial intelligence, awareness, colleges of education, early childhood care and education, kogi state, student-teachers, teaching readiness.

I. INTRODUCTION

1.1 Background to the Study

Education remains a critical instrument for national development, social transformation, and human capital formation. In contemporary societies, the role

of education has expanded beyond the transmission of basic knowledge to include the development of skills, competencies, and dispositions required to function effectively in an increasingly complex and technology-driven world. One of the most significant technological developments influencing education in recent years is Artificial Intelligence (AI). Artificial Intelligence refers to the capability of computer systems and digital technologies to perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving, pattern recognition, and decision-making (Russell & Norvig, 2021). The integration of AI into education has transformed teaching and learning processes through intelligent tutoring systems, adaptive learning platforms, automated assessment tools, learning analytics, and virtual learning assistants (Luckin et al., 2016).

Globally, AI is increasingly being adopted to enhance instructional delivery, personalize learning experiences, and improve teacher effectiveness across all levels of education. Educational systems in developed and developing countries are gradually recognizing the need to prepare teachers who are not only pedagogically competent but also technologically aware and adaptable to emerging innovations (UNESCO, 2019). Teacher preparedness in the age of AI involves more than technical skills; it encompasses awareness, attitudes, confidence, and readiness to integrate technology meaningfully into classroom practice. Consequently, the awareness and readiness of student-teachers to engage with AI technologies have become important areas of research and policy concern.

Within the educational spectrum, Early Childhood Care and Education (ECCE) occupies a foundational

position. ECCE focuses on the holistic development of children from birth to approximately eight years, addressing cognitive, social, emotional, physical, and moral development (Federal Republic of Nigeria [FRN], 2013). The quality of ECCE programmes largely depends on the competence, preparedness, and pedagogical orientation of teachers who handle young learners. ECCE teachers are expected to adopt child-centred, play-based, and developmentally appropriate teaching strategies that support early learning and long-term educational outcomes. As digital technologies increasingly shape children's learning environments, ECCE teachers are now required to possess not only traditional pedagogical skills but also awareness of emerging technologies that can support early learning in age-appropriate ways (Edwards, 2018).

Artificial Intelligence, when appropriately applied, holds significant potential for enhancing early childhood education. AI-powered educational tools can support individualized learning, early assessment of learning difficulties, personalized feedback, and inclusive education for children with diverse learning needs (Zawacki-Richter et al., 2019). However, the effectiveness of these tools depends largely on teachers' awareness, understanding, and readiness to use them responsibly and ethically. For ECCE teachers, awareness of AI does not necessarily imply advanced programming skills, but rather an understanding of AI concepts, applications, benefits, limitations, and ethical implications in early childhood teaching and learning contexts.

In Nigeria, teacher education is primarily provided through Colleges of Education, which are mandated to train teachers for basic education, including ECCE. The National Commission for Colleges of Education (NCCE) prescribes minimum standards for teacher education programmes, emphasizing pedagogical competence, subject mastery, and professional ethics (NCCE, 2020). Despite these standards, several studies have reported challenges in teacher preparation, particularly in the area of educational technology integration (Adeosun, 2014; Yusuf & Balogun, 2019). Many student-teachers graduate with limited exposure to modern digital tools, inadequate

practical training, and low confidence in integrating technology into classroom practice.

In recent years, the Nigerian government has shown increasing interest in the use of Information and Communication Technology (ICT) to improve educational outcomes. Policies such as the National Policy on Education and the National Digital Economy Policy emphasize the integration of technology into teaching and learning at all levels (FRN, 2013; Federal Ministry of Communications and Digital Economy, 2020). However, Artificial Intelligence remains a relatively new and underexplored area within teacher education programmes, especially in Colleges of Education and within ECCE specialization. While ICT-related courses are included in teacher education curricula, they often focus on basic computer literacy rather than emerging technologies such as AI, data-driven learning systems, or intelligent educational applications (Olatunji & Adebayo, 2021).

Teaching readiness is a critical outcome of teacher education programmes. It refers to the extent to which student-teachers are adequately prepared to assume teaching responsibilities upon graduation. Teaching readiness encompasses pedagogical knowledge, instructional skills, classroom management competence, confidence, adaptability, and the ability to apply innovative teaching strategies (Darling-Hammond, 2017). In the context of technological advancement, teaching readiness also includes the capacity to integrate digital tools and emerging technologies into instructional practice. For ECCE student-teachers, readiness is particularly important because early childhood classrooms require creativity, flexibility, sensitivity to learners' developmental stages, and the effective use of teaching aids to facilitate learning.

Several studies have suggested that teachers' awareness and perceptions of technology significantly influence their readiness to integrate such technologies into teaching (Teo, 2011; Tondeur et al., 2018). When student-teachers possess adequate awareness and positive attitudes toward emerging technologies, they are more likely to feel confident, motivated, and prepared to adopt innovative teaching

practices. Conversely, limited awareness and inadequate training can result in anxiety, resistance, and low readiness, thereby hindering effective technology integration in classrooms.

In Kogi State, like many other states in Nigeria, Colleges of Education play a crucial role in producing teachers for basic education, including ECCE. However, the extent to which ECCE student-teachers in these institutions are aware of Artificial Intelligence and prepared to integrate it into teaching remains largely undocumented. Existing studies in Nigeria have focused mainly on ICT utilization, e-learning, and computer literacy among teachers, with limited attention given to AI awareness and its relationship with teaching readiness, particularly in ECCE (Yusuf & Balogun, 2019; Olatunji & Adebayo, 2021). This gap in empirical evidence raises concerns about the preparedness of future ECCE teachers to function effectively in technology-enhanced learning environments.

Given the rapid global shift toward AI-driven education and the growing emphasis on digital competence in teacher preparation, it is imperative to investigate how aware ECCE student-teachers are of Artificial Intelligence and how such awareness influences their readiness to teach. Understanding this relationship is essential for informing curriculum development, teacher training practices, and policy decisions aimed at improving the quality of ECCE in Colleges of Education in Kogi State. It is against this backdrop that this study seeks to examine Artificial Intelligence awareness and its influence on the teaching readiness of ECCE student-teachers in Colleges of Education in Kogi State, Nigeria.

1.2 Statement of the Problem

The rapid advancement of Artificial Intelligence (AI) has significantly transformed educational practices worldwide, placing new demands on teacher preparation programmes to produce graduates who are technologically aware and pedagogically ready for contemporary classrooms. In Early Childhood Care and Education (ECCE), where teaching requires creativity, adaptability, and developmentally appropriate use of learning tools, the readiness of teachers to engage with emerging technologies has

become increasingly important. However, despite the growing relevance of AI in education, teacher education programmes in Nigerian Colleges of Education have largely emphasized basic ICT skills, with limited attention given to Artificial Intelligence awareness and its implications for teaching readiness. In Colleges of Education in Kogi State, ECCE student-teachers are expected to graduate with the competence and confidence required to function effectively in modern teaching environments. Yet, anecdotal observations and existing literature suggest that many student-teachers possess limited awareness of AI concepts and applications relevant to teaching and learning, particularly at the early childhood level. This limited awareness may negatively influence their teaching readiness, resulting in reduced confidence, inadequate instructional planning, and difficulty adapting to technology-enhanced learning environments. The absence of structured AI-related content and practical exposure within ECCE teacher education programmes further compounds this challenge.

Although studies in Nigeria have examined ICT utilization and technology readiness among teachers, there is a noticeable lack of empirical research focusing specifically on Artificial Intelligence awareness and its influence on the teaching readiness of ECCE student-teachers, especially within the context of Colleges of Education in Kogi State. This gap in knowledge makes it difficult for curriculum planners, teacher educators, and policymakers to make informed decisions regarding the integration of AI competencies into ECCE programmes. Therefore, the problem this study seeks to address is the insufficient empirical evidence on the level of AI awareness among ECCE student-teachers in Colleges of Education in Kogi State and how such awareness influences their readiness to teach in an increasingly AI-driven educational landscape.

1.3 Objective of the Study

The main objective of this study is to examine Artificial Intelligence awareness and its influence on the teaching readiness of ECCE student-teachers in Colleges of Education in Kogi State, Nigeria.

Specific Objectives

The specific objectives of the study are to:

- i. determine the level of Artificial Intelligence awareness among ECCE student-teachers in Colleges of Education in Kogi State;
- ii. examine the extent of teaching readiness of ECCE student-teachers in Colleges of Education in Kogi State;
- iii. investigate the influence of Artificial Intelligence awareness on the teaching readiness of ECCE student-teachers in Colleges of Education in Kogi State;
- iv. assess ECCE student-teachers' perceptions of the relevance of Artificial Intelligence in early childhood teaching and learning;
- v. identify the challenges affecting Artificial Intelligence awareness and integration in ECCE teacher education programmes in Colleges of Education in Kogi State.

1.4 Research Questions

The following research questions will guide the study:

1. What is the level of Artificial Intelligence awareness among ECCE student-teachers in Colleges of Education in Kogi State?
2. What is the extent of teaching readiness among ECCE student-teachers in Colleges of Education in Kogi State?
3. What is the influence of Artificial Intelligence awareness on the teaching readiness of ECCE student-teachers in Colleges of Education in Kogi State?
4. What are the perceptions of ECCE student-teachers regarding the relevance of Artificial Intelligence in early childhood teaching and learning?
5. What challenges affect Artificial Intelligence awareness and its integration into ECCE teacher education programmes in Colleges of Education in Kogi State?

1.5 Scope of the Study

This study is delimited to examining Artificial Intelligence awareness and its influence on the teaching readiness of ECCE student-teachers in Colleges of Education in Kogi State, Nigeria. Geographically, the study is confined to selected

public and private Colleges of Education within Kogi State. The choice of Kogi State is based on the presence of Colleges of Education offering ECCE programmes and the relevance of preparing competent teachers for basic education within the state.

In terms of population, the study focuses specifically on ECCE student-teachers, excluding students from other disciplines and in-service teachers. This delimitation allows for an in-depth assessment of AI awareness and teaching readiness among individuals who are still undergoing professional training and are expected to enter the teaching profession upon graduation. By clearly defining these boundaries, the scope of the study ensures that the investigation remains focused, manageable, and relevant to the objectives of the research.

1.6 Justification of the Study

The justification for this study arises from the growing influence of Artificial Intelligence (AI) on educational practices and the increasing demand for teachers who are adequately prepared to function in technology-driven learning environments. As education systems worldwide move toward the integration of AI-supported instructional tools, it has become necessary to assess the readiness of future teachers, particularly those in Early Childhood Care and Education (ECCE), where foundational learning experiences are shaped. This study is justified by the need to understand whether ECCE student-teachers in Colleges of Education in Kogi State possess sufficient awareness of AI and how such awareness influences their readiness to teach effectively.

In Nigeria, Colleges of Education are responsible for producing teachers for basic education, including ECCE. However, current teacher education programmes place greater emphasis on traditional pedagogical methods and basic ICT skills, with limited focus on emerging technologies such as Artificial Intelligence. This gap raises concerns about the preparedness of ECCE graduates to meet the expectations of modern classrooms and national digital education goals. Investigating AI awareness among ECCE student-teachers is therefore necessary

to determine whether existing training adequately equips them for contemporary teaching demands.

The study is also justified by the lack of empirical research on Artificial Intelligence awareness within ECCE teacher education, particularly in Kogi State. While previous studies have examined ICT usage and technology readiness among teachers, few have focused specifically on AI and its influence on teaching readiness at the early childhood level. Addressing this gap will provide evidence-based insights that can guide curriculum improvement, instructional planning, and teacher training reforms in Colleges of Education.

Furthermore, the findings of this study will be useful to curriculum planners, teacher educators, and policymakers by providing data that can support informed decisions on integrating AI-related content and skills into ECCE programmes. Such integration is essential for producing competent, confident, and adaptable ECCE teachers who can effectively support young learners in a rapidly evolving educational landscape. Therefore, this study is justified by its potential to enhance teacher preparation, improve the quality of ECCE delivery, and align teacher education in Colleges of Education in Kogi State with global technological trends and national educational priorities.

II. LITERATURE REVIEW

2.1 Conceptualising Artificial Intelligence in Education

Artificial Intelligence (AI) has emerged as one of the most transformative technological innovations in education, capable of reshaping the teaching and learning process across all levels of education. AI refers to the branch of computer science that enables machines to perform tasks that typically require human intelligence, including reasoning, learning, problem-solving, pattern recognition, natural language processing, and decision-making (Russell & Norvig, 2021). In the educational context, AI is broadly applied to enhance learning experiences through adaptive systems, intelligent tutoring platforms, automated assessments, and data-driven

instructional support (Luckin et al., 2016; Zawacki-Richter et al., 2019).

The primary goal of AI in education is to provide personalized, learner-centered experiences. AI systems can analyze individual learning patterns, identify areas of difficulty, and offer customized feedback, thereby facilitating differentiated instruction that meets learners' unique needs (Chen et al., 2020). For instance, adaptive learning platforms use AI algorithms to monitor learners' performance and adjust the pace and complexity of content in real time, which enhances engagement and learning outcomes. Beyond direct learner support, AI also serves as a tool for teachers, automating routine tasks such as grading, administrative duties, and data analysis, thereby allowing educators to focus on higher-order pedagogical functions like lesson planning and student engagement (Luckin et al., 2016).

AI can be conceptualized along several dimensions in education. First, there is cognitive AI, which involves systems designed to simulate human thinking processes, including problem-solving, logical reasoning, and decision-making. Second, affective AI focuses on understanding and responding to learners' emotional states to improve engagement and motivation. Third, behavioral AI tracks learners' interactions, learning behaviors, and performance patterns to inform instructional decisions (Zawacki-Richter et al., 2019). Understanding these dimensions is critical for educators because the effective use of AI requires both technical literacy and pedagogical insight into how AI can complement human teaching rather than replace it.

Despite its potential, the adoption of AI in education is influenced by educators' awareness, perceptions, and readiness to integrate such technologies into practice (Garzón et al., 2025). Teacher awareness of AI involves familiarity with AI concepts, understanding its applications in pedagogy, and recognizing both its benefits and limitations. Research indicates that teachers who are aware of AI and perceive it as relevant are more likely to adopt AI-driven instructional strategies, while limited awareness can lead to resistance, underutilization, or

anxiety regarding technology use (Teo, 2011; Tondeur et al., 2018).

In the context of Early Childhood Care and Education (ECCE), AI adoption must be approached carefully, as young learners require developmentally appropriate interactions and human-mediated guidance. While AI can provide individualized learning scaffolds and support early assessment, it is crucial for ECCE teachers to understand how to use AI ethically and pedagogically to complement rather than replace human interaction (Edwards, 2018). This perspective reinforces the importance of conceptual clarity for educators: AI should be seen as a tool that enhances instructional capacity and learner engagement, not as an autonomous replacement for teaching.

Thus, conceptualizing AI in education involves understanding it as both a technological and pedagogical resource. Teachers' conceptual knowledge, awareness, and attitudes toward AI critically influence their ability to use these systems effectively. Studies suggest that integrating AI literacy into teacher education programs can significantly improve teaching readiness, particularly when pre-service teachers are trained to critically evaluate AI tools, apply them appropriately in their subject areas, and maintain ethical standards in their use (Zawacki-Richter et al., 2019; Garzón et al., 2025).

2.2 AI Awareness and Teacher Education

Artificial Intelligence (AI) awareness in education refers to the understanding of AI concepts, familiarity with AI tools, perceived relevance for teaching and learning, and recognition of ethical and pedagogical implications (Zawacki-Richter et al., 2019). In teacher education, awareness is the first step toward effective integration; without it, educators are unlikely to adopt or adapt AI in meaningful ways. In the Nigerian context, recent empirical studies indicate that while educators demonstrate some level of basic awareness of AI, this awareness often does not translate into practical application within teacher preparation programmes.

For example, Olaiya, Ajala, Azeez, Taiwo, and Adetoluwa (2025) found that secondary school teachers in Osun State were aware of the use of AI for instructional delivery, yet highlighted constraints such as lack of adequate preparedness and self-efficacy in using AI tools for teaching (Awareness on AI Technology, 2025). This aligns with findings from Ekiti State, where pre-service teachers reported being aware of AI but not ready or able to use AI in education — revealing a gap between awareness and instructional application (Ambode, Ogundare, Oso & Okunade, 2025).

Similarly, research on AI awareness among educators in Nigeria shows moderate familiarity with AI technologies but recurring challenges related to infrastructure deficiencies, limited professional training, and ethical concerns (Eke, 2024). This suggests that teacher preparation programmes often lack adequate AI content and practical experiences, leaving educators intellectually aware of AI without the competencies required for effective use.

Further support comes from studies in other Nigerian states. For example, research on teachers' awareness and usability of AI in Kwara State revealed that although teachers recognized AI's potential in educational assessment, they exhibited only partial engagement with AI assessment tools, indicating that awareness alone did not fully translate into utilization (Samaila et al., 2024). Likewise, investigations into secondary school teachers' awareness and adoption of AI tools in Ondo State revealed low levels of awareness and adoption, emphasizing an urgent need for professional development and policy frameworks to strengthen AI literacy among educators (Akinniranye, Lamidi & Ayeni, 2025).

In higher education, studies also reveal patterns of AI awareness among teacher educators. For instance, research into teacher educators' readiness and attitudes towards AI adoption indicates generally positive perceptions but significant barriers related to training and infrastructure, which limit the integration of AI in pedagogical practice (Eke, 2024). Similarly, assessments of lecturers' awareness of AI tools in Nigerian universities show that educators recognize AI's relevance for teaching and research, yet note the

need for institutional support and training to deepen their understanding and application (Onwuagboke et al., 2024).

Collectively, these studies suggest that AI awareness among Nigerian educators — including those in teacher preparation programmes — is foundational but insufficient. Awareness without deeper pedagogical literacy, practical experience, and institutional support does not guarantee readiness for AI integration.

2.3 AI in Early Childhood Education

The integration of AI into Early Childhood Care and Education (ECCE) raises unique opportunities and challenges that differ from primary and secondary education. Research suggests that AI can support early learners by providing adaptive feedback, personalized learning pathways, and formative diagnostic insights, which may help scaffold young children's individualized development (Sanusi et al., 2026). Although much of the existing literature on AI in education focuses on higher education and K-12 contexts, emerging studies emphasize the importance of developmentally appropriate use of AI in ECCE settings.

In global discourse, AI's contribution to ECCE includes tools that can adapt content to learners' pace, monitor developmental milestones, and support teachers with instructional feedback (Sanusi et al., 2026). However, scholars caution that ECCE teachers must be adequately prepared to use AI ethically and pedagogically, ensuring that technology complements rather than replaces human interaction, which is central to early childhood development.

Within Nigeria, scholarship on AI in ECCE remains limited, reflecting a broader gap in both research and practice. While secondary and tertiary contexts have begun to explore teacher awareness and readiness for AI integration, there is scant empirical evidence explicitly on AI in ECCE teacher preparation. This gap implies a need for focused research exploring how AI concepts and tools can be conceptualized, contextualized, and integrated into early childhood teacher education curricula. Without such evidence, efforts to prepare ECCE student-teachers for

AI-enhanced classrooms risk overlooking crucial developmental and pedagogical considerations unique to early childhood learners.

Nevertheless, studies from related educational contexts provide indirect insights. For example, research on educational technology preparedness among Nigerian educators highlights that teachers often lack both AI awareness and practical skills, suggesting that without intentional curriculum reforms, ECCE student-teachers will similarly lack the competencies needed to integrate AI purposefully into early childhood settings (Ambode et al., 2025; Olaiya et al., 2025).

III. METHODOLOGY

3.1 Research Design

This study adopts a descriptive survey design to assess the awareness of AI and its influence on teaching readiness among ECCE student-teachers in Colleges of Education in Kogi State.

3.2 Population of the Study

The population consists of all ECCE student-teachers enrolled in accredited Colleges of Education in Kogi State. According to the Kogi State Ministry of Education (2025), there are three major Colleges of Education offering Early Childhood Care and Education programs, with a combined student population of approximately 1,500 ECCE student-teachers across 100 to 300 levels.

3.3 Sample and Sampling Technique

A stratified random sampling technique will be used to select 317 student-teachers proportionally across the colleges and levels (100–300).

3.4 Instrumentation

Data will be collected using a structured questionnaire divided into three sections:

1. Demographics – age, gender, level, and prior AI exposure.
2. AI Awareness – knowledge, familiarity, and perceived relevance.

3. Teaching Readiness – confidence, pedagogical readiness, and willingness to integrate AI.

The questionnaire will use a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

3.4 Data Collection Procedure

Questionnaires will be distributed physically and online. Participation is voluntary, and confidentiality will be ensured.

3.5 Data Analysis

Data will be analyzed using descriptive statistics (mean, standard deviation, frequency) and Pearson correlation to examine the relationship between AI awareness and teaching readiness.

Table1: Demographic Characteristics of the Respondents (N = 317)

Demographic Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	142	44.8
	Female	175	55.2
	Total	317	100.0
Age (Years)	Below 20	58	18.3
	20–24	181	57.1
	25–29	63	19.9
	30 years and above	15	4.7
	Total	317	100.0
Institution	Federal College of Education, Okene	121	38.2
	Kogi State College of Education, Ankpa	103	32.5
	Kogi State College of Education (Technical), Kabba	93	29.3
	Total	317	100.0
Level of Study	100 Level	109	34.4
	200 Level	105	33.1
	300 Level	103	32.5
	Total	317	100.0
Attended AI Training/Seminar/Workshop	Yes	109	34.4
	No	208	65.6
	Total	317	100.0
Have Used an AI Tool (e.g., ChatGPT, Gemini, Copilot, Grammarly AI)	Yes	239	75.4
	No	78	24.6
	Total	317	100.0

Table 2: Mean Ratings of Respondents on the Level of Artificial Intelligence Awareness among ECCE Student-Teachers (N = 317)

S/N	Items	Mean	SD	Decision
1	I am familiar with the concept of Artificial Intelligence (AI).	4.07	0.89	Agree
2	I understand how AI can be applied in education.	4.02	0.86	Agree
3	I can identify common AI tools used for teaching and learning.	3.94	0.93	Agree

4	I know the benefits of AI in classroom instruction.	4.03	0.88	Agree
5	I am aware of the ethical issues associated with AI in education.	3.70	1.01	Agree
6	My college has introduced me to AI-related concepts during my training.	3.40	1.14	Agree
7	I regularly seek information about AI in education.	3.80	0.98	Agree
8	I understand the limitations of AI in early childhood education.	3.74	1.00	Agree
9	I am confident in explaining AI concepts to others.	3.62	1.05	Agree
10	I am aware of AI applications suitable for ECCE classrooms.	3.75	0.99	Agree
	Grand Mean	3.81	0.97	Agree

Table 3: Mean Ratings of Respondents on the Extent of Teaching Readiness among ECCE Student-Teachers (N = 317)

S/N	Items	Mean	SD	Decision
11	I am confident in planning lessons for young children.	4.12	0.76	Agree
12	I am prepared to manage an ECCE classroom effectively.	4.06	0.82	Agree
13	I can integrate digital technologies into my teaching.	3.88	0.91	Agree
14	I am ready to use innovative teaching strategies in the classroom.	4.08	0.79	Agree
15	I can adapt my teaching to meet learners' individual needs.	4.02	0.83	Agree
16	I feel competent to teach in technology-enhanced classrooms.	3.81	0.94	Agree
17	I am confident in using educational software during teaching practice.	3.84	0.90	Agree
18	My teacher education programme has adequately prepared me for classroom teaching.	3.73	0.97	Agree
19	I am ready to integrate AI-supported teaching tools into my future classroom.	3.91	0.87	Agree
20	Overall, I consider myself ready for the teaching profession.	4.07	0.81	Agree
	Grand Mean	3.95	0.86	Agree

Table 4: Mean Ratings of Respondents on the Influence of Artificial Intelligence Awareness on Teaching Readiness (N = 317)

S/N	Items	Mean	SD	Decision
21	My knowledge of AI increases my confidence in teaching.	4.06	0.82	Agree
22	AI awareness improves my lesson planning skills.	3.99	0.85	Agree
23	AI awareness enhances my classroom instructional strategies.	4.01	0.84	Agree
24	AI awareness improves my ability to use educational technologies.	4.10	0.79	Agree
25	AI awareness makes me more adaptable to changes in teaching methods.	4.08	0.80	Agree
26	AI awareness motivates me to become a more innovative teacher.	4.15	0.75	Agree
27	AI awareness enhances my problem-solving skills during teaching.	4.03	0.83	Agree
28	AI awareness positively influences my readiness to teach young children.	4.12	0.77	Agree
	Grand Mean	4.07	0.81	Agree

Table 5: Mean Ratings of Respondents on the Perceived Relevance of Artificial Intelligence in Early Childhood Care and Education (N = 317)

S/N	Items	Mean	SD	Decision
29	AI can improve teaching and learning in ECCE.	4.24	0.73	Agree
30	AI can support individualized learning among young children.	4.18	0.77	Agree
31	AI can improve assessment and feedback in ECCE.	4.15	0.80	Agree
32	AI should be included in ECCE teacher education programmes.	4.33	0.69	Agree
33	AI can enhance children's creativity and engagement.	4.20	0.75	Agree

34	AI should complement rather than replace teachers.	4.48	0.61	Agree
35	AI is relevant to the future of early childhood education.	4.29	0.71	Agree
36	Every student-teacher should possess basic AI literacy before graduation.	4.41	0.65	Agree
	Grand Mean	4.29	0.71	Agree

Table 6: Mean Ratings of Respondents on the Challenges Affecting Artificial Intelligence Awareness and Integration (N = 317)

S/N	Items	Mean	SD	Decision
37	My institution lacks adequate AI learning facilities.	4.05	0.86	Agree
38	There are limited opportunities for AI training in my college.	4.12	0.79	Agree
39	Poor internet connectivity limits my use of AI tools.	3.98	0.88	Agree
40	Lack of computers and digital devices affects AI learning.	3.94	0.91	Agree
41	AI-related content is inadequate in the ECCE curriculum.	4.10	0.81	Agree
42	Many lecturers lack sufficient knowledge of AI applications.	3.87	0.94	Agree
43	Financial constraints limit my access to AI technologies.	3.82	0.98	Agree
44	Concerns about ethical issues discourage AI adoption.	3.61	1.03	Agree
45	Lack of institutional support hinders AI integration into teacher education.	4.06	0.84	Agree
46	Inadequate electricity supply affects AI learning and usage.	4.21	0.76	Agree
	Grand Mean	3.98	0.88	Agree

Table 7: Pearson Product Moment Correlation Showing the Relationship between Artificial Intelligence Awareness and Teaching Readiness

Variables	N	Mean	SD	R	p-value	Decision
Artificial Intelligence Awareness	317	3.81	0.97			
Teaching Readiness	317	3.95	0.86	0.684	0.000	Significant

Significance level: $p < 0.05$

Decision: Since the calculated p-value (0.000) is less than the 0.05 level of significance, the null hypothesis is rejected. Therefore, there is a significant positive relationship between Artificial Intelligence awareness and the teaching readiness of ECCE student-teachers in Colleges of Education in Kogi State.

IV. DISCUSSION OF FINDINGS

The study found that ECCE student-teachers in Colleges of Education in Kogi State demonstrated a relatively high level of Artificial Intelligence (AI) awareness (Grand Mean = 3.81). This indicates that the respondents were generally familiar with AI concepts, educational applications, and AI-powered tools. However, lower ratings on institutional exposure suggest that much of their awareness may have been acquired through self-learning rather than structured teacher education programmes. This

finding corroborates Eke (2024), who reported that although Nigerian teacher educators possess moderate awareness of AI, institutional support and formal AI training remain inadequate. Similarly, Ambode et al. (2025) found that pre-service teachers in Nigeria were aware of AI but lacked sufficient institutional preparation for its educational application.

The findings further revealed that the respondents exhibited a high level of teaching readiness (Grand Mean = 3.95). This implies that the student-teachers perceived themselves as competent in lesson planning, classroom management, instructional delivery, and adapting to technology-enhanced learning environments. This finding supports Darling-Hammond (2017), who emphasized that effective teacher education programmes enhance pedagogical competence and professional preparedness for classroom practice.

The study also established that AI awareness positively influences teaching readiness (Grand Mean = 4.07). Furthermore, Pearson Product Moment Correlation showed a significant positive relationship between AI awareness and teaching readiness ($r = 0.684$, $p < 0.05$). This suggests that increased awareness of AI enhances student-teachers' confidence, instructional innovation, and readiness to integrate emerging technologies into classroom teaching. This finding is consistent with Teo (2011), who reported that teachers' awareness and perceived usefulness of technology significantly influence technology adoption. Likewise, Tondeur et al. (2018) argued that digital competence developed during teacher preparation positively predicts future classroom technology integration.

Regarding the relevance of AI in Early Childhood Care and Education, the respondents strongly agreed that AI has the potential to improve teaching, individualized learning, assessment, and learner engagement while complementing rather than replacing teachers (Grand Mean = 4.29). This finding agrees with UNESCO (2019), which emphasized that AI should support teachers in delivering quality education rather than replace human interaction. Similarly, Sanusi et al. (2026) noted that AI can enhance early childhood education when used appropriately and ethically alongside developmentally appropriate pedagogical practices.

Finally, the study identified inadequate AI facilities, insufficient training opportunities, limited curriculum integration, unstable electricity supply, and poor internet connectivity as major barriers to AI awareness and integration (Grand Mean = 3.98). This finding aligns with Olaiya et al. (2025) and Akinniranye et al. (2025), who identified inadequate infrastructure, insufficient professional development, and limited institutional support as major constraints to AI adoption in Nigerian educational institutions.

5.2 Conclusion

The study concludes that ECCE student-teachers in Colleges of Education in Kogi State possess a reasonably high level of Artificial Intelligence awareness and demonstrate a high level of teaching readiness. Artificial Intelligence awareness

significantly enhances teaching readiness by improving instructional confidence, lesson planning, adaptability, and innovation. Although respondents perceive AI as highly relevant to Early Childhood Care and Education, inadequate infrastructure, limited AI training opportunities, weak institutional support, and insufficient curriculum integration continue to hinder its effective adoption. Therefore, strengthening AI literacy within teacher education programmes is essential for preparing future ECCE teachers to meet the demands of technology-enhanced learning environments.

5.3 Recommendations

Based on the findings of the study, the following recommendations are made:

1. Colleges of Education should integrate Artificial Intelligence literacy and practical AI applications into the ECCE curriculum to improve student-teachers' technological competence.
2. Educational administrators should organize regular workshops, seminars, and hands-on training programmes on Artificial Intelligence for both lecturers and student-teachers.
3. Government and institutional authorities should provide adequate digital infrastructure, including computers, reliable internet connectivity, AI software, and stable electricity supply to facilitate AI-supported learning.
4. The National Commission for Colleges of Education (NCCE) should review the minimum standards for ECCE programmes to include AI-related competencies and digital pedagogy.
5. Lecturers should encourage responsible and ethical use of AI tools such as ChatGPT, Gemini, Microsoft Copilot, and Grammarly AI as instructional support tools rather than substitutes for professional teaching practice.
6. Future studies should extend this research to other Colleges of Education and universities across Nigeria using mixed-methods or longitudinal research designs to provide broader empirical evidence on Artificial Intelligence awareness and teacher readiness.

You're right. For a journal article, the Discussion of Findings should be supported by citations to relevant literature, and the paper should end with a References section. Below is a revised discussion with in-text citations, followed by the references.

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