

**THE ROLE OF ARTIFICIAL INTELLIGENCE IN PERSONALIZED LEARNING AMONG SECONDARY
SCHOOL TEACHERS IN OVIA NORTH-EAST L.G.A., EDO STATE, NIGERIA**

BY

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BENIN CITY**

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**A PROJECT WRITTEN IN THE INSTITUTE OF EDUCATION, AND SUBMITTED TO THE COLLEGE OF
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OF BENIN, BENIN CITY.**

JANUARY, 2026.

CERTIFICATION

This is to certify that this research work titled "The Role of Artificial Intelligence in Personalized Learning among Secondary School Teachers in Ovia North-East L.G.A., Edo State, Nigeria" was carried out by HYCIENT, CHINASA EBENIRO in the Institute of Education, University of Benin, Benin City, Edo State in partial fulfilment of the requirement for the award of Postgraduate Diploma in Technical Education (PGDTED).

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DEDICATION

This work is dedicated to my lovely wife, whose unwavering support and sacrifices made my educational journey possible, and to all teachers in Nigeria striving to integrate technology for better learning outcomes despite numerous challenges.

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ABSTRACT

This study investigated the impact of Artificial Intelligence (AI) on personalized learning among secondary school teachers in Ovia North-East Local Government Area of Edo State, Nigeria. Descriptive survey design was employed and a sample of 101 teachers were surveyed using questionnaire. Findings indicated a very low level of awareness of AI tools, with 80.2 percent of the teachers unable to list two AI tools and 5.9 percent trained in AI application. Use of AI tools by teachers was moderate, however, they were more disposed to recommending AI tools for use than to deploying AI in their lessons.

From the reports of the respondents, it is observed that AI could be used for personalized feedback but identified challenges that included erratic power supply, poor internet connectivity and inadequate training as major barriers. The study therefore concluded that systemic barriers have hindered AI use in spite of generally positive attitude of teachers toward it and then recommended investment in infrastructure, teacher training and provision of affordable and accessible AI tools for the teachers' uses and development.

CHAPTER ONE INTRODUCTION

Background to the Study

The integration of AI into educational settings has seen unprecedented global growth over the last decade, powered by innovations in machine learning, data analytics and adaptive technologies (Holmes, Bialik, & Fadel, 2019). Nigeria, especially in Edo State, has recognized the potential of AI in addressing the perennial challenges that exist in the sector, such as the large class size, teacher shortage, limited personal teaching and so on (Ifijeh et al., 2021). AI driven tools such as intelligent tutoring system, adaptive learning platform and automated assessment can provide individual learners with customized experiences at their own learning pace, based on their abilities and interests (Chen, Chen, & Lin, 2020).

Personalized learning is an instructional method that uses information technology and data analysis to custom-design learning pathways, contents and feedback to suit individual learner's profiles (Bray & McClaskey, 2015). Powered by AI, it is capable of adapting the learning pathway and recommendations based on individual student performance, as well as identifying learning deficiencies (Zawacki-Richter et al., 2019). Unfortunately, its implementation in the Nigerian secondary school systems is sporadic at best, and limited, especially in the rural and semi-urban environments like the Ovia North-East Local Government Area (Aduwa-Ogiegbaen & Iyamu, 2019).

The teacher is pivotal to the successful implementation of AI in learning environments. Teachers' level of awareness, competency and willingness to integrate AI tools into pedagogical approaches are essential in fully actualizing the promise of personalized learning (Selwyn, 2019).

However, teachers in most of the Nigerian secondary schools have little or no exposure to AI; further constrained by the presence of infrastructural deficiency, the lack of appropriate training and the gap in curriculum (Okebukola, 2018). Without understanding the teachers' perception and usage patterns and the problems involved, any effort to integrate AI-driven personalized learning into classrooms may be misguided. This study therefore focuses on exploring the role of AI in personalized learning among secondary school teachers in Ovia North-East Local Government Area, Edo State. It looks into awareness, extent of use, perceived benefits and encountered barriers among teachers so that policy makers, trainers and teachers may be well informed and equipped for effective integration.

Statement of the Problem

The persistent poor performance of students in Nigerian secondary schools, as depicted by the poor pass rate recorded in major national examination such as the WAEC and NECO examination, points to instructional and pedagogical issues in the sector (National Bureau of Statistics, 2022). The traditional one-size-fits all approach to teaching cannot meet the individual learning needs, especially in overcrowded classrooms (Akinwumi & Adebayo, 2020). While the AI-driven personalized learning model could be the solution, its use and awareness in Nigerian secondary schools are very limited and unknown.

In the Ovia North-East Local Government Area, preliminary findings indicated that teachers are often barely aware of AI and even fewer use it to improve teaching. Barriers such as erratic power supply, poor internet access, insufficient training, and high costs, restrict the use of AI in teaching (Aduwa-Ogiegbaen & Iyamu, 2019). Ethical concerns like privacy and algorithmic bias

can also make teachers reluctant to use it (Williamson, 2017). Hence, this research aims to fill the gap by exploring the various dimensions of AI integration in personalized learning in Nigerian secondary schools by examining the Teachers' awareness, usage patterns, benefits and challenges in Ovia North-East Local Government Area of Edo State, to develop evidence based strategies and guidelines for successful AI integration in learning processes in Nigerian secondary schools.

Purpose of the Study

The main purpose of this study is to explore the role of AI in personalized learning among the secondary school teachers in Ovia North-East Local Government Area of Edo State. Specific objectives are to; determine the level of awareness on the use of AI in personalized learning among secondary school teachers, investigate the extent of use of AI on personalized learning by secondary school teachers, examine the benefits of the use of AI in personalized learning, identify the barriers militating against the use of AI in personalized learning, as well as suggest strategies to enhance the effective use of AI in personalized learning in secondary schools.

Research Questions

The research questions that guide this study are as follows:

1. What is the level of awareness on the use of AI in personalized learning among secondary school teachers in Ovia North-East Local Government Area?
2. To what extent is AI being used to personalize learning by secondary school teachers in Ovia North-East Local Government Area?

3. What are the perceived benefits of using AI to personalize learning by secondary school teachers?
4. What are the major barriers militating against the integration of AI in personalized learning by secondary school teachers in Ovia North-East Local Government Area? What strategies can be put in place to improve the use of AI in personalized learning by secondary school teachers?

Significance of the Study

This research study would be significant to a variety of stake holders including: teachers, school administrators, educational policy makers and curriculum developers as well as educational researchers.

Firstly, the study results would be relevant to secondary school teachers, in enabling them understand how AI could improve instruction; it could prompt them to reflect on their instructional practices and consider using the available AI tools for personalized learning and what benefits and problems they would likely encounter (Zawacki-Richter et al., 2019).

Secondly, the findings of this study will be useful to school administrators and managers at the school and district levels within Ovia North-East Local Government Area and could help in the effective planning and resource allocation in technology integration. Informed by the teachers' current experience with the use of AI tools for personalized learning, these leaders can make more evidence-based policies and programs for training teachers and providing adequate technological infrastructure (Ifijeh et al., 2021).

Thirdly, educational policy makers within Edo State Ministry of Education will gain insight from the research findings regarding the adoption status of AI in secondary schools. This would facilitate the formulation of appropriate policies and the provision of effective funding and training programs that are tailored to the context of Nigerian secondary schools (Okebukola, 2018).

Fourthly, the findings could assist curriculum developers and training institutions in reviewing their curricula and developing better training modules that incorporate relevant AI technologies for personalized learning. This would bridge the gap in competencies identified in this study (Selwyn, 2019).

Lastly, this research contributes to the growing body of literature on AI in education by providing Nigeria-specific data within a local context in sub-Saharan Africa, which are underrepresented in global AIED literature. Further researches could be built on this study (Chen et al., 2020).

Scope and Delimitation of the Study

This research explores the role of AI in personalized learning among secondary school teachers in Ovia North-East Local Government Area, Edo State. The research covers both private and public secondary schools in the LGA and it involves both Junior and Senior secondary school teachers in all subject areas.

The research is confined to the geographical area within the Ovia North-East Local Government Area, as it does not extend to other LGAs within the state or any other state. This study employs a cross-sectional survey design to gather data during the 2024/2025 academic session, focusing

on teachers' perspective and awareness with reference to AI-enabled personalized learning tools, the general ICT tools are not involved nor are the teachers' or pupils' responses on other general e- learning aspects that does not pertain to personalization through AI, the sample include only teachers; pupils and administrators are not included in the study sample.

Definition of Terms

For the purpose of this study, the following terms are operationally defined as follows:

Artificial Intelligence-computer based system that are built to do tasks normally requiring human intelligence, e.g., learning, reasoning, problem solving and understanding natural language. In the context of this study, AI are educational tools, e.g., adaptive learning softwares, intelligent tutoring systems, automated scoring systems that support personalization (Russell & Norvig, 2021).

Personalized Learning-an instructional approach that leverages technology and learner data to provide an individual learning experience based on the student's skills, needs and preferences (Bray & McClaskey, 2015).

Secondary school teachers-certified teachers working in junior and senior secondary schools from JSS1- SSS3 in the Ovia North-East Local Government Area teaching different subjects.

Awareness-knowledge teachers have on the concepts of AI, on specific AI learning tools and how it is used in personalize learning.

Utilization-teachers actual use of AI tools to support personalized learning in their classrooms based on frequency of use, diversity of usage and pedagogical integration of the tools

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter presents the review of literature relevant and related to this study. The review is carried out under the following subheadings:

- Theoretical Framework
- Concept of Artificial Intelligence in Education
- Concept of Personalized Learning
- Conceptual framework
- Role of Teachers in AI-Enabled Personalization
- Factors Influencing Teachers' Adoption of AI
- Empirical Review
- Summary of reviewed of literature

Theoretical Framework

The theoretical framework for this study is based on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These models provide a robust foundation for understanding how and why teachers accept or reject the use of a new technology, like AI in the field of education.

The TAM developed by Davis (1989) assumes that the adoption of a new technology is influenced by two important factors. These are perceived usefulness and perceived ease of use. The perceived usefulness refers to "the degree to which a person believes that use of a particular system would enhance his or her job performance, whereas perceived ease of use

refers to the degree to which a person believes that the use of a particular system would be free of effort". (Venkatesh and Davis, 2000). The TAM models indicate that attitude toward a technology, behavioral intention to use the technology and finally usage itself depends on these two factors.

The UTAUT developed by Venkatesh, Morris, Davis, and Davis (2003) is a combination of the TAM and seven other prominent models of technology adoption and use. UTAUT comprises the following four determinants of technology adoption: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. Performance Expectancy corresponds to the perceived usefulness. Effort Expectancy corresponds to the perceived ease of use. Social Influence refers to "the degree to which an individual believes that important referents believe he or she should perform the behavior", while Facilitating Conditions refer to "the degree to which an individual believes that organizational and technical infrastructure exists to support the use of the system". (Venkatesh et al., 2003). The other important feature of the UTAUT is the moderating variables of the determinants. These variables include; Gender, Age, Experience and Voluntariness of use. UTAUT postulates that these variables moderate the relationship between the predictors and intention and use.

The TAM and UTAUT models are relevant to this study because they provide a systematic framework for the investigation into the factors influencing secondary school teachers' adoption of Artificial intelligence for personalization. TAM has indicated that the usefulness of AI tools and the ease with which teachers can learn to use these tools will be the main determinants that influence teachers' attitudes toward the technology and their behavioral intentions to use AI. According to UTAUT, the adoption of AI in schools will also depend on

social influence exerted by important individuals and the availability of appropriate conditions that facilitate the use of the technology, like access to the infrastructure and hardware, and support systems for its maintenance and updates. Apart from these factors, some other variables, such as; Gender, Age and Teaching experience will also influence teachers' use of AI. For example, young teachers may be expected to have higher Performance Expectancy towards AI usage, compared to older teachers and more experienced teachers compared to less experienced teachers. Voluntariness in adopting new technology, would also influence teachers' intention and actual usage of AI. It's obvious that there is a strong argument for using a combination of TAM and UTAUT as the theoretical underpinnings in the context of Nigeria where the educational systems is challenged with limited resources and infrastructure. Thus, the use of a combined TAM-UTAUT framework to study secondary school teachers' adoption of AI for personalizing learning in Ovia North-East Local Government Area of Edo State is pertinent.

Concept of Artificial Intelligence in Education

Artificial Intelligence is the theory and development of computer systems able to perform tasks that normally require human intelligence such as visual perception, speech recognition, decision-making, and translation between languages (Oxford Advanced Learner's Dictionary, 2014). In an educational context, AI refers to the development of computer systems or programs capable of interacting with the learning environment and its users (students and teachers) and acting intelligently (Holmes, et al, 2019). It is an umbrella term covering machine learning, natural language processing and other smart computational technologies applied in an educational environment.

AI in Education (AIED) goes beyond mere automation of some of the teaching tasks. It focuses on developing personalized tools for learning such as intelligent tutoring systems that act as a teacher by offering students a structured learning pathway while also considering students' learning styles, pacing, and level of mastery. It also includes adaptive learning systems that continuously adjust to students' abilities and learning pace (Pane, Steiner, Baird, & Hamilton, 2014), learning analytics platforms for effective monitoring of learning process and for predicting learning patterns and outcomes (Zawacki-Richter, Marín, Bond, & Gozman, 2019) and auto grading systems that can evaluate students' written responses using natural language processing (NLP) techniques (Wilson and Roscoe, 2020).

The adoption of AIED in Nigeria is at an early stage due to lack of relevant infrastructure and limited digital literacy (Okebukola, 2018) among teachers and students. However, it is seen as the future of education. Ifijeh, et al (2021) notes that there is increasing popularity and penetration of smart phone use in Nigeria, this offers potential avenue to access AI education through portable devices if proper design considerations are in place for Nigerian context.

Concept of Personalized Learning

Personalized learning refers to the tailor made approach to instruction, content delivery and the learning path to suit the individual student's learning style, skills, pace, and interests (Bray & McClaskey, 2015). In personalized learning, it involves going from a "one-size-fits-all" educational delivery to a more student-centric approach that acknowledges and responds to individual differences, giving students a greater agency and control over their learning processes.

Key elements of personalized learning often include personalized learning plans where instruction and learning activities are differentiated for individual learners based on student profiles. These student profiles are designed to provide a holistic view of the student that encompasses strengths, weaknesses, preferences, needs, and goals of the individual. Competency based learning ensures that the learner must demonstrate mastery of a learning goal before advancing to the next stage, regardless of how long it takes. Flexible learning environments offer learning to happen anywhere and anytime based on students' convenience. Voice and choice encourage students to have a say and make decisions over aspects of their learning (Bray & McClaskey, 2015).

Technology is central to realizing the promise of personalized learning in a way that would not be feasible otherwise. With a powerful set of AI and learning analytics tools, educators are able to gather real-time information on every student, and then act on it with timely and relevant interventions (Chen, Chen & Lin, 2020). Yet, technology alone is insufficient, the capacity of teachers and school leaders to interpret the data from AI systems and integrate such insights into their pedagogical practices is considered crucial to achieving success with personalized learning (Selwyn, 2019).

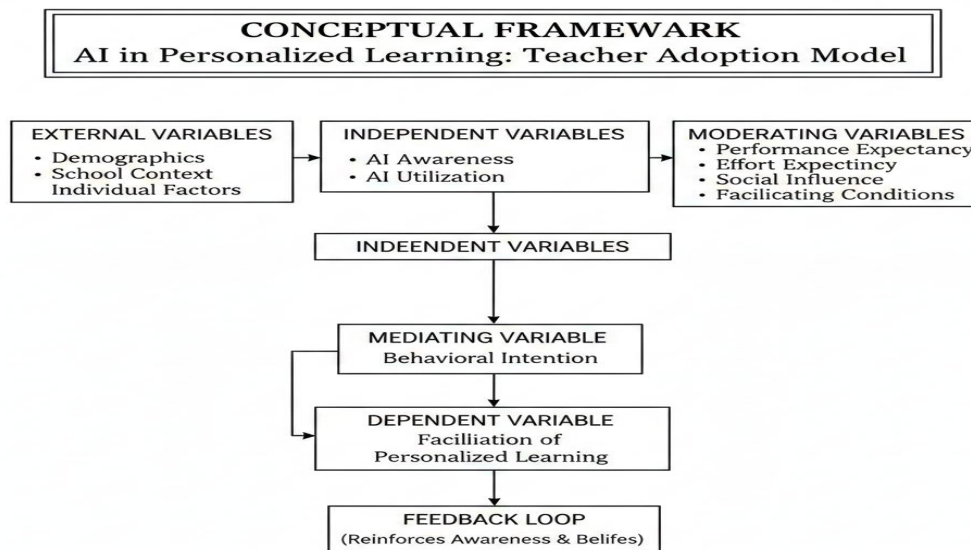
Conceptual Framework

The conceptual framework for this study was derived from the synthesis of the theoretical underpinnings discussed in the previous section and framed specifically within the scope of investigating the influence of AI in personalized learning by secondary school teachers in Ovia North-East Local Government Area. This diagram represents visually and logically the relationship of the major variables to be examined and delineates their supposed modes of

interaction and influence on one another. As opposed to the theoretical framework which explores abstract theories, the conceptual framework outlines variables related to this research and links theoretical perspectives to them in the hope of developing a researchable model.

This conceptual framework underwent several iterations. Firstly, the crucial constructs of the synthesized TAM-UTAUT model were identified for their relevance to the research questions. Secondly, they were translated to a format that would be useful for understanding AI for personalized learning in secondary schools in Nigeria. Thirdly, other variables, determined as crucial for a context in developing nations by studying the existing literature on educational technology adoption, were integrated. Fourthly, the interaction of the variables was established based on predicted relationships derived from theory, alongside insights gained from previous empirical research. Lastly, with the advice of educational technology experts and an understanding of the unique characteristics of the educational environment of the Ovia North-East Local Government Area, the framework was finalized.

VISUAL REPRESENTATION OF THE FRAMEWORK



The following constructs can be found in this research conceptual framework:

Independent Variables: Teacher's AI Awareness includes awareness of what artificial intelligence is, familiarity with AI educational tools, and how AI allows for individualized learning. Utilization of AI includes the frequency, variety, and pedagogical sophistication of AI tools being used by the teachers for the purpose of enabling individual learning.

The Dependent Variable: Facilitation of personalized learning refers to the extent that teaching is aligned to students' individual learning styles and needs as a result of the utilization of AI tools. The variables under this include differentiated instruction, individual assessment, students-centered instruction, individualized learning pathways, and feedback.

Mediation Variable: The behavioral intention to use AI is the planned behavior for the use of AI tools for enabling individualized learning. This forms the bridge between the awareness of AI and utilization and facilitation of AI for individual learning.

Moderators Variable from UTAUT includes Performance expectancy: perceived impact of AI in enhancing teachers' performance and effectiveness as a teaching tool; effort expectancy: perception of how easy it is for teachers to use AI tools; social influence: perceptions of importance attributed to the views and opinions of others such as school administrators, colleagues and stakeholders regarding AI usage; facilitating conditions: perception that all resources are in place for teachers to use the AI tools effectively such as adequate infrastructure, availability of ICT equipment and strong school support.

Control Variable include demographics (age, sex, subject taught, length of teaching experience), schools (private vs public, resourcefulness, rural vs urban setting and leadership support) and individual characteristics (technological self-efficacy, openness to innovation, beliefs about teaching and learning in relation to individual students, and pedagogical beliefs regarding individualized learning).

The theoretical framework also postulates that the relationship between teachers' awareness of AI and the utilization of AI for the purpose of individual learning among the target population will be positive. Teacher utilization of AI for individual learning has a positive impact on the facilitation of individualized learning. The relation between individual learning and teachers' behavior intention to use AI is mediated by the use of AI for individualized learning. With increased effort expectancy the relation between teachers' AI awareness and behavior intention to use AI for individual learning is positive while with performance expectancy it is negative. The use of AI tools for individualized learning has a positive relation with facilitating conditions. With a supportive social influence, relation of AI use and facilitation of individual learning is increased.

Teachers' Role in AI-Enhanced Personalization

The introduction of AI in schools should be viewed as not diminishing the teacher's position, but enhancing it. Teachers will need to shift from traditional roles of knowledge transmitters to those of learning designers, data analysts, tutors, and moral guides (Zawacki-Richter et al., 2019). In AI-enhanced environments, teachers are responsible for verifying AI-produced materials and selecting them, orchestrating teaching scenarios where AI tools are seamlessly integrated with traditional methods, analyzing information from learning analytics in order to

guide classroom activities, offering emotional support and guidance where AI is deficient, and guiding students away from problematic areas such as lack of privacy, discrimination based on algorithm and equity (Williamson, 2017).

This role calls for teachers to have both technological pedagogical content knowledge (TPACK) that combines technical, pedagogical and content knowledge, (Mishra & Koehler, 2006) and the critical thinking skills to evaluate recommendations provided by AI and the capacity for digital citizenship, in order for teachers to direct students towards responsible usage (Holmes et al., 2019). Therefore, training teachers is essential if they are to efficiently utilize AI in enabling individual learning, it should also be consistent, part of teaching work, and should not focus only on technical know-how, but rather pedagogical aspects (Ifijeh et al., 2021).

Factors Affecting Teachers' AI adoption

A combination of individual, institutional, and technological factors affects whether or not teachers adopt AI tools. Individual factors such as a perceived ease of use and usefulness influence teachers' choices, as they will be more willing to use the technology if they perceive that it has a positive effect and is easy to learn (Davis, 1989). Technology self-efficacy beliefs have also shown to impact on teachers' AI adoption (Venkatesh et al., 2003), in addition to the role of teacher's pedagogical beliefs with regard to individualized learning that allow for easy integration of AI tools (Selwyn, 2019). Similarly, teachers' ages, level of experience, and subject specialty may influence whether or not they adopt AI tools (Zawacki-Richter et al., 2019). Institutional factors such as a supportive leadership in the school are critical in determining if teachers adopt technology use (Ifijeh et al., 2021). Professional development and training are also important for teacher training (Aduwa-Ogiegbaen & Iyamu, 2019), alongside available ICT

facilities and infrastructures such as reliable electric power supply, internet connectivity, and relevant hardware (Okebukola, 2018). Policies should also be made to align curriculum with these tools for optimal usage (Chen et al., 2020). Technology-related factors also include the advantages they pose over existing approaches, their comparability with present usage, their complexity, and their cost (Venkatesh et al., 2003). The most prevalent issues regarding the adoption of AI in the Nigerian context are poor infrastructures and lack of adequate training (Aduwa-Ogiebaen & Iyamu, 2019).

Empirical Review

Several empirical researches were conducted in the area of AI in education, but fewer of them are on Nigerian secondary schools.

There have been several researches globally on AI in education. Zawacki-Richter et al. (2019) presented a systematic review of 146 studies of AI in higher education, it revealed that adaptive system and personal learning were the largest fields of application accounting for 34% of the studies, yet also revealed that research was dominantly conducted in North America, Europe and East Asia, with Africa producing only meager studies. Chen, Chen, and Lin (2020) surveyed 177 papers on AI in personalized learning and found general positive effects on learning, especially in STEM subjects; but they pointed out methodological limitations, such as small sample sizes and brief duration of interventions.

In developing regions, some empirical researches have also been done in the area of AI in education. Using an adaptive learning software in Indian public schools, Muralidharan et al. (2019) obtained significant learning gains, which were comparable to other high-impact interventions like tutoring. The research pointed out its cost-effectiveness but also highlighted

several issues relating to infrastructure and teacher buy-in. In Kenya and Tanzania, a mobile based intelligent tutoring system by Piper et al. (2018) was applied to study its impact on students learning Mathematics and it was observed to boost learning levels, especially for girls and students in rural areas but several challenges was noted relating to data costs, device sharing, curriculum alignment etc.

There have also been several researches on ICT in education within Nigeria which could be analogous to AI integration. Aduwa-Ogiegbaen and Iyamu (2019) surveyed secondary school teachers in Edo state on usage of ICT and noted that though they accept its importance, few of them use it daily in classroom work (below 30%), mainly because of their inability to access computers, inconsistent power supply, lack of training. In a study by Ifijeh et al. (2021) which focused on factors influencing teachers use of digital tools among teachers in Lagos, Nigeria. They found perceived usefulness and perceived ease of use to be the strongest predictors of adoption followed by social influence and facilitating conditions. Olusoji (2018) also emphasized the problem of insufficient computers, inconsistent power supply, hardware problem as constraints affecting teachers in Nigeria in utilizing technology. He noted that though Nigerian science teachers show interest in technology based simulation they have inability to adapt due to lack of equipment and relevant training.

Based on empirical review, there are several limitations. Studies on the use of AI in education are scarce in Nigeria, most of which did not cover the aspect of teachers' awareness and use of AI for personalized learning and were not specific on Nigerian schools but broader continents/ regions, there is very little data on issues related to the context of implementation like infrastructure, training, and policy in the under developed countries and Nigeria in particular.

There is also lack of studies on longitudinal data showing whether the use of AI in the classroom leads to sustained improved learning, also on factors affecting sustainable use of AI in Nigerian schools. To contribute to these limitations, this study investigate the use of AI for personal learning by secondary school teachers in Ovia North-East Local Government Area of Edo state, Nigeria. Specifically, this study has contributes to the existing literature by capturing the knowledge teachers has about AI tools such as ChatGPT, Meta AI and Deepseek and estimating the extent to which teachers do not have knowledge of any AI tool.

Summary of Reviewed Literature

It can be observed from the body of literature that AI in education deals with adaptive learning system and intelligent tutoring systems that lead to personalized learning. It can be concluded from research findings based on Technology Acceptance Model (TAM) and adapted model like UTAUT that perceived usefulness and facilitating conditions are influential factors on teacher use of AI. Global research on use of AI-supported personal learning shows it enhance learner's motivation, identify learning gaps and also offer prompt feedback. Unlike some other researches globally, Nigerian teachers seem not to be familiar with AI concept and tool, other factors that has affect use of AI by teachers in Nigeria includeinfrastructure (inconsistent power supply, poor internet connectivity) and low human capacity (lack of training). Nigerian teachers were viewed as learning designer instead of data collector to analyze and use data safely and critically when working with AI. However, to some extent there is lack of research that explore teachers inability to respond or get involved with AI tools, that is the area which this research tries to fill in by indicating the proportion of Nigerian teachers that do not know any AI tool.

CHAPTER THREE

METHODOLOGY

This chapter described the procedures adopted in collecting and analyzing data for this study. It is organized under the following subheadings:

- Research Design
- Population of the Study
- Sample and Sampling Technique
- Instrument for Data Collection
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis

Research Design

This study made use of a descriptive survey research design. Creswell (2014) states that descriptive survey design is suitable for a study that seeks to describe the characteristics, behaviors, or opinions of a population. This design was used because the study aims at determining the awareness, use, perceptions, and challenges that the secondary school teachers have in respect of Artificial Intelligence (AI) for personalized learning in Ovia North-East Local Government Area of Edo State. The design facilitates the collection of information from a sample in order to understand the existing situation (Aduwa-Ogiegbaen & Iyamu, 2019).

Population of the study

The population of the study consists of all secondary school teachers in public and private secondary schools in Ovia North-East Local Government Area (L.G.A.) of Edo State. Data from Edo State Post Primary Education Board (PPEB, 2024) showed that there are 42 secondary schools (27 public and 15 private schools) in Ovia North-East L.G.A. And it can be estimated that they had about 1,200 teachers in the said schools. Teachers of all subject areas and grade level (Junior Secondary School 1- Senior Secondary school 3) are part of the population.

Sample and sampling technique

Convenience sampling was used to select the participants. This non-probability sampling technique was employed in view of constraints imposed by time and easy access, hence, teachers available and willing to participate in the study during data collection period were sampled (Etikan, Musa & Alkassim, 2016). The sample was skewed more towards private schools because private schools easily grant access to use internet-enabled gadgets, and have higher response rates compared to public schools.

The sample for the study was 101 and was collected over a period of three weeks. Sample size of 101 was determined by number of teachers who agreed to participate in data collection and successfully complete questionnaire in the allotted period. This sample size is adequate for the descriptive data and is similar to other studies that used educational technology in Nigeria (Ifijeh et al., 2021, Aduwa-Ogiegbaen & Iyamu, 2019). The sample is not a proportionate representation of the population distribution, as there are more public than private schools in Ovia North-East L.G.A., and 75 teachers are from private schools (74.3%) while 26 teachers (25.7%) were from public schools. This sampling procedure took into account accessibility and

existing relationship of the researchers to gain access into the schools. The Google Forms Questionnaire link was shared via professional contacts, school administrators and through direct teaching interactions. Intensive data collection was conducted over three weeks in November 2024. 101 complete questionnaires were returned. This high rate of response from teachers in private schools is as a result of easy internet access and high interest from them in using technology-related activities.

Instrument for Data Collection

The main instrument for data collection was a self-designed structured questionnaire entitled Artificial Intelligence in Personalized Learning Questionnaire (AIPLQ). This questionnaire was constructed based on the constructs from Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Davis, 1989; Venkatesh et al., 2003) which were modified based on literature review to suit the Nigerian environment.

The AIPLQ comprises five sections and 30 items in total. Section A includes demographic variables which comprise of the teachers' gender, age, highest academic qualification, teaching subjects, type of schools (public/private), years of teaching experience and average class size. Section B measures the level of teachers' awareness on AI in personalized learning, consists of 5 items on a 4-point Likert scale ranging from Strongly Disagree to Strongly Agree. Section C measure the level of use on AI tools, consist of 5 items on a 5-point frequency scale ranging from Never to Always. Section D measures the level of perception on the advantages and disadvantages on AI in personalized learning, consists of 5 items and 5 items on a 4-point Likert scale for the advantage and disadvantages of using AI respectively. Section E comprises two

open-ended questions to ask the teachers on suggestions for improvement and what AI tools they have either used or heard about.

Validity of the Instrument

Content validity was achieved by seeking the judgment of experts in Educational Technology from Nigerian universities (three experts) on the items of the questionnaire in terms of appropriateness and comprehensiveness. Feedback received from the experts was incorporated to refine the wordings of the items. Face validity was determined by administering the questionnaire to a sample of 15 teachers in schools that were similar in background to the schools in which the study was carried out.

Reliability of the Instrument

The internal consistency reliability of the instrument was determined using Cronbach's Alpha coefficient. Using data from actual study of 101 teachers, reliability indices were calculated. Five-item awareness scale recorded a Cronbach's Alpha coefficient of 0.83. Five-item utilization scale recorded a Cronbach's Alpha coefficient of 0.79. Five-item benefits scale recorded a Cronbach's Alpha coefficient of 0.85. Five-item challenges scale recorded a Cronbach's Alpha coefficient of 0.81. All calculated indices are above 0.70 threshold, a standard indication of reliable instrument (Nunnally, 1978).

Method of Data Collection

Data collection was done in three weeks (November 2024) and the data were collected using Google Forms and sent through email and WhatsApp groups to the teachers of Ovia North-East Local Government Area. In case of some schools without easy internet access, teachers were

visited in the schools to give instructions for filling of questionnaire and assistance. Teachers were encouraged by the researcher with regular reminders to complete and submit the questionnaire. Responses are automatically recorded in Google forms and can be exported to MS Excel for data analysis. The three weeks for data collection period were enough for 101 teachers to fill the questionnaire as most of the teachers filled them within the first two weeks.

Method of Data Analysis

Quantitative data was analyzed using descriptive statistics which included; frequencies, percentages, means, and standard deviations for Research questions 1-4. The interpretation of the 4-point Likert scale means are as follows; 1.00-1.49 (Very low), 1.50-2.49 (low), 2.50-3.49 (moderate) and 3.50-4.00 (high). However, means on 5-point frequency scale were interpreted as: 1.00-1.80 (very low), 1.81-2.60 (low), 2.61-3.40 (moderate), 3.41-4.20 (high) and 4.21-5.00 (very high).

Qualitative data were analyzed thematically based on Braun and Clarke (2006) model. The responses were categorized into various themes and analyzed. Blank responses were noted and listed as “No Response”.

All questionnaires have been administrated ethically as explained in paragraph 4. It was guaranteed that the response from each respondent would be confidential and anonymous and they were free to withdraw from the study. All have filled and returned with due consideration of the stated conditions.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter presents the analysis of data collected from 101 secondary school teachers in Ovia North-East Local Government Area, Edo State, regarding the role of Artificial Intelligence (AI) in personalized learning. The results are presented according to the five research questions, followed by discussion of findings in relation to existing literature.

Demographic Characteristics of Respondents

The study involved 101 teachers with the following characteristics:

Gender: Female 61 (60.4%), Male 42 (41.6%)

Age: 21-30 years (24.8%), 31-40 years (9.9%), 41-50 years (32.7%), 51+ years (32.7%)

Highest Qualification: NCE (27.7%), B.Ed/B.A/B.Sc + PGDE (28.7%), M.Ed/M.A/M.Sc (42.6%), Ph.D (1.0%)

School Type: Public school (24.8%), Private school (75.2%)

Average Class Size: Less than 30 (14.9%), 30-39 (9.9%), 40-49 (23.8%), 50-59 (7.9%), 60+ (43.6%)

The sample predominantly represents private school teachers (75.2%), which reflects the accessibility and response patterns during data collection.

Research Question 1: What is the level of awareness among secondary school teachers in Ovia North-East L.G.A. regarding AI tools for personalized learning?

Table 4.1: Teachers' Awareness of AI Tools for Personalized Learning (N = 101)

Awareness Item	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	SD	Interpretation.
I understand what AI means in education	77 (76.2%)	9 (8.9%)	5 (5.0%)	10 (9.9%)	1.49	0.97	Very Low.
I know how AI can	64	12	25	0 (0%)	1.61	0.86	Low.

support personalized learning	(63.4%)	(11.9%)	(24.8%)				
I am familiar with AI tools like adaptive learning platforms	58 (57.4%)	28 (27.7%)	10 (9.9%)	5 (5.0%)	1.63	0.89	Low.
I have received training on AI in education	50 (49.5%)	38 (37.6%)	7 (6.9%)	6 (5.9%)	1.69	0.87	Low.
I can name at least two AI educational tools	81 (80.2%)	8 (7.9%)	10 (9.9%)	2 (2.0%)	1.34	0.78	Very Low.

Overall Mean 1.55 Low Awareness

The overall mean awareness score of 1.55 indicates low awareness among teachers regarding AI tools for personalized learning. Particularly concerning is that 80.2% of teachers could not name two AI educational tools, and 76.2% did not understand what AI means in education. Only 5.9% had received training on AI in education.

Research Question 2: To what extent are AI tools being utilized for personalized learning by secondary school teachers in Ovia North-East L.G.A.?

Table 4.2: Utilization of AI Tools for Personalized Learning (N = 101)

Utilization Item	Never	Rarely	Sometimes	Often	Always	Mean	SD	Interpretation.
I use AI tools to adjust learning content based on student performance	42 (41.6%)	36 (35.6%)	12 (11.9%)	7 (6.9%)	4 (4.0%)	1.96	1.12	Low.
I use AI-driven quizzes or assessments	6 (5.9%)	20 (19.8%)	42 (41.6%)	25 (24.8%)	8 (7.9%)	3.09	1.01	Moderate.
I use learning analytics dashboards to monitor student progress	33 (32.7%)	30 (29.7%)	16 (15.8%)	12 (11.9%)	10 (9.9%)	2.36	1.35	Low.
I recommend AI-based resources to	5 (5.0%)	10 (9.9%)	36 (35.6%)	36 (35.6%)	14 (13.9%)	3.43	1.0	High.

students	)			)	)		3	
I integrate AI tools into my lesson plans	31 (30.7%)	26 (25.7%)	13 (12.9%)	25 (24.8%)	6 (5.9%)	2.50	1.35	Moderate.
Overall Mean: 2.67 Moderate Utilization								

The overall utilization mean of 2.67 indicates moderate utilization of AI tools. The highest utilization was in recommending AI-based resources to students (mean=3.43, High), followed by using AI-driven quizzes (mean=3.09, Moderate). However, core personalized learning activities like adjusting content based on performance showed low utilization (mean=1.96).

Research Question 3: What are the perceived benefits of using AI for personalized learning among secondary school teachers in Ovia North-East L.G.A.?

Table 4.3: Perceived Benefits of AI for Personalized Learning (N = 101)

Benefit Item	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	SD	Interpretation.
AI saves time in lesson planning	0 (0%)	0 (0%)	71 (70.3%)	30 (29.7%)	3.30	0.46	Moderate.
AI helps identify struggling students	0 (0%)	15 (14.9%)	63 (62.4%)	23 (22.8%)	3.08	0.64	Moderate.
AI increases student engagement	0 (0%)	8 (7.9%)	73 (72.3%)	20 (19.8%)	3.12	0.54	Moderate.
AI provides personalized feedback	0 (0%)	0 (0%)	21 (20.8%)	80 (79.2%)	3.79	0.41	High.
AI supports differentiated instruction	0 (0%)	13 (12.9%)	76 (75.2%)	12 (11.9%)	2.99	0.55	Moderate.
Overall Mean 3.26 Moderate to High Benefits							

Teachers perceive significant benefits of AI for personalized learning, with an overall mean of 3.26. The strongest agreement was for AI providing personalized feedback (mean=3.79, High), with 79.2% strongly agreeing. This indicates that teachers recognize AI's potential value despite their low current usage.

Research Question 4: What challenges do secondary school teachers in Ovia North-East L.G.A. face in adopting AI for personalized learning

Table 4.4: Challenges to AI Adoption for Personalized Learning (N = 101)

Challenge Item	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	SD	Interpretation.
Lack of reliable electricity limits AI use	0 (0%)	0 (0%)	24 (23.8%)	77 (76.2%)	3.76	0.43	High.
Poor internet connectivity hinders AI adoption	0 (0%)	0 (0%)	23 (22.8%)	78 (77.2%)	3.77	0.42	High.
I lack training on how to use AI tools	3 (3.0%)	13 (12.9%)	70 (69.3%)	15 (14.9%)	2.95	0.62	Moderate.
AI tools are too expensive for my school	6 (5.9%)	17 (16.8%)	61 (60.4%)	17 (16.8%)	2.88	0.78	Moderate.
I fear that AI might replace teachers	3 (3.0%)	59 (58.4%)	21 (20.8%)	18 (17.8%)	2.53	0.81	Moderate.
Overall Mean: 3.18 Moderate to High Challenges							

Infrastructure challenges are the most severe, with lack of reliable electricity (mean=3.76) and poor internet connectivity (mean=3.77) rated as high challenges. Training deficiency is also notable (mean=2.95). Interestingly, fear of AI replacing teachers was the least concerning challenge (mean=2.53).

Research Question 5: What strategies can be implemented to improve the integration of AI in personalized learning in secondary schools?

Table 4.5: Suggested Strategies for AI Integration (Thematic Analysis, N = 101)

Strategy Theme	Frequency	Percentage	Representative Quotes.
Training and Professional Development	78	77.2%	"Regular workshops on AI tools for teachers"; "Hands-on training sessions"; "Continuous professional development in educational technology".
Improved Infrastructure	82	81.2%	"Government should provide steady electricity in schools"; "Reliable internet connectivity is essential"; "Basic infrastructure must be fixed first".
Affordable and Accessible AI Tools	65	64.4%	"Subsidized AI software for schools"; "Free versions of educational AI tools"; "Low-cost solutions for Nigerian schools".
Curriculum Integration	42	41.6%	"Include AI in teacher training curriculum"; "Align AI tools with national curriculum"; "Make AI part of educational policy".
Administrative and Government Support	38	37.6%	"School principals should encourage AI use"; "Government policies supporting EdTech"; "Ministry of Education should lead AI initiatives".
Time and Resources	25	24.8%	"Time to learn and experiment with AI tools"; "Reduced teaching loads to allow for technology integration".

Additional Insights from Open-ended Responses:

Teachers mentioned specific AI tools they had heard about or used minimally:

AI Tool	Frequency (f)	Percentage (%)
ChatGPT	22	21.78
Meta AI	12	11.88
Deepseek	10	9.90
Gemini AI	10	9.90

Google AI	9	8.91
Perplexity	8	7.92
Nova	7	6.93
Grok	6	5.94
Chatbot	5	4.95
V0.dev	2	1.98
Chatgo	2	1.98
Ulesson App	1	0.99
Slide AI	1	0.99
Ryt	1	0.99
Duolingo	1	0.99
No Response	41	40.59
Total	101	100

Note: Percentages are calculated based on the total sample size (N=101). Multiple responses were allowed, so the sum of frequencies exceeds the number of respondents who answered the question (n=60).

The analysis reveals that only 60 out of 101 teachers responded to the question on AI tool usage, while 41 gave no response. Among the tools mentioned, ChatGPT was the most frequently used (22 mentions), followed by Meta AI (12 mentions) and Deepseek (10 mentions). The relatively high non-response rate of 40.59% suggests that a significant proportion of teachers remain either unaware of or disengaged from AI tools. This indicates a need for targeted awareness campaigns and hands-on training to improve AI adoption among educators.

Discussion Of Findings

Low Awareness Despite High Perceived Benefits: The study reveals a paradox: while teachers have low awareness and training in AI (mean=1.55), they strongly believe in its benefits (mean=3.26). This aligns with the Technology Acceptance Model (Davis, 1989), where perceived usefulness precedes actual use. However, in this context, external barriers prevent the translation of positive perceptions into practice. Similar findings were reported by Aduwa-Ogiegbaen and Iyamu (2019), who noted that Nigerian teachers recognize technology's value but lack the means to implement it.

Infrastructure as Primary Barrier: The overwhelming identification of electricity and internet challenges (means of 3.76 and 3.77 respectively) corroborates findings by Okebukola (2018), who identified infrastructure as the foundational barrier to educational technology adoption in Nigeria. This is particularly relevant given that 43.6% of teachers reported class sizes of 60+ students, making personalized learning challenging even without technology constraints.

Private School Dominance in Sample: The sample's composition (75.2% private school teachers) may influence the results. Private schools typically have better resources and potentially more exposure to technology. However, even within this relatively advantaged group, awareness and utilization remain low, suggesting that the challenges are systemic rather than school-type specific.

Utilization Patterns: The higher utilization in recommending AI resources (mean=3.43) compared to actual integration into teaching practices suggests that teachers are comfortable with AI as a supplementary resource but not as an integral pedagogical tool. This aligns with

Selwyn's (2019) observation that technology often enters classrooms peripherally before becoming central to instruction.

Training Deficit: The finding that 69.3% of teachers lack AI training (mean=2.95) highlights a critical gap in professional development. Ifijeh et al. (2021) similarly found that training was the second most important predictor of digital tool adoption among Lagos teachers, after perceived usefulness.

Minimal Fear of Job Replacement: The relatively low concern about AI replacing teachers (mean=2.53) contrasts with global anxieties but aligns with Nigerian teachers' pragmatic focus on immediate barriers. This suggests teachers view AI as a potential aid rather than a threat, consistent with Zawacki-Richter et al.'s (2019) finding that educators in developing contexts often see technology as augmentation rather than replacement.

Summary Of Findings

This study revealed that teachers' awareness of AI tools for personalized learning was very low, with an overall mean score of 1.55 out of 4. Specifically, 80.2 percent of teachers could not name two AI educational tools. Utilization of AI tools was moderate overall, with a mean score of 2.67 out of 5, and was highest in recommending AI-based resources to students. Teachers perceived the benefits of AI to be high, with an overall mean score of 3.26 out of 4, particularly for providing personalized feedback. Major challenges to AI adoption includes lack of reliable electricity and poor internet connectivity, with mean scores 3.76 and 3.77 out of 4 respectively. Teachers recommended improved infrastructure, professional development, and affordable AI tools as key strategies for integration.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary of the Study

The study examined the adoption of artificial intelligence tools by secondary school teachers in Ovia North-East Local Government Area of Edo State, Nigeria. This study was aimed at finding out through five research questions, to what extent do secondary school teachers have awareness of AI tools, what is the degree of adoption of artificial intelligence tools by teachers in the classrooms, what are teachers' views regarding the role of AI in personalized learning, what are the constraints or barriers against the use of artificial intelligence, and what recommendations can be given to foster the use of AI in Nigerian secondary schools.

A descriptive survey design was adopted for the study. It was administered to 101 secondary school teachers within Ovia North-East Local Government Area of Edo State. The analysis carried out was based on a questionnaire designed as Artificial Intelligence in Personalized Learning Questionnaire (AIPLQ). The data obtained were analysed using frequencies, percentages, means, standard deviations, and thematic analysis for the open ended questions.

It was discovered during the analysis that teachers were poorly aware of AI tools available for personalized learning, 80.2 percent of teachers could not mention two AI educational tools, only few teachers had received any form of training on artificial intelligence for use in education. The rate of adoption of artificial intelligence tools by teachers in their classrooms was moderate with teachers willing to suggest the use of artificial intelligence tools to their students than use the tools to alter or adapt their teaching for individual students. Teachers

saw the artificial intelligence tools as being advantageous for offering personal feedback, stimulating students to learn, and for identifying students that struggle with learning materials. The study also indicated that teachers believed lack of electricity supply, lack of adequate network connectivity, cost of the software or hardware and teachers' lack of adequate training on use of tools were the major challenges militating against the adoption of artificial intelligence in classrooms, and teacher was unlikely to fear artificial intelligence replacing them in their jobs, with 41 teachers (40.59%) not providing any response to the question about any artificial intelligence tools they had used or know of, suggesting lack of knowledge in the field, teachers suggested reliable electricity supply, increased access to training programs, reduce costs of materials, integration of AI in the curriculum and full administrative backing from the schools.

This investigation brought to light the slow adoption of artificial intelligence in Nigerian secondary schools can be attributable to system constraints such as the infrastructure deficit and lack of adequate training on its use; these contribute significantly to the sluggish uptake of this technology for enhancing the personalized learning experiences available to secondary school students in Nigeria.

Conclusion

The findings of this study revealed the substantial potential artificial intelligence holds to enrich the personalized learning experiences of secondary school students in Ovia North-East Local Government Area. This study however found a generally poor level of awareness of AI tools and no training amongst teachers which is inimical to the successful deployment of these

technologies in the classroom. Despite this gap, teachers firmly uphold the benefits these tools can offer especially in the realm of personalized feedback to students and student interaction. Therefore, effective adoption of Artificial intelligence in Nigerian secondary schools demands a collaborative effort from all stakeholders including; the government, school administration, teachers, parents and education specialists. These key players are crucial to the success of AI integration; key amongst the barriers against widespread adoption are infrastructure issues such as lack of a stable electricity supply and a dependable network quality, followed by the absence of relevant training, and without tackling these foundational issues effectively the great promise that AI enabled personalized learning holds will not be fully realized by the secondary school students but this challenge can be mitigated if supported by adequate planning from the government and school administrators.

Recommendations

Based on the results obtained from this study, the following recommendations are put forward for improving the adoption of artificial intelligence in secondary schools.

The government should commit to an enhancement of the infrastructural base, primarily by providing an uninterrupted and a reliable electricity supply along with an accessible and quality network in secondary schools. They should further implement policies to facilitate the introduction of Artificial Intelligence into the national education curriculum and provide funds for its successful procurement and facilitate access to free/discounted educational AI applications.

School administrators should formulate strategies aimed at equipping teachers and students with the affordable technology needed to use artificial intelligence and provide access to this

learning community to allow for interaction between teachers; it should not be without the provision of proper resources and sufficiently planned training sessions as a motivator to those teachers that adopt them, and teachers' work should be managed better in the context of these new technologies.

Teachers ought to ensure that they continuously search for various training materials such as; online courses, webinars and tutorials, etc that are aimed at increasing their digital literacy, their ability to use artificial intelligence tools effectively, and that initially, simple artificial intelligence tools should be used to create teaching and learning materials, and as teachers gain proficiency, they can progress to more complex ones that could aid personalize learning. It is essential for them to interact with colleagues and to acquire the skills and knowledge needed in this new field.

The parents should support their children in pursuing their education by enabling access to devices and the internet, thereby ensuring their use of AI technologies. This study is not excluding the role parents should play in their interaction with teachers and school administration and that they ought to become an advocate and demand better facilities from the schools.

Teacher training institutions should consider the need to establish a thorough course in artificial intelligence and educational technologies including every facet related to personalized learning and EdTech companies should develop lightweight and functional tools that can operate on the typical mobile devices readily available in the Nigerian setting, and also provide tools that can be utilized offline and continue to build certified courses or offer online courses in order to make use of the training resources readily available for practicing teachers.

Suggestions for Further Studies

The effects of specific AI tools on the learning of students should be researched with the use of an experimental study design. Comparing the adoption rates of artificial intelligence in public and private secondary schools and also comparing the rates across various Nigerian states can also be informative. The study of teachers' adoption journey of artificial intelligence over a long period of time can also be informative.

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APPENDICES

APPENDIX A: RESEARCH QUESTIONNAIRE

ARTIFICIAL INTELLIGENCE IN PERSONALIZED LEARNING QUESTIONNAIRE (AIPLQ)

Section A: Demographic Information

1. Gender: Male () Female ()
2. Age: 21-30 () 31-40 () 41-50 () 51+ ()
3. Years of teaching experience: 1-5 () 6-10 () 11-15 () 16+ ()
4. Highest qualification: NCE () B.Ed./B.A./B.Sc. + PGDE () M.Ed./M.A./M.Sc. () Ph.D. ()
5. Subject area taught: _____
6. School type: Public () Private ()
7. School location: _____
8. Average class size: Less than 30 () 30-39 () 40-49 () 50-59 () 60+ ()

Section B: Awareness of AI Tools for Personalized Learning

(4-point scale: 1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree)

1. I understand what Artificial Intelligence (AI) means in education.
2. I am familiar with AI tools like adaptive learning platforms.
3. I know how AI can support personalized learning.
4. I have received training on AI in education.
5. I can name at least two AI educational tools.

Section C: Utilization of AI Tools

(5-point scale: 1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always)

1. I use AI tools to adjust learning content based on student performance.

2. I use AI-driven quizzes or assessments.
3. I use learning analytics dashboards to monitor student progress.
4. I recommend AI-based resources to students.
5. I integrate AI tools into my lesson plans.

Section D: Perceptions of AI Benefits and Challenges

(4-point scale: 1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree)

Benefits:

1. AI saves time in lesson planning.
2. AI helps identify struggling students.
3. AI increases student engagement.
4. AI provides personalized feedback.
5. AI supports differentiated instruction.

Challenges:

1. Lack of reliable electricity limits AI use.
2. Poor internet connectivity hinders AI adoption.
3. I lack training on how to use AI tools.
4. AI tools are too expensive for my school.
5. I fear that AI might replace teachers.

Section E: Open-ended Questions

1. What would help you use AI tools more effectively for personalized learning?
2. Please suggest any AI tools you have used or heard about for teaching.

APPENDIX B: LETTER OF INTRODUCTION

UNIVERSITY OF BENIN
Institute of Education
Benin City, Edo State
Nigeria.

Date: 12th January, 2026

To: The Principal

Ovia North-East L.G.A.
Edo State

Dear Sir/Madam,

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a Postgraduate Diploma in Education (PGDE) student at the Institute of Education, University of Benin. I am conducting a research study titled "Artificial Intelligence in Personalized Learning among Secondary School Teachers in Ovia North-East L.G.A., Edo State, Nigeria.

I hereby request your permission to administer electronic questionnaires (Google form via whatsapp link) to teachers in your school for academic purposes only. All information provided will be kept strictly confidential and used solely for research.

Thank you for your cooperation.

Yours faithfully,

EBENIRO HYCIENT CHINASA
(PGDE Student)