



RESEARCH ARTICLE

TEACHER'S PERSPECTIVES ON INTEGRATING AI TECHNOLOGIES FOR LARGE CLASS SIZES IN SECONDARY EDUCATION IN NIGERIA.

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ABSTRACT

This study delves into Nigerian secondary school teachers' perspectives on the integration of Artificial Intelligence (AI) technologies in large class sizes. The areas of the study were Abia and Imo States. The population of the study comprised all the 477 senior secondary school teachers (182 males and 295 females) in Aba North Local Government Area of Abia State and 285 senior secondary school teachers (65 males and 220 females) in Owerri Municipal Council in Imo State, numbering 762. The sample of the study was 142 respondents through the analysis of five research questions; the research provides insights into teachers' perceptions, challenges, opportunities, and professional development needs regarding AI integration. Findings reveal a moderate to high significance placed by participants on AI integration in large classes, indicating a general recognition of its potential benefits. However, significant variability exists in teachers' opinions and experiences, reflecting the complexity of system integration. Teachers' concerns encompass technical competency, pedagogical ideals, resource access, and institutional support. While some educators embrace AI to enhance teaching and learning, others express skepticism or apprehension regarding its impact on traditional roles and student outcomes. Ethical and sociological implications of AI in education are recognized, necessitating considerations of justice, openness, accountability, and privacy. Addressing ethical concerns is crucial for ensuring equitable access and mitigating disparities in educational outcomes. Moreover, participants emphasize the importance of targeted professional development to equip teachers with the necessary skills and knowledge for AI integration. Collaborative discourse among educators, policymakers, and researchers is advocated to promote evidence-based strategies and policies. In conclusion, the study underscores the need for inclusive and collaborative approaches to AI adoption in Nigerian secondary education, emphasizing the ethical, pedagogical, and infrastructural considerations. Implementing the recommended strategies such as Creating AI training and support programmes for Nigerian secondary school teachers can help overcome challenges and maximize the benefits of AI integration, ultimately enriching the teaching and learning experiences in large class settings.

Keywords: Teacher's perspectives, AI technologies, integrating, large class sizes, secondary education,

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1.0. INTRODUCTION

Integrating AI technologies into education has garnered global attention in recent years. Teachers are looking for new ways to improve instruction as classrooms grow and resources become scarce. A rapidly growing secondary education sector and diverse student demographics in Nigeria make AI's ability to help curriculum implementation in big class sizes of special importance. This introduction reviews Nigerian secondary school teachers' views on using AI technologies for large classes, based on existing researches. Class size as defined by (Ayeni & Olowe, 2016) is the number of students enrolled in a course or class room, the number of students taught by a single teacher, the average number of students taught by a teacher in a school or educational system, or the number of students participating in learning experiences. Classes have a certain number of pupils. Schools, grades, and educational programs affect it. In a course or program, class size is the number of students enrolled. It can also refer to a classroom's student-to-teacher ratio. Teacher attentiveness and class size may affect education quality. Teachers struggle to diversify instruction, give each student their entire attention, and establish a good learning environment in larger classes (Liu & Johnson, 2019). Additionally, these difficulties are made worse by the requirements of standardized testing and accountability measures, which put more pressure on educators to satisfy academic standards regardless of the size of their class (Greenwald & Greenwald, 2021).

1.1. Statement of the Problem

In Nigeria, secondary education faces the challenge of accommodating large class sizes, which often impedes effective teaching and learning experiences. The integration of Artificial Intelligence (AI) technologies presents a promising avenue to address these challenges by offering personalized learning experiences, facilitating teacher workload, and enhancing student engagement. However, despite the potential benefits, the perspectives of teachers regarding the integration of AI technologies into classrooms with large student populations remain underexplored.

1.2. Purpose of the Study

Specifically, this study aims to investigate the following key issues:

1. The attitudes and perceptions of secondary school teachers in Nigeria towards the integration of AI technologies in classrooms with large class sizes. Are they open to adopting AI tools, or do they perceive them as threats to traditional teaching methods?
2. Identify the perceived barriers and challenges faced by teachers when integrating AI technologies into large class settings. Are there concerns regarding infrastructure, training, or resources that hinder successful implementation?



3. Identify how teachers envision incorporating AI technologies into their pedagogical practices to accommodate large class sizes effectively. What strategies do they propose for leveraging AI tools to personalize learning experiences and cater to diverse student needs?
4. Identify ethical considerations and social implications teachers foresee in the widespread adoption of AI technologies in Nigerian secondary education. Are there concerns about equity, privacy, or bias that need to be addressed?
5. Identify the professional development needs of teachers regarding the effective integration of AI technologies into large class settings. What training and support mechanisms are required to empower teachers to harness the full potential of AI tools in their teaching practices?

1.3. Research Questions

Five research questions guided the study.

1. What are the attitudes and perceptions of secondary school teachers in Nigeria towards the integration of AI technologies into classrooms with large class sizes?
2. What specific challenges do teachers face when attempting to integrate AI technologies into large class settings in Nigerian secondary education?
3. How do teachers envision leveraging AI technologies to address the diverse learning needs of students in large class sizes?
4. What ethical considerations and social implications do teachers foresee in the widespread adoption of AI technologies for teaching large classes in Nigeria?
5. What are the professional development needs of teachers regarding the effective integration of AI technologies into large class settings in Nigerian secondary education?

2.0. CONCEPTUAL REVIEW

Rising Importance of AI in Education: AI technologies offer intriguing solutions to secondary education class size issues. AI-driven tools and platforms can personalize learning, provide quick feedback, and help educators teach diverse pupils (Hartshorne & Berliner, 2002; Spector, 2016). In Nigeria, where secondary school classrooms are crowded, AI could improve teaching efficiency and learning outcomes. Large class size negatively impacts student-teacher interaction, student engagement with subject matter, and student motivation and participation in class, resulting in a lower quality of education for both Nigerian teachers and students (Ayanwoye, 2023). According to Wang & Calvano (2022), students experience reduced teacher contact and satisfaction in larger courses. Student involvement and teacher



interaction were the most impactful academic and social engagement behaviors for favorable educational outcomes (Wang & Calvano, 2022).

Teachers' Views on AI Integration: Teachers are vital to classroom AI integration. Their ideas, attitudes, and experiences strongly influence AI-driven educational resource uptake and use (Ertmer, Ottenbreit-Leftwich, & Tondeur, 2015). Understanding teachers' views on incorporating AI in large classes helps uncover challenges, opportunities, and best practises for policy and professional development.

Nigeria's secondary education system faces challenges such as overcrowded classrooms, limited resources, and differing infrastructure and technology across regions (Federal Ministry of Education, Nigeria, 2018; UNESCO, 2018). For equitable and quality education in Nigerian secondary schools, exploring how AI technology might be used to meet their requirements and limits is crucial. Large class sizes in Nigerian secondary schools often limit teacher-student interaction, make it hard to meet individual learning needs, and cause classroom management issues (Omolara & Eferakeya, 2019). These issues might impair curriculum implementation and student development, necessitating AI incorporation.

AI Integration in Secondary school: Potential benefits for tackling excessive class sizes in Nigerian secondary school. AI-driven adaptive learning platforms, virtual tutors, and automated grading systems allow instructors to personalize education, give timely feedback, and enhance learning experiences for varied student groups (Alake & Aderinoye, 2020; Onyema, 2021). These tools can improve instructor effectiveness and student engagement, boosting learning outcomes.

Attitudes of Teachers towards AI Adoption: Successful AI integration in Nigerian secondary classrooms requires understanding instructors' perspectives. Some educators may use AI technology as teaching aids, but others may worry about job displacement, technological complexity, or cultural appropriateness (Adeleke, 2021; Ogunyemi & Abidakun, 2020). To encourage teacher buy-in and maximize the benefits of technology-enhanced learning settings, these concerns and positive attitudes toward AI adoption must be addressed.

AI Integration Professional Development Needs: To integrate AI technologies into their teaching, Nigerian instructors need proper training and assistance. Research reveals that many educators lack the skills and understanding to use AI-driven tools effectively (Agboola & Adebisi, 2020). Thus, customized professional development programs that teach teachers how to use AI-powered learning environments are essential for implementation and sustainability.

Equity Considerations in AI Adoption: Ensuring equitable access to AI technologies is essential for addressing disparities in educational outcomes among Nigerian students. While AI integration has the potential to level the playing field by providing personalized support to



learners with diverse needs, concerns exist regarding unequal access to technology infrastructure, digital divide, and socioeconomic disparities (Oladipo & Adeniran, 2021). Efforts to promote inclusive AI adoption must prioritize equity and accessibility for all students, regardless of their background or circumstances.

Ethical Implications of AI Integration: The ethical use of AI technologies in Nigerian secondary education raises important considerations related to data privacy, algorithmic bias, and transparency (Adetunji & Lawal, 2021). Educators must navigate these ethical challenges responsibly to ensure that AI-driven learning environments uphold principles of fairness, accountability, and respect for human dignity. Robust ethical frameworks and guidelines are needed to guide the responsible development and deployment of AI technologies in educational settings.

AI Technologies to Address the Challenges Associated With Large Class Sizes.

Integrating Artificial Intelligence (AI) technologies into educational settings offers promising solutions to address the challenges associated with large class sizes. As classrooms become more crowded, educators face difficulties in providing personalized learning experiences, managing diverse student needs, and optimizing instructional delivery. In this context, AI-driven tools and platforms present opportunities to enhance teaching effectiveness, improve student engagement, and promote equitable access to quality education. This section explores several AI technologies suitable for integration in large class sizes, along with their applications and potential benefits.

Adaptive Learning Systems: Adaptive learning systems use AI algorithms to adapt information and experiences to students' learning rate, preferences, and proficiency (VanLehn, 2011). In big classes, adaptive learning platforms can dynamically change instructional materials, quizzes, and exercises to meet varied learning needs and give tailored support (Vygotsky, 1978). Adaptive systems improve student results by providing tailored learning routes, targeting skill gaps, and optimizing instructional efficiency (Brusilovsky, 2003).

Intelligent Tutoring Systems (ITS): Intelligent Tutoring Systems employ AI to simulate human tutoring and give students personalized subject-specific instruction (VanLehn, 2006). In large classrooms, ITS can act as virtual tutors, providing real-time feedback, hints, and explanations (Corbett & Anderson, 1994). ITS support teachers, promote student autonomy, and promote mastery learning in big classes by tailoring instruction to individual learner needs (Graesser et al., 2012).

Natural Language Processing (NLP): Natural Language Processing helps AI systems interpret, analyze, and synthesize human language for interactive conversation and learning (Jurafsky & Martin, 2019). NLP-powered chatbots or virtual assistants can answer student questions and inspire peer-to-peer collaboration in big classes (Dale & Reiter, 2000). NLP



applications encourage active involvement, critical thinking, and teachers' responses to student questions in resource-constrained contexts by providing on-demand support and encouraging discourse.

Data Analytics and Learning Analytics: Analysis of educational data using AI and machine learning yields meaningful insights into student performance, behaviour, and learning patterns (Siemens & Long, 2011). Analytics technologies can assist teachers track student progress, identify at-risk students, and tailor instruction in large classes (Romero & Ventura, 2010). By using data to optimize curriculum design, differentiate instruction, and provide targeted support, educators can improve learning outcomes and educational equity (Arnold & Pistilli, 2012).

Automated Assessment and Grading Systems: • AI-based automated assessment and grading systems evaluate student replies, provide feedback, and provide objective assessments (Dikli, 2006). For big classes, these methods simplify grading, minimize teachers' workload, and provide rapid feedback (Freeman et al., 2014). By automating routine chores like grading multiple-choice questions and essays, AI-driven assessment technologies allow instructors to focus on higher-order instructional activities and individualized interventions (Shute & Kim, 2014).

AI technologies provide distinct capabilities and benefits for big class integration. Adaptive learning systems and ITS improve learning outcomes and self-directed learning by tailoring education to student needs. NLP apps encourage classroom collaboration and student engagement through interactive communication and support. Data and learning analytics give instructors meaningful insights to improve education and student learning. Automated evaluation and grading systems free teachers to focus on more effective teaching methods. These AI technologies can help secondary educators manage big class sizes, enhance teaching efficiency, and boost student achievement. Each of these AI technologies offers unique capabilities and benefits for integration in large class

3.0. METHODS

The study adopted a descriptive survey research design. The design focuses on the perceptive of teachers on the integration of AI technologies for large class sizes in secondary education in Nigeria. The areas of the study were Abia and Imo States. The population of the study comprised all the 477 senior secondary school teachers (182 males and 295 females) in Aba North Local Government Area of Abia State and 285 senior secondary school teachers (65 males and 220 females) in Owerri Municipal Council in Imo State, numbering 762. The sample of the study was 142 respondents representing 15% and 25% of the teacher's population respectively. Proportionate stratified random sampling technique was used to select the respondents. The instrument for data collection was researchers' designed instrument which provided detailed description of the participants perceptive. The instrument



entitled “Teacher Perceptive on the Integration of AI Technologies Instrument(TPIATI). The instrument had two sections (A and B). Section A obtained personal data of respondents while Section B comprised 5 clusters: Part A, B, C, D and E. and consisted of 5 items each making it 30 items in all. Part A contained 5 items that elicited responses from the respondents on the attitudes and perceptions of secondary school teachers. Part B consisted 5 items, on challenges teachers face on integrating A1 technologies. Part C contains teacher envision on leverages A1 technologies, Part D consisted ethincal considerations and social implementations of adoption of A1 technologies and Part D consisted of professional developmental needs of teachers on effective integration of A1 technologies into large class sizes. The instrument was structured on a form point scale of very high extent (VHE) = 4, High Extent (HE) = 3, Low Extent (LE) = 2 and very low extent (VLE) = 1. The instrument was given out for content validation to specialists in measurement / evaluation; and curriculum studies/ Instructional technology unites of the department of curriculum / instruction of Adekunle Ajasin, University, Akungbo,, Ondo State. To insure validity, Cronbach Alpha analysis was used to estimate the internal consistency of the instrument and a reliability of 0.81 was obtained after administration to 50 respondents for trial testing. This indicated a high internal consistency of use. The researcher employed the help of two research assistants in administrating the instrument. A total of 114 copies of the instrument were administered and returned (100% return rate) and used for analysis of data. Data collected were analyzed using mean and standard deviation to answer the research questions with a criteria mean of 2.50 which was the bench mark for considering the extent of agreement or disagreement of items. Data analysis was primed using the statistical package for social science (SPSS) version 25.

4.0. PRESENTATION OF RESULTS AND DISCUSSIONS

4.1, Presentation of Results

Research question 1: How do Nigerian secondary school teachers see the integration of AI technologies in large class sizes?

TABLE 1: The grand mean scores of 2.70 and 2.83 suggested an overall average perception or rating given by teachers regarding on the integration of AI in large class size. The high standard deviation of 0.65 and 0.80 indicated significant variability or dispersion in participants' responses around the mean. This variability suggests diverse opinions or experiences of the respondents

**Table 1: Analysis of Teachers' Perception on AI Integration in Large Class Size**

ITEMS	Aba North		Remark	Owerri Municipal		Remark
	\bar{x}	SD		\bar{x}	SD	
Teachers have knowledge of using AI technologies in educational contexts, particularly in large class sizes classrooms	2.48	0.48	Reject	2.94	0.57	Accept
Integrating AI technologies into teaching practices in classrooms with large student populations has potential gains of better learning outcomes	2.66	0.56	Accept	2.87	0.89	Accept
Teachers are skeptical about implementing AI technologies in classrooms with large class sizes.	2.82	0.65	Accept	2.60	0.81	Accept
AI technologies can enhance the learning experience for students in classrooms with large class sizes.	2.73	0.68	Accept	2.75	0.75	Accept
Use of AI technologies would be most effective for improving teaching and learning outcomes in classrooms with large student populations.	2.67	0.55	Accept	2.72	1.15	Accept
Integration of AI technologies into classrooms with large class sizes may impact your role as a teacher.	2.81	0.71	Accept	2.84	0.57	Accept
GRAND MEAN	2.70	0.65	Accept	2.83	0.80	Accept

Source: Authors' Analysis (2025).

Question 2: What specific challenges do teachers face when attempting to integrate AI technologies into large class settings in Nigerian secondary education?

Table 2: Analysis of challenges Teachers Face in integrating AI technologies in Large Class

ITEMS	Aba North		Remark	Owerri Municipal		Remark
	\bar{x}	SD		\bar{x}	SD	
Teachers face challenges when integrating AI into large-classroom.	2.45	0.39	Rejected	2.87	0.86	Accept
Nigerian secondary schools, especially those with large classes, have AI technologies.	2.50	0.52	Accept	2.88	0.77	Accept
Communication, hardware, and software difficulties prevent large classrooms from using AI technologies quickly.	2.80	0.73	Accept	2.85	0.81	Accept
Few training and professional development opportunities exist to integrate AI technologies into large-student classes.	2.81	0.62	Accept	2.72	0.62	Accept
When integrating AI technology into Nigerian secondary education in high class sizes, teachers face socio-cultural issues include language, content localization, cultural acceptance, and equity.	2.71	0.60	Accept	2.54	0.84	Accept
Nigerian secondary schools' organizational rules, administrative procedures, and curriculum requirements impact the integration of AI technologies in large classes	2.91	0.80	Accept	2.94	0.82	Accept
GRAND MEAN	2.69	0.61	Accept	2.81	0.84	Accept

Source: Authors' Analysis (2025).

TABLE 2: The mean rate of 2.69 and 2.81 respectively suggested an average perception or rating given by participants regarding specific challenges teachers face when attempting to integrate AI technologies into large class settings in Nigerian secondary education. The



standard deviation of 0.61 and 0.84 indicated the degree of variability or dispersion in participants' responses around the mean. A relatively high SD suggested diversity in opinions or experiences. The high mean rate implies that, on average, participants perceive significant challenges when attempting to integrate AI technologies into large class settings in the two different states in Nigerian secondary education

Research question 3: How do teachers anticipate using AI to meet various learning needs in large class sizes?

Table 3: Analysis of How Teachers Using AI to meet Learning needs in Large Class

ITEMS	Aba North			Owerri Municipal		
	\bar{x}	SD	Remark	\bar{x}	SD	Remark
Teachers believe AI can enhance tailored learning for heterogeneous students in large classes.	2.61	0.50	Accept	2.68	0.71	Accept
Teachers envisage AI technologies enabling individualized instruction for big class sizes, accommodating distinct learning paces, talents, and interests.	2.50	0.41	Accept	2.56	0.80	Accept
AI-powered solutions can enhance personalized learning for huge class sizes.	2.78	0.55	Accept	2.55	0.64	Accept
AI-driven assessment and feedback systems can improve understanding of student learning needs in large classes and provide timely interventions or help.	2.89	0.73	Accept	2.82	0.69	Accept
AI-powered educational resources, like adaptive learning platforms and intelligent tutoring, benefit students with various learning needs in large classes.	2.67	0.51	Accept	2.73	0.64	Accept
Collaborating with AI technology, teachers aim to develop inclusive learning environments for various students in large classes.	2.81	0.70	Accept	2.64	0.74	Accept
GRAND MEAN	2.71	0.65	Accept	2.66	0.70	Accept

Source: Authors' Analysis (2025).

Table 3, also had mean scores of 2.74 and 2.66 ; Standard deviation of 0.65 and 0.70. According to the research report, it is given as an indication of how randomly or widely distributed participant responses were around the mean. A relatively high SD perspective indicates a variety of viewpoints on how teachers anticipate using AI to meet various learning needs in large class sizes. This depicts a high anticipation by the teachers in using AI technologies to meet diverse students' learning needs in large class size.

**RESEARCH QUESTION 4: What ethical and societal ramifications do Nigerian teachers anticipate from the widespread use of AI technologies in large classes?**

The Results presented in Table 4 show high mean of 2.75 and 2.67; SD of 0.59 and 0.80. The responses' degree of variability or dispersion around the mean is displayed. In this case, a relatively large standard deviation may indicate that there is a notable variation in the responses. This result is of the opinion that, there existed possible ethical and societal ramifications Nigerian teachers anticipate from the widespread use of AI technologies in large classes.

Table 4: Analysis of Ethical and Societal Perspective of Teachers' Use of AI in Large Classes

ITEMS	Aba North			Owerri Municipal		
	\bar{x}	SD	Remark	\bar{x}	SD	Remark
Teachers expect ethical difficulties from integrating AI in large classes	2.89	0.65	Accept	2.82	0.93	Accept
AI technologies affect student-teacher relationships in large classes, affecting personalized attention, feedback, and emotional support.	2.67	0.54	Accept	2.76	0.80	Accept
AI-driven educational systems may lead to biases in student evaluation, grading, and academic outcomes.	2.88	0.67	Accept	2.79	0.72	Accept
AI technologies impact teacher autonomy and decision-making in large classes.	2.57	0.45	Accept	2.66	0.85	Accept
AI technologies impact Nigerian education socio-economic dynamics, impacting quality access and equity.	2.80	0.72	Accept	2.48	0.77	Rejected
To ensure transparency, accountability, and appropriate use of AI in Nigerian secondary education, it is important to consider cultural and regulatory differences.	2.71	0.51	Accept	2.56	0.74	Accept
GRAND MEAN	2.75	0.59	Accept	2.67	0.80	Accept

Source: Authors' Analysis (2025).

The results summarized in Table 5 high mean rate of 2.68 and 2.81 respectively suggested an average perception or rating given by participants on professional development needs of Nigerian secondary school teachers to effectively integrate AI technologies into large class settings in Nigerian secondary education. The standard deviation of 0.60 and 0.83 indicated the degree of variability or dispersion in participants' responses around the mean. A relatively high SD suggested diversity in opinions. The high mean rates implies that, on average, participants perceive the professional development needs of Nigerian secondary school teachers to effectively integrate AI technologies into large class settings in Nigerian secondary education.

Research Question 5: What professional development needs do Nigerian secondary school teachers need to effectively integrate AI technologies into large class settings?



Table 5: Analysis of Teachers' Need to Integrate AI Technologies in Large Classes

ITEMS	Aba North		Remark	Owerri Municipal		
	\bar{x}	SD		\bar{x}	SD	Remark
Nigerian secondary education teachers require training or professional development to integrate AI technologies into their teaching practices for high class sizes.	2.53	0.54	Accept	2.69	0.70	Accept
Professional development has given teachers confidence in using AI technology to improve teaching and learning in big class situations.	2.41	0.31	Reject	2.75	0.82	Accept
In high class sizes, teachers require vital knowledge or abilities to successfully integrate AI technologies into teaching techniques.	2.54	0.41	Accept	2.86	0.79	Accept
Workshops, online courses, and peer collaboration are useful strategies for learning about integrating AI technologies into teaching techniques in big classes.	2.99	0.59	Accept	2.79	0.89	Accept
Improved professional development programs for Nigerian teachers could better address the integration of AI technologies in large classes.	2.87	0.69	Accept	2.89	0.89	Accept
Teachers need professional development support to maintain growth and effectiveness.	2.71	0.68	Accept	2.86	0.94	Accept
Grand Mean Score	2.68	0.60	Accept	2.81	0.83	Accept

Source: Authors' Analysis (2025).

The mean rate of 2.68 and 2.81 respectively suggested an average perception or rating given by participants on professional development needs of Nigerian secondary school teachers to effectively integrate AI technologies into large class settings in Nigerian secondary education. The standard deviation of 0.60 and 0.83 indicated the degree of variability or dispersion in participants' responses around the mean. A relatively high SD suggested diversity in opinions. The high mean rates implies that, on average, participants perceive the professional development needs of Nigerian secondary school teachers to effectively integrate AI technologies into large class settings in Nigerian secondary education.

4.2. Discussions of Findings

Research question 1 provides insights into how Nigerian secondary school teachers perceive the integration of AI technologies in large class sizes. A grand mean score of 2.70 and 2.83 suggests teachers' overall opinion on AI integration in large classes. Participants view AI integration in big classes as moderately to highly significant. The large standard deviations of 0.65 and 0.80 imply significant response variability around the mean. Variability shows respondents' AI integration opinions or experiences vary. While somewhat to highly positive, instructors' perceptions of integration vary. Due to technical competency, pedagogical ideals, resource access, and institutional support, respondents may have different opinions or experiences. Some big class teachers may embrace AI technologies to improve teaching and learning, while others may be skeptical or concerned about the consequences for their responsibilities and students' learning results. These findings demonstrate the complexity of system integration and the need to integrate teachers' various viewpoints and experiences



when adopting AI technologies in large classes. This findings collaborates with (Adeleke, 2021; Ogunyemi & Abidakun, 2020) who asserts that, successful AI integration in Nigerian secondary classrooms requires understanding instructors' perspectives. Some educators may use AI technology as teaching aids, but others may worry about job displacement, technological complexity, or cultural appropriateness. They are of the opinion that teachers should be encouraged buy-in and maximize the benefits of technology-enhanced learning settings. Supporting, addressing concerns, and encouraging teacher discourse and collaboration will help Nigerian secondary education use AI technologies more inclusively and effectively.

Research question 2 sheds light on Nigerian secondary school teachers' AI integration issues in large classes. The mean rates of 2.69 and 2.81 indicate participants' overall views of these difficulties. Participant agreement on the significant hurdles of incorporating AI technologies into large class settings is moderate to high. Participants' replies are dispersed around the mean by 0.61 and 0.84 standard deviations. Despite universal agreement on the existence of obstacles, a significant standard deviation shows variability in viewpoints or experiences on their nature and degree. Diversity in ideas or experiences shows the difficulty of integration and teachers' distinct settings. Participants in Nigerian secondary education consider integrating AI technologies into large classes difficult due to the high mean rates. Limited technical infrastructure, inadequate training and professional development, teacher and student reluctance to change, and concerns about AI's impact on traditional teaching roles and methodology may be among these issues. (Ertmer, Ottenbreit-Leftwich, & Tondeur, 2015) maintained that understanding teachers' views on incorporating AI in large classes helps uncover challenges, opportunities, and best practices for policy and professional development. These findings emphasize the necessity of addressing teachers' AI integration issues in large classes. Support, resources, and training programs customized to teachers' needs and settings might help overcome these hurdles and promote AI technology integration in Nigerian secondary education.

Research question 3 tries to examine effectiveness on the use of AI to satisfy varied learning demands in large classes. On average, participants are excited to use AI technologies to meet various students' learning demands in large classes (mean scores 2.74 and 2.66). This implies that teachers realize AI's ability to help and improve their teaching, especially in multi-student classes. Standard deviations of 0.65 and 0.70 indicate participant variability around the mean. A significant standard deviation implies that teachers share different views on deploying AI to satisfy large class learning needs. This suggests that while there is consensus on the potential benefits of AI in addressing learning demands, those tactics, tools, and approaches vary. Using AI to satisfy diverse students' learning needs in large classes is highly anticipated by teachers, highlighting the necessity of individualized and differentiated training. AI can help teachers adjust to individual student talents, interests, and learning styles in a large class. Consequently, this findings align with (Alake & Aderinoye, 2020; Onyema,



2021) who asserts that through AI-driven adaptive learning platforms, virtual tutors, and automated grading systems allow instructors to personalize education, give timely feedback, and enhance learning experiences for varied student groups. AI technologies offer intriguing solutions to secondary education class size issues. AI-driven tools and platforms can personalize learning, provide quick feedback, and help educators teach diverse pupils (Hartshorne & Berliner, 2002; Spector, 2016). These tools can improve instructor effectiveness and student engagement, boosting learning outcomes. These findings indicate that teachers are optimistic about AI technologies' ability to help them satisfy these students' different learning demands in large classes. This stresses the need to find new ways to use AI tools and resources in education to make learning more accessible and successful.

Research question 4 revealed Nigerian instructors' ethical and sociological concerns about AI technology in large courses. The high mean scores of 2.75 and 2.67 show that participants saw major ethical and societal implications from AI technology in large classes. This implies that teachers recognize AI's potential impact on education and society. Participants' replies are dispersed around the mean by 0.59 and 0.80 standard deviations. A big standard deviation suggests that while there is a widespread consensus on ethical and societal repercussions, there are also various viewpoints on their nature and magnitude. The ethical and societal implications of AI technologies in education must be addressed. In developing and deploying AI systems in education, ethical concepts including justice, openness, accountability, and privacy must be considered. It also promotes critical thinking to foresee and reduce negative effects on students, teachers, and society.

The findings of Oladipo & Adeniran (2021) agrees the above result, on ensuring equitable access to AI technologies as essential for addressing disparities in educational outcomes among Nigerian students. AI integration has the potential to level the playing field by providing personalized support to learners with diverse needs, concerns exist regarding unequal access to technology infrastructure, digital divide, and socioeconomic disparities. Efforts to promote inclusive AI adoption must prioritize equity and accessibility for all students, regardless of their background or circumstances. Adetunji & Lawal (2021) found ethical use of AI technologies in Nigerian secondary education as vital which educators must navigate ethical challenges responsibly to ensure that AI-driven learning environments uphold principles of fairness, accountability, and respect for human dignity. These findings indicate that Nigerian instructors are aware of the ethical and societal consequences of AI technologies in education and emphasize the need to address these concerns to ensure ethical usage of AI in large classes.

Research question 5 illuminate Nigerian secondary school teachers' professional development needs for incorporating AI technologies into large classes. Participants' average ratings of 2.68 and 2.81 indicate their perceptions of these demands. This suggests that participants agree moderately on the necessity of professional growth in this area. The



standard deviations of 0.60 and 0.83 demonstrate participants' reaction variability around the mean. A significant standard deviation indicates that while there is a general consensus on professional development, there are different perspectives on individual components of it. The high mean rates suggest that participants value Nigerian secondary school teachers' professional development to integrate AI technologies into large classes. Investment in training and support programs to provide teachers with the skills and knowledge to use AI technologies in their teaching is crucial.

Agreeably, to integrate AI technologies into their teaching, Nigerian instructors need proper training and assistance as revealed (Agboola & Adebisi, 2020), that many educators lack the skills and understanding to use AI-driven tools effectively. Thus, customized professional development programs that teach teachers how to use AI-powered learning environments are essential for implementation and sustainability. These findings emphasize the necessity for teacher professional development to successfully integrate AI technologies into Nigerian secondary education. Targeted training and support programs for instructors can help them use AI technologies in large classes.

5.0. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This research illuminates Nigerian secondary school teachers' views, obstacles, opportunities, and professional development needs for AI technology integration in large classes. Overall, teachers understand the potential of AI integration to improve teaching and learning, but they also face ethical challenges. These challenges must be addressed for Nigerian secondary education to use AI ethically. Teachers' viewpoints and experiences vary, highlighting the complexity of AI integration and the need for inclusive and collaborative technology adoption in education.

5.2. Recommendations.

The following recommendations were made;

1. There should be creation of AI training and support programmes for Nigerian secondary school teachers.
2. Educators should be invited to discuss best practices, issues, and new AI applications for large classes.
3. Improved technological infrastructure should be provided and enough resources to integrate AI technologies into Nigerian secondary schools.
4. Ethical and social impacts of AI integration in education, emphasizing fairness, accountability, and human dignity should be discussed.



5. Government should proactively bridge the digital divide and provide all students with equal access to AI technologies.
6. There should be encouragement on the use of AI-driven adaptive learning platforms, virtual tutors, and automated grading systems to personalize education and improve learning results in huge classes.
7. Collaborate with educators, academics, and policymakers to create evidence-based AI methods and policies for Nigerian secondary education.
8. Implementing these recommendations will allow stakeholders to collaborate to overcome obstacles, seize opportunities, and maximize the benefits of integrating AI technologies into Nigerian secondary education, enriching educators' and students' learning experiences.

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