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Review Article

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Assessment of the Application of Artificial Intelligence (AI) in Classroom Management in Secondary Schools in Adamawa State in Nigeria

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Abstract: *Educators are actively seeking methods to seamlessly incorporate Artificial Intelligence (AI) into education curricula, recognizing the importance of equipping students for the challenges of an AI-driven future. It is against this backdrop that this paper is designed to assess the application of into Classroom Management in Secondary Schools in Adamawa State, Nigeria. This research utilized a descriptive survey research design. The research was carried out in Yola-North LGA, Adamawa State, Nigeria, with a focus on Secondary Schools. The data gathered for the study were analyzed using simple percentages for the demographic data, while mean scores and standard deviations were employed to address the research questions posed in the study. The evaluation of the implementation of AI in classroom management uncovers a scenario marked by considerable potential, moderate current usage, and significant infrastructural challenges. This shows that despite the benefits of integrating AI in classroom management, the deployment of AI in classroom management is also impeded by various obstacles, including: concerns regarding data privacy and security, the risk of algorithmic bias, resistance to change from educators and administrators, insufficient infrastructure, the high costs associated with AI technology implementation, and cultural and language barriers. Based on the above conclusion, the researchers recommend: Educators need to be trained not only in the utilization of AI tools but also in the principles of data stewardship and instead of relying on straightforward word-for-word translation, educational institutions should leverage AI models that facilitate 'translanguaging'—a process in which multilingual individuals draw upon their entire linguistic repertoire.*

Keywords: *Assessment, Artificial Intelligence (AI), Classroom Management, Secondary Schools in Adamawa State, Nigeria.*

INTRODUCTION

Technology is progressively infiltrating every sector of the economy across all nations worldwide. The educational sector is not excluded from the various technological advancements and developments that have occurred in the twenty-first century. Numerous technologies utilized in teaching and assessment, such as computer-assisted instruction and

computer-based testing, have found significant application within the education field. Alonsode-Castro and García-Peñalvo [1] contend that the global progression of technology has impacted individuals' lifestyles in areas such as employment, health, education, and training, with these impacts being both beneficial and detrimental.

Rapid advancements in Artificial Intelligence (AI) technology have initiated transformative changes across numerous industries. Educators are actively seeking methods to seamlessly incorporate AI into higher education curricula, recognizing the importance of equipping students for the challenges of an AI-driven future. Recent curricular innovations bolster the case for technology integration in science education, as noted by Nicolaou and Petrou [2]. There is an increasing consensus that the incorporation of AI technology into education can empower teachers to facilitate students' self-directed learning [3] establish collaborative learning communities, and enhance creativity in grasping concepts [4].

Globally, educators and policymakers are wrestling with the best strategies to leverage AI's potential—especially regarding personalized learning—while addressing concerns related to data privacy, algorithmic bias, and unequal access [5]. In Nigeria, AI emerges in the context of a long-standing effort to broaden educational access, enhance quality, and address significant resource disparities [6][7].

Artificial Intelligence (AI) has developed into a transformative influence across various industries, such as healthcare, finance, and transportation. Its widespread adoption in education is expected to bring about a significant change in teaching methods, learning experiences, and administrative processes [8][9]. It is against this backdrop that this paper is designed to assess the application of Artificial Intelligence (AI) into Classroom Management in Secondary Schools in Adamawa State, Nigeria.

Objectives of the study

The main objective of the paper is to assess the application of Artificial Intelligence (AI) into Classroom Management in Secondary Schools in Adamawa State, Nigeria. Specifically, the chapter is designed to:

a. Identify the Core Principles Guiding AI Integration in classroom Management
b. Assess the key areas of AI Applications in Classroom Management
c. Examine the benefits of AI application in classroom management
d. Enumerate the challenges of Integrating AI in classroom management

Research Questions

The following research questions were raised to guide the study:

a. What are the Core Principles Guiding AI Integration in classroom Management?
b. What are the key areas of AI Applications in Classroom Management?
c. What are the benefits of AI application in classroom management?
d. What are the challenges of Integrating AI in classroom management?

LITERATURE REVIEW

Artificial Intelligence is not inherently intelligent; instead, it possesses the potential to execute tasks typically regarded as intelligent with a certain degree of success. The term Artificial

Intelligence (AI), introduced by John McCarthy in 1955, refers to the capability of machines or computers to function in ways that can be characterized as intelligent, akin to the methods employed by humans in performing tasks by McCarthy *et al*. in 1955) In an educational context, Tan (2023) [10] describes AI as "computers that execute cognitive tasks usually linked to human cognition, particularly in learning and problem-solving." This term encompasses a variety of technologies and methodologies, including Machine Learning (ML), Computer Vision, and Natural Language Processing (NLP). As noted by Copeland (2024), artificial intelligence denotes the ability of a computer or robot, under computer control, to perform tasks that are generally executed by intelligent beings.

The fundamental principles that guide the integration of AI in classroom management include: the principle of Equity and Inclusion [11], the principle of Ethical and Responsible Use (Afolabi, 2023), the principle of Human-Centered Learning [12] and the principle of fostering local capacity through teacher training, curriculum reform, and support for indigenous innovation, which is vital for achieving sustainable impact [13]. Artificial Intelligence (AI) can be utilized to enhance classroom management in a variety of efficient and effective ways.

Below are several examples of how AI can be implemented in classroom management, as outlined by Panchal and Mohammad (2020) [14] and Tim *et al*. (2023) [15]: Smart Scheduling (SS), Personalized Learning (PL), Learner Engagement (LE), Behavior Management (BM), and Grading and Assessment. The incorporation of Artificial Intelligence (AI) within the educational sector has initiated a significant transformation towards a more technology-oriented environment, showcasing its effectiveness as a novel approach. The widespread impact of computer technology has triggered an increase in online learning across the nation, resulting in favorable educational results [16].

Among these advantages are: Support in teaching [17] aiding and enhancing the learning process [18], Improved personalization of education [19] and advanced virtual classrooms [20]. The primary obstacles to the integration of Artificial Intelligence in Classroom Management encompass concerns regarding data privacy and security, the risk of algorithmic bias, and the reluctance to adapt among educators and administrators [21-23][24]. Additionally, there are issues related to inadequate infrastructure (Adeoye and Amusa, 2019), challenges in teacher training and resistance (TTR) [13], the high costs associated with AI technology implementation, and the fact that many public schools in Nigeria do not possess the financial means to acquire AI tools and platforms [25] as well as cultural and language barriers (CLB) [26].

METHODOLOGY

This research utilized a descriptive survey research design to investigate the integration of Artificial Intelligence (AI) in Classroom Management within Secondary Schools located in Yola-North LGA, Adamawa State, Nigeria. The descriptive design was appropriate for gathering quantitative data from a representative sample, facilitating generalizations to the broader population. The research was carried out in Yola-North LGA, Adamawa State, Nigeria, with a focus on Secondary Schools. The target population consisted of all 2,162 full-time teachers employed in secondary schools within Yola-North LGA, Adamawa State, Nigeria. The sample size was determined using Taro Yamane (1967) formula for sample size from a finite population using the formular:

$$\mathrm{n} = \frac{N}{1+N(e)^2} \quad \ldots (1)$$

Where:

n = the sample size,

N = the population size

e = the level of precision.

Using this formula, the calculated sample size was 338 respondents comprising. The primary tool utilized for data collection was a structured questionnaire, which was divided into two distinct sections. Section A concentrated on gathering demographic information regarding the respondents, while Section B evaluated the Core Principles Guiding AI Integration in Classroom Management. This section also examined the key areas of AI Applications in Classroom Management, the advantages of AI implementation in this context, and the challenges associated with integrating AI into classroom management. The questionnaire comprised 18 items, which were formulated using a modified 4-point Likert scale that included the options: Strongly agree, Agree, Disagree, and Strongly disagree. The questionnaires were administered in person to the respondents, and the completed forms were collected on-site to ensure a high response rate. The data gathered for the study were analysed using simple percentages for the demographic data, while mean scores and standard deviations were employed to address the research questions posed in the study.

RESULT AND DISCUSSION

From the summary of the analysis of responses in Table 1, it is clear that despite the fact that 338 questionnaires were distributed to the 338 respondents sampled for the study, 322 questionnaires were returned and well filled (representing 95.3 percent) while the remaining 16 questionnaire (representing 4.7 percent) were either not well filled or not returned. This means that majority of the questionnaire 322 (that 95.3 percent) were returned and well filled. All the analysis in the study will be done based on the 322 questionnaire that were returned and well filled.

Table 1: Questionnaire return rate

VARIABLE	FREQUENCY	PERCENTAGE
Questionnaire Returned and well filled	322	95.3
Questionnaire not Returned or not well filled	16	4.7
TOTAL	**338**	**100**

[Source: Field survey January, 2026]

Table 2: Distribution of respondents by gender

VARIABLE	FREQUENCY	PERCENTAGE
Feale	216	67.1
Male	106	32.9
TOTAL	**322**	**100**

[Source: Field survey January, 2026]

From the data presented in Table 2, it is clear that 216 (representing 67.1 Percent) of the respondents are female while the remaining 106 (representing 32.9 percent) respondents were male. This means majority of the respondents in this study were female with 67.1 percent of the respondents.

Answering the research questions

Research Question One: What are the Core Principles Guiding AI Integration in classroom Management?

From the summary in Table 3 it is clear that with a cumulative mean scores of 2.69 and a cumulative standard deviation of 0.66 the respondents agreed the core principles Guiding AI Integration in classroom Management are: The principle of Equity and inclusion (2.56), the principle of Ethical and responsible use (2.75), the principle of Human-centered learning (2.82), and the principle of building local capacity through teacher training, curriculum reform, and support for indigenous innovation is essential for sustainable impact (2.64).

Table 3: The core principles guiding AI integration in classroom management

S/N	Items	Mean	S.D.	Decision
1	The principle of Equity and inclusion	2.56	0.64	Agreed
2	The principle of Ethical and responsible use	2.75	0.67	Agreed
3	The principle of Human-centered learning	2.82	0.68	Agreed
4	The principle of building local capacity through teacher training, curriculum reform, and support for indigenous innovation is essential for sustainable impact	2.64	0.65	Agreed
	TOTAL	**2.69**	**0.66**	**Agreed**

[Source: Field survey January, 2026]

Research Question Two: What are the key areas of AI Applications in Classroom Management?

As shown in Table 4, with cumulative mean score of 2.66 and a cumulative standard deviation of 0.59 the respondents agreed that the key areas of AI Applications in Classroom Management are: Smart Scheduling (SS), personalized Learning (PL), Learner Engagement (LE), Behavior Management (BM), and Grading and Assessment.

Table 4: The key areas of AI applications in classroom management

S/N	Items	Mean	S.D.	Decision
1	Smart Scheduling (SS)	2.59	0.54	Agreed
2	personalized Learning (PL)	2.66	0.62	Agreed
3	Learner Engagement (LE)	2.77	0.61	Agreed
4	Behavior Management (BM)	2.60	0.56	Agreed
5	Grading and Assessment	2.68	0.64	Agreed
	TOTAL	2.66	0.59	Agreed

[Source: Field survey January, 2026]

Research Question Three: What are the benefits of AI application in classroom management?

The summary of analysis presented in Table 5 shows that the benefits of AI application in classroom management are: Assistance in teaching, Assists and facilitates learning, Enhanced Personalization of learning and enhanced Virtual Classrooms. This is supported with calculated means scores of 2.71, 2.62, 2.74, 2.66 and a cumulative mean score of 2.68.

Table 5: The benefits of AI application in classroom management

S/N	Items	Mean	S.D.	Decision
1	Assistance in teaching	2.71	0.76	Agreed
2	Assists and facilitates learning	2.62	0.72	Agreed
3	Enhanced Personalization of learning	2.74	0.77	Agreed
4	enhanced Virtual Classrooms	2.66	0.68	Agreed
	TOTAL	2.68	0.73	Agreed

[Source: Field survey January, 2026]

Research Question Four: What are the challenges of Integrating AI in classroom management?

The analysis in Table 6 shows that: the challenges of Integrating AI in classroom management are: data privacy and security concerns, the potential for algorithmic bias, and resistance to change among educators and administrators, Inadequate Infrastructure, AI technology is costly to implement, and Cultural and Language Barriers as supported by calculated mean scores of 2.53, 2.60, 2.72, 2.55, 2.62 and cumulative mean score of 2.60.

Table 6: The challenges of Integrating AI in classroom management

S/N	Items	Mean	S.D.	Decision
1	data privacy and security concerns,	2.53	0.65	Agreed
2	the potential for algorithmic bias, and resistance to change among educators and administrators	2.60	0.58	Agreed
3	Inadequate Infrastructure	2.72	0.69	Agreed
4	AI technology is costly to implement,	2.55	0.59	Agreed
5	Cultural and Language Barriers	2.62	0.64	Agreed
	TOTAL	2.60	0.63	Agreed

[Source: Field survey January, 2026]

DISCUSSIONS OF THE FINDINGS

From the summary in Table 3 it is clear that with a cumulative mean scores of 2.69 and a cumulative standard deviation of 0.66 the respondents agreed the core principles Guiding AI Integration in classroom Management are: The principle of Equity and inclusion (2.56), the principle of Ethical and responsible use (2.75), the principle of Human-centered learning (2.82), and the principle of building local capacity through teacher training, curriculum reform, and support for indigenous innovation is essential for sustainable impact (2.64). This finding agreed with the findings of Eze *et al*., (2020), Afolabi, (2023), Chukwu *et al*., (2022) and Ogunleye, (2021).

With cumulative mean score of 2.66 and a cumulative standard deviation of 0.59 the respondents agreed that the key areas of AI Applications in Classroom Management are: Smart Scheduling (SS), personalized Learning (PL), Learner Engagement (LE), Behavior Management (BM), and Grading and Assessment. This finding agreed with the findings of Panchal and Mohammad (2020) and Tim *et al*. (2023). The summary of analysis presented in Table 5 shows that the benefits of AI application in classroom management are: Assistance in teaching, Assists and facilitates learning, Enhanced Personalization of learning and enhanced Virtual Classrooms. This is supported with calculated means scores of 2.71, 2.62, 2.74, 2.66

and a cumulative mean score of 2.68. This finding agreed with the findings that the pervasive influence of Artificial Intelligence has catalysed a surge in online learning within the country, yielding positive educational outcomes such: Assistance in teaching [17], Assists and facilitates learning [27], Enhanced Personalization of learning [19], enhanced Virtual Classrooms [20].

The analysis in Table six above shows that: the challenges of Integrating AI in classroom management are: data privacy and security concerns, the potential for algorithmic bias, and resistance to change among educators and administrators, Inadequate Infrastructure, AI technology is costly to implement, and Cultural and Language Barriers as supported by calculated mean scores of 2.53, 2.60, 2.72, 2.55, 2.62 and cumulative mean score of 2.60. This finding agreed with the findings that the Key challenges of Integrating AI in classroom management include: data privacy and security concerns, [21][22] Inadequate Infrastructure (Adeoye and Amusa, 2019), Teacher Training and Resistance (TTR) [13], AI technology is costly to implement [23], Cultural and Language Barriers (CLB) [24].

CONCLUSION

The evaluation of the implementation of Artificial Intelligence (AI) in classroom management within secondary schools in Adamawa State uncovers a scenario marked by considerable potential, moderate current usage, and significant infrastructural challenges. As indicated in foundational educational literature, classroom management transcends mere discipline; it encompasses the arrangement of learning environments, data-informed decision-making, and the enhancement of student engagement. In the context of Adamawa State, the incorporation of AI tools signifies a transition towards a more tailored and effective educational framework. The utilization of AI acts as a "force multiplier" for educators, offering numerous advantages. However, the deployment of AI in classroom management is also impeded by various obstacles, including: concerns regarding data privacy and security, the risk of algorithmic bias, resistance to change from educators and administrators, insufficient infrastructure, the high costs associated with AI technology implementation, and cultural and language barriers.

Based on the above conclusion, the researchers recommend:

- Educators need to be trained not only in the utilization of AI tools but also in the principles of data stewardship. This training encompasses the ability to identify the risks associated with entering sensitive information, such as Individualized Education Programs (IEPs) or mental health records, into publicly accessible generative AI models.
- The authority to make final disciplinary decisions or implement behavioral interventions must rest exclusively with the educator. While AI can provide the 'what' in terms of data patterns, it is the teacher who supplies the 'why' by providing context.
- In order to enhance classroom management, AI tools ought to be incorporated into the existing Single Sign-On (SSO) frameworks. This integration minimizes the 'technical friction' associated with login problems, which is a significant contributor to the loss of instructional time.
- To decrease the expenses associated with external consultants, schools should appoint 'tech leads' who undergo comprehensive training and subsequently share that expertise with their colleagues.
- Instead of relying on straightforward word-for-word translation, educational institutions should leverage AI models that facilitate 'translanguaging'—a process in which multilingual individuals draw upon their entire linguistic repertoire.

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