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# Exploring an Innovative Educational Governance Framework: Leveraging Artificial Intelligence in a Stakeholder-Driven 'Open Campus Model' in South East Nigerian Universities

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**Abstract.** As a cornerstone of societal progress, integrating Artificial Intelligence (AI) into educational methodologies with robust stakeholder engagement represents a pivotal stride towards optimizing the efficacy and relevance of education in an era characterized by rapid development. The disruptive impact of events such as the COVID-19 pandemic has underscored the urgent need for innovative solutions to educational challenges, particularly in Nigeria, where academic activities halted amid the crisis. In response, this study explores the potential of the "Open Campus Model" (OCM), a transformative educational governance framework supported by AI. The research, conducted through a comprehensive literature review and a workshop at Alex Ekwueme Federal University Ndufu-Alike, Nigeria, identified key themes: Educational Practices Enhancement, Educational Innovation with AI, Governance and Participation, Collaborative

Learning and Inclusivity, and Access and Equity. An unstructured questionnaire with ten questions facilitated in-depth interviews with 63 participants, including university lecturers, administrators and educational stakeholders from South East Nigeria. Data from the interviews underwent thematic analysis, revealing that OCM, supported by AI, enhances educational practices, fosters collaborative learning, and promotes inclusivity and equity. The study concludes that implementing OCM can address current educational challenges in Nigeria, recommending further research to refine and expand the model's application.

**Keywords:** Open Campus-Model; Artificial Intelligence; Governance Frameworks, Stakeholder Engagement; Collaborative Learning; Educational Innovation

## 1. Introduction

In the evolving landscape of education, the fusion of technology with teaching and learning practices has ushered in a wave of revolutionary changes. As we navigate this era of technological innovation, it becomes imperative to scrutinize these developments across various contexts to discern their impacts, levels of adoption, and adaptability. While acknowledging Africa's historical contributions to technological advancements, particularly evidenced by ancient civilizations like Egypt (Funari, 2019), our focus in this paper shifts towards examining the current state and future prospects of technology-driven education, specifically in Africa and South-East Nigeria. Against the backdrop of global technological advancements and the disruptions caused by events like the COVID-19 pandemic, it has become increasingly evident that traditional educational systems need modernization and proactive solutions. The pandemic, in particular, brought academic activities to a standstill in Nigeria, highlighting the educational system's vulnerability and the urgent need for leveraging technology to address pedagogical challenges (Moussa et al., 2024; Hamal et al., 2022).

AI in education is transforming the teaching and learning experience by developing adaptive learning environments and inclusive tools that address personalized learning, mobile learning, and collaborative learning (Hamal et al., 2022). However, the integration of AI presents both benefits and challenges, emphasizing the need for government investment in education and ICT research to support innovative AI use (Rios-Campos et al., 2023). In higher education, AI's impact spans faculty, students, teaching, assessment, research, management, and academic culture, necessitating cautious and well-informed integration (Jafari & Keykha, 2023; Lampou, 2023). AI applications such as The Teaching Machine System and Intelligent Tutoring Systems aim to enhance quality and accessibility in education, despite facing challenges in processing unstructured data and improving human-AI interactions (Lin et al., 2023). Moreover, AI's role in fostering creativity, critical thinking, communication, and collaboration underscores its potential to revolutionize education (Baker, 2023; Ahmad et al., 2024).

In response to these pressing needs, our research has culminated in the development of a groundbreaking initiative termed the "Open Campus Model" (OCM). OCM represents a paradigm shift in educational governance, harnessing the power of AI and stakeholder engagement to redefine participatory education methodologies. It serves as a dynamic platform for seamless data sharing, collaborative learning, and unrestricted access to academic resources across tertiary institutions, thereby enhancing the teaching and learning experience. The transformative potential of collaborative learning with e-tools further underscores the efficacy of technology-enhanced pedagogical approaches in improving student performance and fostering active learning environments (Moussa et al., 2024; Sok & Heng, 2024)

Our endeavor to innovate the educational landscape through the OCM initiative signifies a proactive step towards harnessing the full potential of technology to revolutionize teaching and learning practices, foster collaborative engagement, and pave the way for a more inclusive and dynamic educational ecosystem in Africa and beyond. This study explores various aspects of educational practices and technology integration in the Nigerian context. It examines the impact of the Open Campus Model (OCM) on teaching and learning practices within tertiary institutions and analyzes how AI customizes student learning experiences. It also explores the role of stakeholder engagement in enhancing education governance, identifies the challenges and opportunities associated with integrating technology-enhanced learning methods into traditional educational settings, and investigates strategies for promoting equitable access to educational resources and opportunities for all learners (Thottoli et al., 2024; Musyaffi et al., 2024). The goal is to contribute valuable insights to inform evidence-based policy and practice in the Nigerian education sector, ultimately striving towards a more inclusive, effective, and technologically-driven educational system. Key questions in this study include: What is the impact of the Open Campus Model (OCM) on teaching and learning practices within tertiary institutions? How does Artificial Intelligence (AI) customize student learning experiences? What is the role of stakeholder engagement in enhancing education governance? What are the challenges and opportunities associated with integrating technology-enhanced learning methods into traditional educational settings? What strategies can promote equitable access to educational resources and opportunities for all learners?

## 2. Thematic Literature Review

### 2.1 ICT Integration and Educational Practices

The core of the ICTs-based practices revolution into higher education lies in the introduction of ICTs (Information and Communication Technologies) that lead to incremental changes in teaching methods by making fundamental changes in the educational environment. Contrary to what Kirkup and Kirkwood (2005) had claimed this was a process of evolution and not a revolutionary challenge. Strange enough, even though it was the smallest of many, the bump brought about the largest of many changes in learning facilities. Vélez et al. (2020) highlights some critical elements of change through ICT enabled learning environments in higher education. This development focuses on the skills of the students which involves evaluative, pedagogical, and technological

competencies. It signifies the major role played by technology in building the diverse skill set required by the present day context, not only for academic success but also for employability.

Certainly, the same traditional old system of education which was based on passive learning has already been rejected because these ICTs are endowed with it. According to McCormick (2001), ICT in the classroom undermines the conventional perspective on learning and presents alternative learning methods, such as collaborative learning activities and various forms of communication among the learners. Non-conformance to the norm is not simply an alteration to the routine of the students but also the frontier of innovation and exploration. Nonetheless, Nunes, et al. (2016) submit that ICTs in remote learning aid interdisciplinary discourse in distance learning units through learning technologies. Technology also empowers different remote educational groups to interact with other people which in return feeds the minds with diverse learning fields, rich expositions and knowledge exchange.

Besides conversion to the online learning environment, it is impossible to neglect the significance of the e-learning techniques in higher education according to the founding of Sanchez-Franco et al. in 2011. Platforms in this category are seen as the key components of being successful in the Modern Pedagogical Practices within the European Higher Education Area. Citing the relation of teachers' internet use by the integration of communicative web technologies that confirm the educational trend driven by teachers into enhancing the technological adoption in educational settings (Kovacevic et al., 2014). Teachers, the first line of action agents are potentially mighty to determine the outline of digital pedagogy which eventually can be translated into an interactive and participative learning system making the learning process smooth. To sum up, higher education ICT incorporation highlights a paradigm change from involving static, monolithic, and passive forms of learning to engaging, interactive and participatory methods of education. The power of technology to transform teaching1 for the better is enormous, as Lifelong learner's fluent in technology and who are able to think critically will be prepared for a knowledge-based work force.

*2.1.1 Pedagogical Approaches and Learning Models*

The parent ICT discipline (ICTs) is transforming how the sphere of educational approaches and learning models for higher education are solved which is spearheaded by the introduction of information and communication technologies (ICTs). Makrakis and Kostoulas-Makrakis (2023) may disclose the transforming nature of a participatory curriculum model that is merged with the technology of information and communication, by leading to sustainability education, being incorporated into higher education curricula across Indonesia, Malaysia and Vietnam. This brings us to the fact that the need for remodeling of ordinary learning frameworks is gaining more importance in order to captivate the current challenges including sustainable global development and global citizenship.

Also, high-quality learning environments can be conveniently set up through optimal instruction settings, learning opportunities and ICT utilization which can bring a change to the educational atmosphere, in great favour or those at risk (Mooij, 2004).This underscores the catalytic role of technology in promoting inclusivity and equitable access to education, thereby empowering marginalized cohorts of learners. The study of Abellán et al. (2012) is a sign of the effectiveness of inquiry-based learning, using the computer-supported collaborative learning (CSCL) approach, for undergraduate students in ICT, to offer fruitful educational experiences. This proves to be a reminder that including group learning methodologies in digital technologies through collaborative work, not only activates students but more importantly, creates imbued knowledge among students.

Besides, the model P-P (passive-participative music), from Romero et al. (2016), suggests a reflective approach to the incorporation of Information and Communication Technology (ICT), applying the social constructivist and inclusive learning styles in the development of the student's way of thinking. This model not only emphasises a collaborative learning approach, but also showcases the potential of ICTs as a means of fostering a new generation of independent and self-reliant students in education. This model not only emphasises a collaborative learning approach, but also showcases the potential of ICTs as a means to cultivate a new generation of independent and self-reliant students in educational institutions. As part of these participatory philosophical frameworks Brandenberger (2022) examines the ways in which Open Educational Practices (OEP) may profound the use of higher education in creating students to learn more actively and to collaborate among themselves. Being mediator, facilitator and as a framework, by means of which people can share knowledge, practice and also tools, OEP motivates diverse barricades for analysing participation in cooperative learning and teaching, therefore creating culture of knowledge co-creation and delivery.

The use of ICTs to accomplish educational goals, particularly in university environments, is a transforming of the whole education system. From traditional teacher-centric educational systems, we move towards participatory, inclusive, and learner-centric cultures. Utilizing technology powerfully transforms the education process, thus educators stand in the forefront of new millennium to bring up a generation of well-skilled and knowledgeable students with critical thinking and digital skills needed for the global economies.

*2.1.2 Teacher Training, Collaborative Learning, and Ethical Considerations in Educational Technologies*

In the other words, technology has shown to be the new source of virtual reality in which implementing ICTs to pedagogy the paradigm shift becomes the obligatory call to reform teacher education, collaboration, and ethical issues related to educational technologies utilization. Overcoming one of the training of teachers becomes a core idea in the conversation concern about educational development. According to the author (Nascimbeni, 2018), educators are the locomotives in the direction of the train which means that they need to be educated in digital practices and be able to critically read the media messages.

This strengthens the teaching training programs' position that they need to gear clear of the technical expertise only, and the teachers have to be idiosyncratic with the pedagogical acumen and the ethical sapience to find the way of the digital learning environment complexities.

Collaborative learning, led in ICTs terms, turns out to be the unconditional trait of modern pedagogy. Scott and Benlamri (2010) show us the power of collaborative network instruction platforms which can actually bring together the online courses and create profound interactions between educational processes and practices. Employing digital soil for the formation of collaborative knowledge and answer for the question, educators can create a learning culture in which students mutually learn and share knowledge and hence more meaningful and successful learning outcomes can be achieved.

In contrast, while the incredible flow of educational technologies is undeniable, the ethical issues are undoubtedly very weighty. It is important to point out the ethical problemats categorized by the Brown et al. (2020) as the AI, Social Networking Services, and 3D printing are widely used in digital teaching environment. As technology becomes more and more embedded into the educational arena, these issues around data privacy, bias of algorithms and digital equity that educators should address. So, because of this, an important ethical question is at the core level in the planning, implementation, and evaluation of educational technologies to guarantee that they work as the instruments of empowerment and not as the tools of exclusion or harm.

The connection of teacher training, collaborative learning, and considered ethics around the subject of educational technologies is just a few of the various factors which show multiple layers of educational empowerment in the current digital age. The mission of higher education institutions is to arm educators with imperatives skills, achieve emplace a collaborative learning system, and safeguard ethical standards in order to let the institutions hierarchy in the complicated digital space but also keep the attitude of individual and responsible educators.

*2.1.3 The Role, Opportunities and Challenges of AI Integration in Education and education governance*

The integration of Artificial Intelligence (AI) in education is reshaping both formal and lifelong learning by developing adaptive and flexible learning environments. AI tools are addressing challenges such as personalized learning, mobile learning, and collaborative learning, making education more inclusive and responsive to individual needs (Hamal et al., 2022). This dynamic approach is transforming educational practices and structures, enhancing the engagement and efficiency of teaching and learning processes (Lampou, 2023). AI's potential to enhance the educational experience comes with both benefits and challenges. For instance, while tools like ChatGPT provide significant opportunities for personalized learning and improved student outcomes, they also pose issues related to academic integrity, security, privacy, and the reliability of AI-generated information (Sok & Heng, 2024). Governments and educational

institutions are thus encouraged to invest in education and ICT research to support innovative and creative uses of AI (Rios-Campos et al., 2023).

The application of AI in higher education extends to various domains including faculty, students, teaching, assessment, research, and management. This multifaceted impact necessitates careful integration, proper training, and awareness to minimize potential challenges and optimize benefits (Jafari & Keykha, 2023; Lampou, 2023). AI systems such as The Teaching Machine System, Intelligent Tutoring Systems, and Intelligent Educational Systems are designed to enhance educational quality and accessibility, though they face challenges in processing unstructured data and improving human-AI interactions (Lin et al., 2023). Moreover, AI has significant implications for human skills development, particularly in fostering creativity, critical thinking, communication, and collaboration within educational and training environments (Baker, 2023). However, ethical considerations and responsible implementation are paramount to ensure that AI tools are used fairly and effectively, enhancing rather than compromising the educational experience (Ashwini et al., 2023; Zahoor et al., 2024).

Data-driven AI applications in education, such as student grading, retention predictions, sentiment analysis, and classroom monitoring, offer promising avenues for personalized and efficient educational experiences (Ahmad et al., 2024). Yet, the effectiveness of these tools in promoting student engagement and learning outcomes remains a subject of ongoing research (Moussa et al., 2024). For example, explainable AI tools are essential to ensure the correctness, fairness, and reliability of machine learning models in educational settings (Zahoor et al., 2024).

Acceptance of AI in education is influenced by factors such as perceived usefulness, ease of use, and confidence in AI tools. For accounting students, AI quality and personal innovativeness play a crucial role in enhancing learning benefits and convenience (Musyaffi et al., 2024). Additionally, chatbot applications offer a promising approach to balancing personalized student advising with automation, further demonstrating the potential of AI to streamline educational processes (Thottoli et al., 2024). In all, while AI presents numerous opportunities for enhancing educational practices, it also requires careful consideration of ethical implications and challenges to ensure its effective and responsible implementation.

**2.2 Open Campus Model**

The Open Campus Model (OCM) initiative represents a revolutionary step towards transforming the learning paradigm in tertiary institutions located in South-East Nigeria. The OCM stands as an autonomic and distributed e-learning and teaching network aimed at revolutionizing the education system in the region. Unlike traditional learning management systems, OCM boasts unique features that foster collaboration, knowledge sharing, and cross-institutional engagement at its finest. It acts as a comprehensive repository of teaching materials, resources, and interactive tools necessary for educational purposes, enabling tutors to design and share their instructional material and empowering

learners to access a vast array of knowledge across numerous fields (Scott & Benlamri, 2010; Johnson & Lomas, 2005).

One of the critical aspects of OCM is its ability to transcend the boundaries of individual institutions, creating a unified academic experience that integrates several universities (Scott & Benlamri, 2010). This cross-institutional collaboration allows tutors and researchers to work together on projects, share best practices, and leverage collective expertise to enhance the learning experience. By providing a platform where class activities, assignments, and learning resources from different universities are available in one place, OCM democratizes education and offers students unparalleled opportunities to engage in diverse learning environments (Abellán et al., 2012; Goodyear, 2005).

As a technological platform, OCM represents a vision of a connected, cooperative, and inclusive learning world. It utilizes technology to break down traditional barriers to education, emerging as a catalyst for change and progress. By promoting greater capacity for both learners and teachers, OCM influences and shapes the future of education in South-East Nigeria. This approach aligns with the principles of seamless technology integration and diverse learning opportunities advocated by Scott and Benlamri (2010).

The principles guiding the design of OCM align with the recommendations of Scott and Benlamri (2010), who emphasized the importance of system flexibility in learning spaces. According to them, learning spaces should adhere to three key principles:

1. Diverse Learning Opportunities: Learning spaces must accommodate various forms of engagement, including instructional spaces, seminars, labs, meetings, and virtual environments, addressing both formal and informal learning needs without requiring extensive reconfiguration.
2. Seamless Integration of Technologies: The architecture of learning spaces should facilitate the seamless integration and convergence of technologies and services, leveraging an invisible network infrastructure to support diverse educational activities.
3. Enhanced Location and Activity Awareness: Learning spaces should effectively support different location and activity awareness capabilities, enabling learners to engage in dynamic and interactive learning experiences tailored to their specific contexts and needs.

Moreover, the user-friendly experience provided by the learning space resonates with the ideas of Johnson and Lomas (2005). They argued that learning spaces should facilitate both social and intellectual interactions, allowing learners to connect, engage in meaningful dialogue, interact through various mediums, exchange learning resources, and maintain seamless communication and interaction across different spaces, regardless of physical constraints (Johnson & Lomas, 2005).

**2.3 OCM Key Highlights**

The OCM initiative signifies a significant educational shift, moving away from traditional methods and embracing a modern and innovative approach. With a primary focus on tertiary institutions, particularly in Nigeria's South-East

region, OCM aims to encourage its adoption and implementation in other institutions across Nigeria, Africa, and beyond. The decentralized and widespread nature of OCM underscores its goal of reaching a broad audience (Romero et al., 2016; Brandenburger, 2022). OCM aims to transform the educational landscape by changing teaching methods, utilizing technology, and promoting collaboration among educators and learners. As a comprehensive repository, OCM provides a dynamic central location for educational materials and resources, including documents, videos, and interactive tools. By facilitating collaboration across institutions, OCM enables educators and researchers from different universities to collaborate on projects, share resources, and exchange ideas, fostering a sense of community and cooperation within the academic sector (Koukopoulos et al., 2020; Heymans, 2022).

Additionally, OCM ensures smooth access to learning materials for students, allowing them to engage with course content from multiple sources, enriching their learning experience and expanding their academic opportunities. Ultimately, OCM aims to empower both learners and educators by equipping them with the tools, resources, and opportunities necessary for success in their educational pursuits. Through promoting collaboration, inclusivity, and innovation, OCM plays a critical role in shaping the future of education in the region (Nascimbeni, 2018; Fredys et al., 2017).

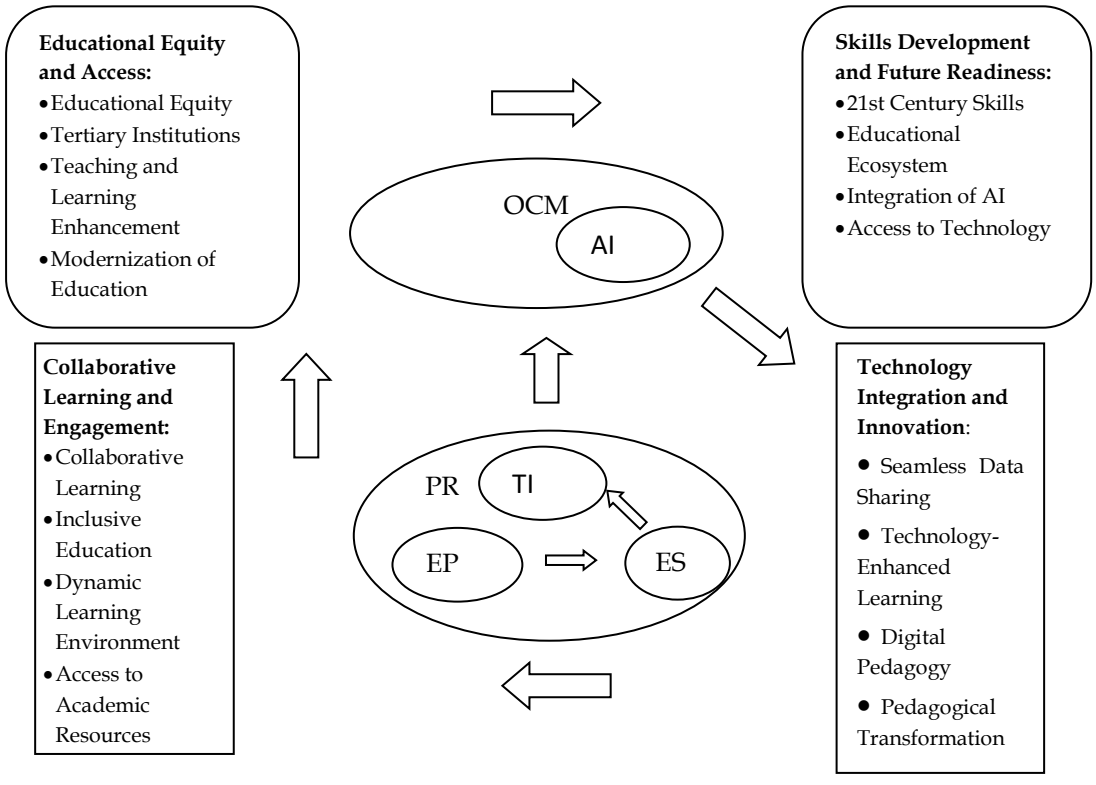


**Figure 1: Open Campus Model (OCM) conceptual framework**
**Source: Authors' conceptual framework initiative**
**Keys**: PR (Policy Regime), EP (Education Policy), ES (Education Stakeholders), TI (Tertiary Institutions), AI (Artificial Intelligence).

The conceptual framework explains the policy process involving the initiation, formulation, implementation, evaluation and outcome. PR indicate the policy environment that initiates and sponsors education policy that recognizes the need for integration of technology and AI in educational practice. It recognizes the need to engage relevant stakeholders ES in government ministries and commissions, and engagement of TI to collaborate in the development of OCM. OCM is an educational technology that has AI embedded in it to make it more powerful in answering to the needs of its subscribers. The implication of the development and adoption of the model is exemplified by the progression in the framework ranging from Technology Integration and Innovation, Collaborative Learning and Engagement, Educational Equity and Access, to Skills Development and Future Readiness. The arrows indicate the direction ranging from PR to OCM and finally to the progressive outcomes.

## 2.4 OCM Conceptual Explications

*2.4.1. Model Development and Implementation*

Open Campus Model (OCM): The OCM initiative represents a ground-breaking educational framework designed to revolutionize traditional learning paradigms. It aims to provide a decentralized and inclusive learning environment that extends beyond the confines of individual institutions, fostering a more collaborative and interconnected educational ecosystem. This model is intended to create a more flexible and accessible learning environment, supporting diverse educational needs and promoting lifelong learning (Abellán et al., 2012; Goodyear, 2005).

Artificial Intelligence (AI): AI is integral to the OCM, offering personalized learning experiences by analysing student data and adapting teaching methods accordingly. This personalized approach helps to address individual learning needs, making education more effective and engaging. AI technologies facilitate adaptive learning environments where students receive customized support and resources, enhancing their educational journey (Aziz, 2011; Tian & Lin, 2015).

Stakeholder Engagement: The success of OCM relies heavily on the active involvement of various stakeholders, including educators, students, administrators, and policymakers. This collaborative approach ensures that the educational framework aligns with the diverse needs and perspectives of all parties involved, fostering a more inclusive and effective educational system. Stakeholder engagement is crucial for the continuous improvement and relevance of the OCM (Moens et al., 2010; Koukopoulos et al., 2020).

Participatory Education Governance: The OCM embodies a democratic approach to educational governance, encouraging stakeholders to participate in shaping policies, practices, and initiatives. This participatory model promotes inclusivity and responsiveness, ensuring that educational strategies are well-informed and reflective of the community's needs. By involving stakeholders in decision-making processes, OCM enhances the accountability and transparency of educational governance (Brandenburger, 2022; Nascimbeni, 2018).

*2.4.2. Technology Integration and Innovation*

Seamless Data Sharing: OCM leverages technology to facilitate seamless sharing of educational resources, data, and insights across institutions. This capability promotes collaboration, maximizes resource utility, and enhances the collective educational experience. Seamless data sharing enables institutions to work together more effectively, breaking down silos and fostering a more integrated educational network (Scott & Benlamri, 2010).

Technology-Enhanced Learning: The integration of innovative technologies within OCM enhances teaching and learning experiences. These technologies facilitate interactive and engaging educational activities, making learning more dynamic and effective. Technology-enhanced learning tools support a variety of teaching methods and learning styles, catering to the diverse needs of students (Fredys et al., 2017; Richards, 2004).

Digital Pedagogy: OCM emphasizes the use of digital tools and methodologies to improve pedagogical practices. This focus on digital pedagogy promotes active learning and helps educators cater to diverse learning styles. Digital tools provide new ways to present information, engage students, and assess their progress, making education more interactive and student-centered (Vélez et al., 2020; McCormick, 2001).

Pedagogical Transformation: By embracing learner-centered approaches and fostering creativity and critical thinking, OCM drives pedagogical innovation. This transformation involves redefining traditional teaching methods and adopting new strategies that prioritize student engagement and learning outcomes. Pedagogical transformation is essential for preparing students for the demands of the modern world (Romero et al., 2016).

*2.4.3. Collaborative Learning and Engagement*

Collaborative Learning: OCM fosters collaborative learning environments where students, educators, and resources come together to co-create knowledge. This approach encourages problem-solving, critical thinking, and the achievement of shared learning objectives. Collaborative learning environments enhance the educational experience by promoting interaction and teamwork (Billis & Cubenas, 2019; Zhang et al., 2013).

Inclusive Education: By leveraging technology and promoting collaborative learning, OCM aims to create inclusive educational environments that accommodate diverse learners. This inclusivity ensures that students with different abilities, backgrounds, and learning needs receive the support they require to succeed. Inclusive education is a cornerstone of the OCM, promoting equity and access for all (Heymans, 2022).

Dynamic Learning Environment: OCM creates adaptable learning environments that respond to the evolving needs and preferences of learners. These dynamic environments promote flexibility, creativity, and continuous improvement in educational practices. By adapting to the changing educational landscape, OCM ensures that learning remains relevant and effective (Lin & Lin, 2018).

Access to Academic Resources: OCM ensures equitable access to a wide range of educational resources through collaborative platforms and digital repositories. This access allows students and educators to engage with diverse materials, enriching their learning experiences and expanding their academic opportunities. Equitable access to resources is crucial for fostering an inclusive and effective educational system (Bii & Too, 2016).

*2.4.4. Educational Equity and Access*

Educational Equity: OCM addresses disparities in access to quality education by promoting equity and inclusivity. This approach ensures that all students have equal opportunities to thrive and succeed, regardless of their backgrounds or circumstances. Educational equity is a fundamental goal of the OCM, aiming to level the playing field for all learners (Fredys et al., 2017).

Tertiary Institutions: OCM focuses on enhancing educational experiences within tertiary institutions, recognizing their critical role in fostering academic excellence and preparing students for future endeavours. By improving teaching and learning practices at the tertiary level, OCM contributes to the overall quality and effectiveness of higher education (Aziz, 2011).

Teaching and Learning Enhancement: OCM seeks to enhance teaching and learning experiences by providing educators with tools, resources, and support. This enhancement ensures that educators can deliver high-quality instruction and facilitate student engagement and achievement. Teaching and learning enhancement is central to the success of the OCM (Romero et al., 2016).

Modernization of Education: OCM contributes to the modernization of education systems by embracing innovative technologies, pedagogical approaches, and governance structures. This modernization aligns with the needs and demands of the digital age, ensuring that education remains relevant and effective. Modernizing education is essential for preparing students for the future (Goodyear, 2005).

*2.4.5. Skills Development and Future Readiness*

21st Century Skills: OCM emphasizes the development of essential 21st-century skills, such as critical thinking, communication, collaboration, and digital literacy. These skills are crucial for success in an increasingly complex and interconnected world. By focusing on these skills, OCM prepares students for the challenges and opportunities of the future (Brandenburger, 2022).

Educational Ecosystem: OCM recognizes the interconnectedness of educational stakeholders and environments, promoting collaboration and synergy among institutions, industries, communities, and policymakers. This holistic approach ensures that all parts of the educational ecosystem work together to support student success (Nascimbeni, 2018).

Integration of AI: OCM integrates AI technologies to enhance teaching and learning experiences, personalize instruction, and optimize educational outcomes. AI-driven insights and interventions support data-driven decision-making and improve the effectiveness of educational practices (Lin & Lin, 2018).

Access to Technology: OCM aims to ensure equitable access to technology and digital resources, bridging the digital divide and empowering learners. Access to technology is essential for enabling students to harness the full potential of digital tools for learning, innovation, and personal growth (Bii & Too, 2016; Johnson & Lomas, 2005).

## 3. Methodology

The study explore the potential of an innovative educational governance framework, leveraging artificial intelligence in a stakeholder-driven 'Open Campus Model', to improve the quality and effectiveness of education in South East Nigerian universities. Detailed and thorough literature review was conducted on the subject matter enabling the development of a conceptual framework and refining of the arguments on the relevance of innovative OCM. Through the review, key themes emerged namely, Educational Practices Enhancement, Educational Innovation with AI, Governance and Participation, Collaborative Learning and Inclusivity, and Access and Equity. These informed the development of an unstructured questionnaire for in-depth interview. There were ten (10) questions in the instrument. The choice for developing the novel instrument was because the researchers could not find an already existing measurement scale that is relevant and very suitable for the study. To make up for the possible validity limitation of the instrument, the questions were structured to be comprehensive and detailed, though we cannot still deny the validity limitation of the instrument. Hence, this study should suggests further research needs for development of stronger methodology in this area of research.

The setting for the data collection was a workshop. It was a one-day workshop at Alex Ekwueme Federal University Ndufu-Alike, Nigeria, themed "Catch up or be left behind: A policy praxis to exploring the roles of ICT and artificial intelligence in delivering functional education in Nigeria. The setting afforded the researchers opportunity of gathering interview responses from large number of participants who were university lecturers, administrators and government educational stakeholders in the South Eastern part of the country. Again, the interview was anchored on an unstructured questionnaire instrument with ten prompts, which were distributed randomly to the participants. Also, the instrument had a preamble that helped respondents to understand the concept of OCM in the study context. In all, 63 respondents who offered rich insight in the subject matter were selected for the study. The presentation of respondents' views were paraphrased. This choice was because the researchers observed some grammatical mistakes, so, paraphrasing was a better option.

Data collected from the interviews underwent thematic analysis to identify patterns, themes, and insights relevant to the study objectives. Throughout the research process, ethical considerations were upheld, including obtaining informed consent, ensuring confidentiality, and protecting participants' anonymity. The study culminated in the presentation and discussion of findings, providing a nuanced understanding of the implications of ICT and AI on education in Nigeria and the potential of the OCM model to address challenges and enhance educational practices.

**Table 1: Demographic information**

| Category | Sub-category | Frequency | Percentage |
|---|---|---|---|
| **Identity** | **Identity Category** | | |
| | Lecturer | 42 | 66.67 |
| | Tertiary Institution Administrator | 15 | 23.81 |
| | Education Ministry/Commission Stakeholder (Staff) | 3 | 4.76 |
| **Gender** | Blank | 3 | 4.76 |
| | **Gender** | | |
| | Male | 18 | 28.57 |
| **Age Range** | Female | 16 | 25.4 |
| | Blank | 29 | 46.03 |
| | **Age Range** | | |
| | 18-25 | 0 | 0 |
| | 26-35 | 3 | 4.76 |
| | 36-45 | 37 | 58.73 |
| **Education Level/Position** | 46-55 | 12 | 19.05 |
| | 56-65 | 9 | 14.29 |
| | Blank | 2 | 3.17 |
| | **Education Level/Position** | | |
| | NCE/OND | 1 | 1.59 |
| **Institution/Ministry/Commission** | BSc/HND/PGD | 18 | 28.57 |
| | MSc/PhD | 37 | 58.73 |
| | Professor | 5 | 7.94 |
| | Blank | 2 | 3.17 |
| **Institution/Ministry/Commission** | | | |
| | AE-FUNAI | 55 | 87.3 |
| | Other University | 1 | 1.59 |
| | Blank | 7 | 11.11 |
| **Geopolitical Zone** | | | |
| | South East | 54 | 85.71 |
| **Ethnicity** | South West | 1 | 1.59 |
| | South South | 3 | 4.76 |
| | North Central | 0 | 0 |
| | North East | 0 | 0 |
| | North West | 0 | 0 |
| **Religion** | Blank | 5 | 7.94 |
| | **Ethnicity** | | |
| | Hausa/Fulani | 0 | 0 |
| | Igbo | 55 | 87.3 |
| | | 63 | 100 |

## 4. Findings

The demographic profile reveals a diverse range of participants, including lecturers, administrators, and ministry staff primarily from the Southeast region of Nigeria. This diversity is crucial for ensuring the governance framework is inclusive and incorporates various perspectives from different roles within the education sector. However, it must be admitted that there is a slight gender imbalance, with more male than female participants. Addressing this gap is crucial to ensure equitable participation and representation in decision-making processes within the proposed governance framework. Moreover, most participants are between 36 and 55 and have at least a Master's or PhD degree, indicating a wealth of expertise and experience among the participants. This expertise can significantly contribute to developing and implementing innovative governance frameworks. Most participants are affiliated with AE-FUNAI, suggesting a strong presence of stakeholders from this institution. While valuable insights can be drawn from this context, it is essential to incorporate perspectives from other institutions to ensure the generalizability and applicability of the governance framework. Furthermore, the data highlights the predominance of stakeholders from the Southeast region and the Igbo ethnic group. While this reflects the local context, efforts should be made to incorporate perspectives from other regions and ethnicities to ensure diversity and inclusivity in the governance framework. Religious diversity is also evident, with most participants identifying as Christians. Understanding and accommodating religious perspectives are essential in designing and implementing inclusive governance frameworks.

Themes drawn from the interview questions and responses are presented in this section.4.1. Impact of OCM on Teaching and Learning Practices

> It will facilitate student reach by lecturers and will provide opportunity to cover content in specific areas (R14).
>
> It will encourage teacher-student interaction, which will enhance students' participation in the teaching and learning activities (R16)
>
> OCM is all-encompassing and can enable more students' participation in inclusive learning (R 30)
>
> Acquaintance of teachers with diverse models for teaching and learning (R36)
>
> OCM will impart teaching and learning in my institution if properly implemented and managed as is done in advanced societies (R 50)It can enhance teaching and learning in my institution by fostering accessibility, flexibility, collaboration, and innovation (R 60).

**4.2 Role of AI in Personalized Learning**

*It will provide students easy access to materials at the comfort of their homes or wherever they are to connect to those materials. R17.*

*AI will shape the future of education as learners will become more committed in their work and also be able to learn at their pace (R24)*
*It will enhance students' academic achievements as it encourages teaching and learning (R31).*

*AI helps students to access information they need in order to do their academic work including doing their assignment (R32).*

*AI is the future of education; its role can aid the development of models for enhancement of learning (R36)*

**4.3 Stakeholder Engagement in Education Governance**

*The major challenge is corruption and mismanagement of funds. So, the opportunity lies in harnessing human resources (R4)*

*The challenges associated with stakeholder engagement in education governance is lack of funds (R32)*

*Inability to adapt to change that is, maintaining the status quo. Opportunities: If the stakeholders will be willing to take democratic decision and be accountable (R60)*

*There is need for stakeholders to develop AI models for teaching and learning (R63)*

**4.4 Participatory Approaches in Educational Policy Development**

*It will foster collaboration among different educators and stakeholders (R12).*

*Participatory approach will lead to the enlightenment of those who participate in the educational policies. Also, it will lead to knowledge sharing and zeal among the stakeholders (R13).*

*If the participants are duly and adequately motivated, also, and their recommendations are duly implemented (R50).*

**4.5 Facilitating Collaboration and Innovation through Data Sharing**

*A good example is where data sharing between lecturers and students facilitates easy access to such materials(R10).*

*Some researchers are not in the same location. So, this sharing of data and collaboration in doing the same will help to bridge the distance challenges among them, and foster collaboration (R20).*

*Seamless data can facilitate collaboration of innovation by using them to come up with mathematical models for research outcomes (R33)*

*The idea that data is freely available for sharing will motivate more researchers going into more research (R40)*

**4.6 Integrating Technology-Enhanced Learning**

*It is the augmentation of classroom activities and learning and teaching via Zoom or other virtual classrooms. R10.*

*Making learning/teaching student-centred through AI tools (R33)*

*Some strategies for integrating technology in education include distance learning approaches, use of projectors and other gadgets both visual and audio (R35).*

*There is need for provision of adequate and functional facilities within the university premises (R45)*

**4.7 Transforming Teaching Practices through Digital Pedagogy**

*It will make teaching and learning student-centered(R20).*

*Digital pedagogy makes teaching easier, conducive, and more effective (R25)*

*This can be achieved through making learning environment more cooperative (R31)*

*The opportunity it provides for individuals to have full and effective participation, since they do it themselves (R37)*

**4.8 Ensuring Equitable Access to Educational Resources**

*Giving Education Resources more elaborate place in the national budget and allocation of resources. (R14)*

*Government and stakeholder investing adequate funds to educational sector (R16)*
*There is need for provision of adequate internet and computer equipment (R45)*

*There is need for collaboration, provision of power supply, opportunity for participation, and free access to internet (R46)*

*Increase in financial allocations and adequate implementation of the policies on education (R50)*

**4.9 Future of Education: Pedagogical Transformation and Adaptation**

*Artificial Intelligence will be embraced to enhance teaching and learning. (R16).*

*It will help Africans to have access to the space of other scholars in the Western countries, giving them exposure and innovative and novel experiences (R30)*

*Very smooth and efficient delivery of lectures and learning activities (R45)*

*Education will be better placed in the future through innovative pedagogies (R50)*

**4.10 Ethical Considerations of AI in Education**

*Some moral grounds might not be covered by AI, so students are being trained both for moral and learning. Some of the human teachers or lecturers will most likely be losing their job with the adoption of AI. (R4).*

*I see it as a good idea for integrating AI in education because it will help students to be able to study easily and also to have insight into the innovation going on in the world (R17)*

*In AI development for application in education, ethical issues must be clearly spelt out before deployment (R40)*

*There is fear of joblessness increase within the society when AI has taken over the functions of the teachers to a large extent (R50)*

*Ethical issues are very strong in all society. Therefore, it must be regulated (R51)*

## 5. Discussion

This discussion captures different perspectives of stakeholders and scholars on themes in this study, namely the Open Campus Model (OCM), Artificial Intelligence (AI) integration, engagement of stakeholders, collaborative learning, and equity in education. The analysis juxtaposes the contributions of the literature and insights shared by stakeholders to understand the dynamic impact and profound implications of ICT and AI on education in Nigeria. Additionally, the discussion incorporates the role of environment, national, local, and ethnic culture, addressing gaps in the literature and providing experiential insights from stakeholders. Stakeholders express optimism regarding OCM's potential to catalyze transformative shifts in pedagogical paradigms within their institutions. For instance, a respondent highlights OCM's capacity to amplify lecturer-student interactions and expand educational content reach, fostering a more inclusive and comprehensive learning environment. Another respondent underscores OCM's role in imbuing teaching and learning practices with dynamism and interactivity, thereby enhancing student engagement and knowledge assimilation. These sentiments echo the findings of Hamal et al. (2022), who emphasize the transformative potential of technology-enhanced pedagogical approaches in fostering active and participatory learning environments. However, while extant literature extols the benefits of technology integration, it falls short in specifically delineating the impact of OCM as a decentralized and pervasive e-learning platform. Stakeholders' perspectives bridge this gap by elucidating OCM's distinctive features and its potential to address challenges in traditional educational settings.

Stakeholders also cogitate on AI's potential to revolutionize educational practices, emphasizing its capacity to tailor learning experiences to individual students' needs and preferences. For instance, one stakeholder opines that AI

can enhance academic outcomes by optimizing teaching and learning processes to accommodate diverse learning styles (Ashwini et al., 2023). Conversely, another respondent articulates concerns regarding the ethical ramifications of AI integration, particularly in terms of job displacement for human educators and potential algorithmic biases (Baker, 2023). This dialectic mirrors scholarly discourse, wherein researchers like Rios-Campos et al. (2023) scrutinize the ethical quandaries precipitated by AI integration in educational contexts. Stakeholders' insights enrich this discourse by furnishing real-world perspectives on the perceived benefits and challenges of AI adoption, underscoring the imperative of robust regulatory frameworks to govern AI deployment in education—a facet often overlooked in extant literature.

Regarding stakeholder engagement in education governance, stakeholders delineate challenges such as corruption and resistance to change, while underscoring the transformative potential of democratic decision-making processes and accountability mechanisms in fostering participatory education governance (Jafari & Keykha, 2023). This aligns with extant literature that underscores the catalytic role of ICTs in promoting inclusivity and equitable educational practices. Stakeholders' insights offer granularity by elucidating specific challenges and opportunities inherent in the Nigerian context, highlighting the importance of including diverse perspectives to ensure the framework's generalizability and applicability.

Additionally, stakeholders highlight the catalytic role of participatory approaches in promoting collaboration and knowledge dissemination among educators and stakeholders. They emphasize the necessity of policy implementation and knowledge dissemination to realize the full potential of participatory education governance, echoing scholarly discourse that emphasizes the role of ICTs in fostering multidisciplinary interactions and knowledge exchange (Sok & Heng, 2024). This practical insight from stakeholders enriches the literature by providing actionable guidance for policymakers and education administrators, emphasizing the importance of stakeholder buy-in and policy implementation.

Stakeholders furnish concrete examples of how seamless data sharing can catalyze collaboration and innovation within the educational ecosystem. They underscore the transformative potential of digital platforms in overcoming geographical barriers and fostering collaboration among researchers and educators, aligning with scholars like Lin et al. (2023) who highlight the transformative potential of ICTs in education. Stakeholders' insights offer depth by elucidating specific mechanisms through which technology can foster collaboration and innovation, contributing to a nuanced understanding of ICTs' transformative potential in education.

The participants' wide demographic profile, mostly from the Southeast area of Nigeria, highlights the need of include a range of cultural viewpoints in educational governance. The prevalence of the Igbo ethnic group and the Christian religion among participants indicates a distinct cultural environment that impacts the acceptance and execution of educational changes.

Integrating cultural diversity into the governance framework is crucial for guaranteeing inclusiveness and fairness. This involves tackling gender disparities and incorporating viewpoints from marginalised areas and races. The cultural values and social conventions prevalent in Nigerian culture, such as communalism and deference to authority, have a substantial impact on educational methods and the involvement of stakeholders. Understanding and acknowledging these cultural characteristics may improve the efficiency of participatory methods and stakeholder involvement, as recommended by authors such as Rios-Campos et al. (2023). Moreover, it is important to comprehend and adapt to cultural diversity while creating inclusive governance frameworks. In order to guarantee that educational policies and practices are fair and culturally aware, it is important to make a deliberate effort to integrate perspectives from all ethnic origins, since the majority of participants are Igbo. Through incorporating these cultural factors into the governing structure, the educational system may better cater to the needs and ambitions of all Nigerian students, promoting a more inclusive and dynamic educational environment.

The implications of this study for educational practice in Nigeria are significant. It emphasizes integrating Information and Communication Technology (ICT) and Artificial Intelligence (AI) seamlessly into educational systems. Initiatives like the Open Campus Model (OCM) have the potential to revolutionize teaching and learning methods by providing improved accessibility, encouraging collaboration, and promoting innovative teaching approaches. By embracing these initiatives, educational institutions can better meet the diverse needs of learners and equip them with the skills necessary for success in the digital age. Additionally, the study highlights the importance of involving all relevant stakeholders in decision-making processes through stakeholder engagement and participatory governance. This inclusive approach helps address challenges like corruption and resistance to change and fosters a sense of ownership and commitment among stakeholders. Educators can tap into expertise and perspectives by collaborating and sharing knowledge, driving educational reforms that benefit the entire educational community. The study also emphasizes the need for robust data-sharing mechanisms within educational institutions. Seamless data sharing facilitates collaboration and innovation within the educational ecosystem. By effectively leveraging data, educators can gain valuable insights into student performance, preferences, and needs, enabling them to tailor educational experiences to individual requirements. This study underscores the importance of evidence-based decision-making and policy formulation in driving educational transformation. Policymakers and educators must prioritize the adoption of ICT and AI technologies while giving due consideration to ethical concerns. In doing so, they can create a dynamic, inclusive, and technologically advanced educational environment that empowers learners and prepares them effectively for the challenges of the digital era.

## 6. Conclusion

This study presents a nuanced understanding of the implications of ICT and AI integration in education, focusing on the Nigerian context. Through a comprehensive analysis of stakeholder perspectives gathered via interviews, several key insights have emerged. Firstly, stakeholders recognize the transformative potential of initiatives like the Open Campus Model (OCM) in revolutionizing teaching and learning practices. They highlight OCM's ability to enhance accessibility, foster collaboration, and promote innovative pedagogical approaches. Moreover, stakeholders emphasize the pivotal role of AI in shaping the future of education, particularly in terms of personalized learning experiences and data-driven decision-making. Additionally, stakeholders underscore the importance of stakeholder engagement and participatory governance in driving educational reforms. They highlight challenges such as corruption and resistance to change, but also opportunities for collaboration and knowledge sharing among diverse stakeholders. Furthermore, stakeholders stress the significance of seamless data sharing in facilitating collaboration and innovation within the educational ecosystem.

While synchronizing stakeholders' perspectives with existing literature, this study fills gaps in our understanding of ICT and AI integration in education, providing real-world insights that complement theoretical frameworks. It underscores the need for policymakers and educators to harness technology effectively, promote collaboration, and address ethical considerations to ensure equitable access to educational resources and opportunities for all learners.

Looking ahead, the findings of this study can inform evidence-based decision-making and policy formulation aimed at fostering a more dynamic, inclusive, and technologically-driven educational ecosystem in Nigeria. Through the application of the power of ICT and AI technology, stakeholders can work effectively to identify and control problems, improve teaching and learning by indulging in creative thinking and foster students' acquisition of the necessary competencies in order to thrive in the digital age.

## 7. Study's limitations and future direction

Based on the key findings and limitations of the study, several recommendations are proposed to enhance the implementation of the Open Campus Model (OCM) and AI in education. To maximize the benefits of OCM, institutions should focus on fostering student-teacher interaction and enhancing student participation in learning activities. Effective management and implementation, akin to practices in advanced societies, are crucial. Stakeholders must ensure the OCM remains inclusive, promoting accessibility, flexibility, collaboration, and innovation.

Artificial Intelligence (AI) should be leveraged to enhance students' academic achievements by personalizing learning experiences and providing easy access to materials from any location. AI integration can shape the future of education by enabling students to learn at their own pace, increasing their commitment to studies. It is important to integrate AI without compromising the quality of education. Challenges in stakeholder engagement, such as corruption and resistance to change, must be addressed by promoting democratic decision-

making and accountability. Motivating participants and implementing their recommendations can foster effective educational policy development and collaboration among stakeholders.

Participatory approaches in policy development should be encouraged to enhance collaboration and knowledge sharing among educators and stakeholders. Adequate motivation and implementation of participants' recommendations are essential for success. Seamless data sharing can facilitate collaboration and innovation within the educational ecosystem. Examples include data sharing between lecturers and students and enabling collaboration among researchers in different locations to overcome distance challenges. Integrating technology-enhanced learning into traditional settings should involve virtual classrooms and digital tools to augment classroom activities. This integration can transform teaching practices and make learning more student-centered. To ensure equitable access to educational resources, increased funding and investment in the educational sector are necessary. This will bridge socio-economic gaps and provide equal opportunities for all learners. The future of education should focus on pedagogical transformation, embracing AI and innovative technologies to provide students with global exposure and novel learning experiences. Addressing ethical considerations, such as algorithmic bias and data privacy, is crucial to ensure ethical and equitable technology integration.

Future research should employ a wider range of data collection methods, such as surveys, to capture a more comprehensive range of stakeholder perspectives. Cross-cultural comparisons could provide a better understanding of the universal implications of ICT and AI integration in education. Additionally, future work should explore the practical challenges of implementing these technologies, including infrastructure requirements and data privacy concerns. Investigating the potential risks and ethical implications associated with widespread adoption will help ensure that technology integration efforts are conducted in an ethical and equitable manner.

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