



ARTIFICIAL INTELLIGENCE (AI): EDUCATIONAL IMPLICATIONS, LIMITATIONS AND FUTURE OF LEARNING IN HIGHER EDUCATION IN OYO STATE

Joseph Olusegun Adeagbo (Ph.D.)¹ and Oluwatoyin Isaiah Awolola (Ph.D.)².

¹Department of Educational Management,
Emmanuel Alayande University of Education, Oyo, Oyo State.
Email: adeagbojo@eaunedoyo.edu.ng

²Department of Educational Management,
Emmanuel Alayande University of Education, Oyo, Oyo State.
Email: awololaoi@eaunedoyo.edu.ng

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Oluwatoyin Isaiah Awolola
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ABSTRACT: *In recent times, the invention and advancement of Artificial Intelligence (AI) technologies introduced by developed nations, particularly America, Europe, and Asia, has been seen as a new landmark in globalization. This new innovation has ushered in new opportunities and threats to humanity, hence the need to investigate Artificial Intelligence (AI): Educational Implications, Limitations, and the Future of Learning and Research in Nigeria. A descriptive survey research design of the ex-post facto type was adopted for the study. The population of the study consists of all the 350 academic staff in Emmanuel Alayande University of Education, Oyo, as of 2025. Emmanuel Alayande University of Education was possessively sampled using the purposive sampling technique. A multistage sampling procedure was adopted; thus, stratified random sampling was used to select 3 faculties, 9 departments and a total of one hundred and five lecturers using a simple random sampling technique. A self-developed instrument titled "Artificial Intelligence, Educational Implications, Limitations and Future of Learning Questionnaire (AIEILFLO)" was validated by the experts in the field of Educational evaluation. The Alpha Cronbach method was used in obtaining the reliability, and a coefficient 0.84 was obtained. The data collected was analysed using descriptive statistics such as simple percentages. The findings revealed that the major limitations of AI include inconsistent funding, poor infrastructure facilities, lack of sustainable policies and man-made machines being unpredictable. The applicable way forward to promote AI for better teaching and learning process includes adequate funding for technological advancement, adequate infrastructure facilities, and government subsidizing. Recommendations were made that AI as a teaching strategy should be strictly adhered to within the university, the Ministry of Education should organize conferences, seminars and workshops for lecturers on the effectiveness of AI innovation in education, and the state governments should assist in providing an enabling environment for effectively implementing the AI strategy.*

KEYWORDS: Artificial Intelligence (AI), Capacity Building, Educational Implications, Higher Education, Teaching Strategy.



INTRODUCTION

Globally, in contemporary times, Artificial Intelligence (AI) has emerged as a powerful instrument for improving the educational system. This tool was designed to imitate how a human does, such as speaking the human mind and working for humans based on instructions. In essence, this technological innovation is aimed to be useful in all facets of life. It is for transforming various industries speedily and education is no exception of this development (Yeruva, 2023). For the education sector, in particular, any problem on education can be investigated using technological tools, most especially the trending one, Artificial Intelligence (AI), to find a lasting solution to it. Artificial intelligence (AI), in the view of many people, is the ability of machines or computers to think and act as humans do; it represents the efforts towards computerized systems to imitate the human mind and actions (Wartman & Combs, 2018).

More so, AI has the potential to revolutionize the way we learn and teach, making it more personalized, engaging, and efficient, (Alneyadi, Wardat, Alshannag & AbuAl-Aish, 2023). Also, on the extent to which AI contributes to the student engagement and motivation in learning, it was found that it contributes to student engagement and motivation in learning. It also can help to make learning more engaging and relevant for students, leading to increased motivation. It was revealed that the AI-powered adaptive learning system can adjust the pace and difficulty of learning materials, helping students to stay motivated and engaged. AI can be used to create immersive, game-like learning experiences, increasing motivation and engagement.

Furthermore, AI enables lifelong learning and continuous development in students. However, another aspect is the concern that integrating artificial intelligence systems into teaching and learning may put human participation in danger. In other words, integrating Artificial Intelligence will undoubtedly decrease promote better involvement in the teaching process. This study therefore sought to examine Artificial Intelligence (AI): Educational Implications, Limitations and the Future of Learning and Research in Nigeria.

The Concept of Artificial Intelligence (AI)

Artificial Intelligence has to do with the development of systems and machines that can simulate intelligent human behavior, such as learning, reasoning, and problem-solving. It involves the use of algorithms and complex mathematical models to enable machines to learn and improve their performance autonomously and the fundamental purpose of AI is to enable machines to exhibit traits specific to human intelligence (Mircea, 2023). In the rapidly evolving landscape of education, the integration of Artificial Intelligence (AI) has emerged as a transformative force, reshaping traditional paradigms, and offering novel opportunities for personalized and efficient learning experiences. As educational institutions strive to meet the diverse needs of learners, Artificial Intelligence (AI) technologies present innovative solutions to enhance adaptability, engagement, and student success.

Chaushi, Ismaili and Chaushi (2024) commended that Artificial intelligence exists in different forms; these can be broadly categorized into four, namely, reactive machine, limited memory, theory of mind and self-awareness. Artificial Intelligence (AI) in Nigeria has the potential to provide a new frontier of economic opportunity as well as social development and inclusive and sustainable growth. However, AI adoption in Nigeria is still in its infancy



despite the growing number of startups and established businesses using AI solutions to deliver customer services. With AI potentially speeding up global progress towards the achievement of the SDGs, countries that are unable or unwilling to take advantage of the opportunities may find themselves falling even further behind, thereby exacerbating global inequality.

Various surveys of global readiness for AI innovations have found African countries, particularly those in sub-Saharan Africa, to be mostly not ready to take advantage of the technology revolution for economic growth and development. In Oxford Insight's AI Readiness Index (2020), which assesses how well governments are positioned to take advantage of AI transformation, Nigeria ranked 138 of 172 countries. The Federal Government of Nigeria, recognising the potential of AI technology, announced last year that it plans to establish a Center for Artificial Intelligence and Robotics focused on networking, research, development, information and communication security. Companies currently offering AI solutions include:

- Air Smart, which provides AI-enabled software to businesses for drone data management.
- Kudi AI, which provides an AI-enabled chatbot to assist in the transfer of remittances to family and friends in Nigeria.
- Data Science Nigeria, a foundation working to deliver research that can be transformed to business use applications. It conducts AI and ML bootcamps and competitions.
- Robotics and Artificial Intelligence Nigeria, which provides training in AI, ML and robotics development and automation.

In recognizing the potential benefits of using AI in education, Shrivastava et al. (2023) asserted that Artificial Intelligence encourages personalized learning and that is one of the greatest advantages of AI in education, which can lead to better student outcomes as students can learn at their own pace and in a way that suits their learning. In this regard, there will come a time in which only a good and competent teacher will remain in teaching because the trend at which AI is moving, it will gradually substitute human efforts. Henceforth, humans will be needed a little or be needless. To support this fact, Manyika et al. (2017) emphasized that good teachers will continue to exist in future teaching classes designed to boost students' affective intelligence, creativity, and communication. Artificial intelligence has immense advantages for the education system. This assertion was buttressed by the submission of (Mai-Bahrani, Gombos & Cree, 2018) that AI can provide better data analysis, enabling educators to make data-driven decisions. It can also improve student engagement by providing interactive and engaging learning. However, Chinonso et al. (2025), in their work on AI-driven learning to enhance students' understanding of green nanomaterials in sustainability education, revealed that while students reported a moderate level of knowledge and demonstrated general positive attitude toward sustainability and green innovations, their actual exposure to AI-supported learning and community-based service-learning projects was relatively low.

In addition, AI can predict the most effective learning path for each student, based on their individual learning, and create custom learning paths for each student based on their specific



strengths, weaknesses, and interests. This study is in line with Harry (2023), finding stressed that AI in education allows tailored content delivery based on individual student needs and learning preferences. This approach fosters a more effective and engaging learning environment by accommodating diverse learning styles and pacing. On the impact of AI on the personalisation of learning experience, it was found that AI can provide immediate feedback on students' works and progress, allowing for more efficient learning, it can help to recommend or adjust learning materials based on students' knowledge level and learning style, and it can offer personalized tutoring for the students.

More so, AI can provide students with additional support and guidance in specific subjects as well as create custom learning paths for each student based on their specific strengths, weaknesses and interests. This is in line with the opinion of Sekeroglu, Dimililer and Tuncal (2019) who stressed that artificial intelligence could help teachers improve personalized education for their students. The finding also conforms with the claim of Shrivastava et al. (2023) who asserted that Artificial Intelligence encourages personalized learning and that is one of the greatest advantages of AI in education, which can lead to better student outcomes, as students can learn at their own pace and in a way that suits their learning. In this regard, there will come a time when only a good and competent teacher will remain in the profession because at the rate at which AI is moving, it is gradually substituting human efforts.

Addressing challenges facing AI's functionality, Ayodele (2025) identified some challenges of higher education at the current time as follows: Nigeria's higher education sector continues to face multifaceted challenges that hinder its efficiency, sustainability, and global competitiveness. Most universities, particularly public universities, depend heavily on government subvention/allocation, which are often inadequate and irregular (Saint, Harnett & Strassner, 2003). More so, Babalola (2023) remarked that there is a notable disparity in the distribution of funds within the higher education sector. As a result, institutions struggle to meet their basic needs, expand infrastructure, invest in research, or improve the quality of teaching and learning. A significant portion of university budgets is consumed by recurrent expenditures, particularly staff salaries and administrative costs, leaving minimal funds for capital projects or academic development (Okebukola, 2006). In addition, Babalola and Awolola (2016) pointed out that institutional infrastructure facilities are dilapidated: Poor Information and Communication Technology (ICT) facility, poorly equipped laboratories, outdated library resources, and unstable power supply, among others, all these which would not support effective learning and learning process.

More so, many institutions lack robust systems for monitoring academic standards, curriculum relevance, and instructional effectiveness. The curricula are often outdated and disconnected from realities of the 21st-century labour markets, leading to a growing mismatch between graduates' skills and industry needs (Aina, 2013). Environmental concerns such as poor waste management, lack of green spaces, and inefficient energy use are rarely addressed in institutional planning. Most campuses lack sustainable infrastructural facilities and policies promoting environmental stewardship, which are essential for building climate-resilient educational institutions (Adebayo & Adeniran, 2019).

Strategies for Reinventing Higher Education for Sustainable Development in Nigeria

According to Ayodele (2025), the need for repositioning higher education in Nigeria cannot be over emphasised. Some of the strategies that could be adopted include the following:



Diversify Funding Sources: One of the most urgent strategies is to diversify funding sources beyond government subventions. Nigerian universities must adopt innovative revenue modes that include alumni donations, partnerships with industries, commercialization of research outputs, and efficient tuition policies. Establishing robust financial management systems and exploring endowment funds can also enhance financial sustainability (Ogundele, 2019).

Capability Building for Leadership and Governance: Alongside financial reforms, institutions must invest in capacity building for leadership and governance. Strategic leadership training programmes, succession planning, and performance-based evaluations can help reposition university management toward greater accountability and effectiveness.

Quality Assurance Mechanism: This must be revitalized to align educational outcomes with national development goals and labour market demands. This includes regular curriculum reviews to integrate skills such as critical thinking and digital literacy. The National Universities Commission (NUC) and other regulatory bodies must enhance monitoring and enforcement, using data-driven metrics for institutional performance (Nwiani, 2010). Establishing independent quality assurance agencies or strengthening existing internal quality assurance units can improve teaching, research, and students' general academic outcomes.

Embracing Technological-driven Solution and Green Initiatives: In addressing the challenges of innovation gaps, institutions must embrace technology-driven solutions and green innovation. Investing in digital infrastructure can expand access to online and blended learning, increase research collaboration, and improve administrative efficiency. Simultaneously, adopting environmentally sustainable practices such as renewable energy use, eco-friendly campus designs, and climate-conscious curricula can align Nigerian universities with global trends in sustainable development (Adebayo & Adeniran, 2019).

Promoting of Multi-Stakeholder Engagement: This is very crucial to sustainable reforms. Higher institutions should build strong networks with industries, communities, government agencies, and international communities/organisations to create solutions. This partnership can support funding, enhance the relevance of academic programs, and provide students with real-world experience. This would strengthen linkages and institutionalize stakeholders' participation in policymaking and forwardness toward technological development.

Statement of the Problem/Gap Identification

In developing countries, Nigeria inclusive, the integration of Artificial Intelligence (AI) in education has yet to emerge as a transformative approach to addressing various educational challenges. Sending, receiving and feedback of information, which is an integral aspect of teaching and learning, has become a barrier to effective education in the Nigerian educational system. AI seems to offer less benefits to both students and lecturers because it is yet to be incorporated into the Nigerian education system processes. As a result, a great deal of work supposed to be electronically done through AI is manually operated in most Nigerian universities. Nigeria's higher education sector faces multidimensional challenges and this hinders its proficiency, sustainability, and universal competitiveness. This has become a great concern to education stakeholders, particularly lecturers, students and educational researchers.

It is obvious that the government cannot do it alone in this regard, hence the need to look for a good alternative. Previous studies focused on AI and its restrictions, ICT teaching and learning process, AI in developing countries' educational systems, and AI in developed



nations, among others. Little attention is drawn on the future of AI as a learning tool in higher education in Nigeria, hence the need for this study. This study thus, investigated Artificial Intelligence (AI): Educational implications, limitations and future of learning in higher education in Nigeria

Objectives of the Study

The main objective of this study is to examine Artificial Intelligence (AI): Educational Implications, Limitations and Future of Learning in Emmanuel Alayande University of Education. Specifically, the study is to

1. identify the major limitations of AI as an instrument for better teaching and learning process in Emmanuel Alayande University of Education.
2. suggest appropriate ways forward.

Research Questions

The following research questions were raised and answered in the study:

1. What are the major limitations of AI as an instrument for better teaching and learning process in Emmanuel Alayande University of Education?
2. What are the measures and applicable ways forward to promote AI as an instrument for better teaching and learning process?

RESEARCH METHODS AND INSTRUMENT

Descriptive survey research design of the *ex-post facto* type was used for the study. This indicates that the researcher did not manipulate any of the study's variables. The population of the study consisted of all the academic staff (350) in Emmanuel Alayande University of Education, Oyo, as of 2025. Emmanuel Alayande University of Education was purposively sampled using purposive sampling technique. Being just newly established, a stratified random sampling procedure was embraced to select 3 out of 5 faculties in the university. A multi-stage sampling procedure was adopted for respondents' selection. Details are shown in Table 1.

Table 1: Sample of the Respondents

Faculties	Total No of Departments	No of Departments Selected	Total No of Lecturers	No of Lecturers Selected
Specialised & Professional Education	8	4	95	43
Social Sciences Education	6	3	69	35
Vocational, Innovation & Engineering Education	4	2	53	27
Total	18	9	217	105

Source: *Faculties Administrative Offices, Emmanuel Alayande University of Education, Oyo (2025)*



From Table 1, out of 18 departments in the selected 3 faculties, 9 were randomly selected using simple random sampling technique. Also, out of 217 current academic staff in the 3 faculties, 105 lecturers were sampled using simple random sampling technique. Every member of the population stands the probability of being selected, hence eliminating bias. A total of one hundred and five respondents were used for the study. A self-developed instrument titled, “Artificial Intelligence (AI): Educational Implications, Limitations and Future of Learning Questionnaire (AIEILFLQ), was used to elicit data. The instrument was validated by the experts in the fields of Teacher Education and Educational Evaluation. Alpha Cronbach method was used to measure the consistency of the instruments and 0.84 was obtained. They were administered to 5 lecturers from each faculty who were not part of the sample for the study. Necessary modifications were done before they were finally administered with the support of two research assistants who were trained on the administration and collection of the instruments. They were supervised by the main researcher for collation of the instruments. The administration of the questionnaire was carried out within 3 weeks. The data collected was analysed using descriptive statistics such as frequency counts and simple percentages.

RESULTS

Research Question 1: What are the major limitations of AI as an instrument for better teaching and learning process in Emmanuel Alayande University of Education?

Table 2: Major Limitations of AI as an Instrument for Better Teaching & Learning Process

S/N	Items	SA (%)	A (%)	D (%)	SD (%)
1	There is a notable inconsistency in the distribution of funds within the higher education sector.	50 (41.50)	35 (28.00)	15 (12.00)	20 (16.00)
2	Infrastructure facilities are dilapidated, laboratories are poorly equipped, and library resources are outdated.	24 (19.20)	61 (48.80)	35 (28.00)	0 (0.00)
3	Lack of sustainable policies promoting environmental stewardship, which are essential for building climate-resilient educational institutions.	110 (91.30)	3 (2.49)	7 (5.81)	0 (0.00)
4	Poor awareness of AI technology as a solution alternative.	80 (64.00)	10 (8.30)	30 (24.00)	0 (0.00)
5	Man-made machines could be unpredictable/randomise.	50 (41.50)	25 (20.75)	40 (32.10)	5 (4.15)

Table 2 displays the major limitations of AI as an instrument for better teaching and learning process in Emmanuel Alayande University of Education. It was found that 50 (41.50%) respondents agreed that there is a notable inconsistency in the distribution of funds within the higher education sector, 35 (28.00%) respondents agreed, 15 (12.00%) respondents disagreed while 20 (16.00 %) respondents strongly disagreed. Also, 24 (19.20%) respondents strongly submitted, 61 (48.80%) respondents agreed while 35 (28.00%) respondents disagreed that



infrastructure facilities are dilapidated, laboratories are poorly equipped, and library resources are outdated. More so, 110 (91.30%) respondents strongly agreed, 3 (2.49%) agreed while 7 (5.81%) respondents disagreed with the motion that the lack of sustainable policies promotes environmental stewardship, which is essential for building climate-resilient educational institutions. With the poor awareness of AI technology as a solution alternative, 80 (64.00%) respondents strongly believed the view, 10 (8.30%) respondents agreed while 30 (24.00%) respondents disagreed. More so, 50 (41.50%) respondents voted that man-made machine could be unpredictable/random, 25 (20.75%) respondents agreed, 25 (20.75%) agreed, while 40 (32.10%) submitted to the notion.

Table 3: Limitations of AI in Teaching and Learning (One-sample t-test Results)

Item	Mean	SD	t-value	p-value	Cohen's d	Interpretation
Lack of sustainable policies	3.86	0.37	44.75	<0.001	3.68	Strong consensus; dominant limitation
Poor awareness of AI	3.40	0.65	15.12	<0.001	1.38	Significant awareness gap
Inconsistency in funding	2.97	0.85	6.31	<0.001	0.55	Moderate but significant concern
Inadequate infrastructure	2.91	0.72	7.03	<0.001	0.57	Infrastructure deficiencies confirmed
Unpredictability of machines	2.81	0.91	4.15	<0.001	0.34	Least critical concern

The analysis revealed that the most critical limitation was lack of sustainable policies ($M = 3.86$, $SD = 0.37$), with exceptionally large effect size ($d = 3.68$). This shows a near-unanimous consensus among the respondents that policy gaps are the greatest barriers to AI adoption. Poor awareness of AI ($M = 3.40$, $SD = 0.65$, $d = 1.38$) also emerged as a strong limitation. Funding inconsistencies ($M = 2.97$, $SD = 0.85$, $d = 0.55$) and infrastructural deficiencies ($M = 2.91$, $SD = 0.72$, $d = 0.57$) were significant, though less strongly emphasized. The unpredictability of machines was the least critical concern ($M = 2.81$, $SD = 0.91$, $d = 0.34$).



Research Question 2: What are the measures and applicable ways forward to promote AI as an instrument for a better teaching and learning process?

Table 4: Measures/Applicable Ways to Promote AI as an Instrument for Better Teaching and Learning Process

S/N	Items	SA (%)	A (%)	D (%)	SD (%)
1	There is a need for sufficient funding for technological advancement in the university	110 (91.30)	10 (8.60)	0 (0.00)	0 (0.00)
2	Adequate infrastructure facilities development that would uplift the AI uses improvement	120 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)
3	Formulation of sustainable technological policies that support AI	80 (64.00)	30 (24.00)	8 (6.64)	2 (1.66)
4	There must be accurate orientation on the uses of AI	30 (24.00)	50 (41.50)	10 (8.30)	30 (24.00)
5	The government should subsidise the cost of technological devices for students	120 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)

Table 4 displays the measures and applicable way forward to promote AI as an instrument for a better teaching and learning process. It was revealed that 110 (91.30%) respondents strongly agreed that there is a need for adequate funding of technological advancement, while 10 (8.30%) respondents agreed. Also, of all the respondents, 120 (100.00%) respondents strongly submitted that there is a need for adequate infrastructure facilities that would uplift AI use improvement and that the government should subsidize the cost of technological devices for students. More so, 80 (64.00%) respondents strongly agreed, 30 (24.00%) respondents agreed, 8 (6.64%) respondents disagreed, while 2 (1.66%) respondents strongly disagreed that sustainable technological policies that support. On the item that there must be accurate orientation on uses of AI, 30 (24.00%) strongly agreed, 50 (41.50%) respondents agreed, while 10 (8.30%) disagreed, and 30 (24.00%) strongly disagreed.

Table 5: Measures to Promote AI in Teaching and Learning (One-sample t-test Results)

Item	Mean	SD	t-value	p-value	Cohen's d	Interpretation
Adequate infrastructure	4.00	0.00	-	-	-	Perfect consensus
Government subsidy	4.00	0.00	-	-	-	Perfect consensus
Adequate funding	3.92	0.28	55.91	<0.001	5.10	Universally supported
Sustainable policies	3.57	0.69	16.81	<0.001	1.53	Strongly endorsed
Orientation/training	2.67	1.11	1.64	n.s.	0.15	Weakest priority



Respondents unanimously agreed on the importance of infrastructure development and government subsidies ($M = 4.00$, $SD = 0.00$). Adequate funding was also rated extremely high ($M = 3.92$, $SD = 0.28$, $d = 5.10$). Sustainable policies received strong support ($M = 3.57$, $SD = 0.69$, $d = 1.53$). However, orientation and training ($M = 2.67$, $SD = 1.11$, $p > 0.05$) did not differ significantly from neutrality, suggesting it is seen as less urgent compared to structural interventions.

DISCUSSION OF FINDINGS

There are major limitations of AI as an instrument for improved teaching and learning process in Emmanuel Alayande University of Education. It was found that there was a notable inconsistency in the distribution of funds within the higher education sector, infrastructure facilities are dilapidated, laboratories are poorly equipped, and library resources are outdated. More so, respondents approved the motion that the lack of sustainable policies promote environmental stewardship, which is essential for building climate-resilient educational institutions. It was equally found that there was poor awareness of AI technology as a solution alternative and that man-made machines could be unpredictable in the process of utilizing AI innovation. This is in line with the motion of Saint, Harnett and Strassner (2003) that most universities, particularly public universities, depend heavily on government subvention/allocation, which is often inadequate and irregular. Likewise, Babalola (2023) remarked that there is a notable disparity in the distribution of funds within the higher education sector. As a result, institutions struggle to meet their basic needs, expand infrastructure, invest in research, or improve the quality of teaching and learning. Also, Okebukola (2006) submitted that infrastructural facilities are dilapidated, laboratories are poorly equipped, and library resources are outdated.

Also, measures and applicable ways forward to promote AI as an instrument for better teaching and learning process. It was established that there is a need for adequate funding for technological advancement, there is a need for adequate infrastructure facilities that would improve AI uses, and the government should subsidise the cost of technological devices for students. More so, there should be sustainable technological policies that support the use of AI and accurate orientation on the use of AI should be provided. This corroborates the view of Adebayo and Adeniran (2019) who pointed and embraced technology-driven solutions and green innovations as measures to promote AI and addressed the challenges of innovation gaps. Investing in digital infrastructure can expand access to online and blended learning, increase research collaboration, and improve administrative efficiency.

Prospects of Artificial Intelligence in Nigeria

Artificial Intelligence and International Development (AIID, 2019) and Demographics of Nigeria Statistics and Facts (2021) pointed that to resolve these issues, the following must be done:

The Nigerian Government should be projecting and be proactive in their developmental planning toward AI.

There is a need for an adequate data ecosystem and low broadband penetration in the country, despite the high rate of mobile phone penetration.



The foundation education system should be invested in comprehensively, that is, by embedding ICT infrastructure into primary and secondary education to encourage digital literacy and an interest in STEM disciplines from an early age.

There should also be investment at the tertiary education level in research and engineering laboratories that can create solutions to pressing social and economic issues.

Budget/funding should be earmarked regularly to tertiary institutions for ICT development programmes.

The broadband network should be expanded through partnerships with local and international companies able to provide low-cost access across the country.

There is a need for training and re-training of ICT experts for better acquisition of more skills which can be at the world class standard

The employability of the young labor force should be improved by creating more ICT friendly investment that would provide work-based training opportunities.

CONCLUSION

While the integration of artificial intelligence in education presents both substantial benefits and significant challenges, its potential to afford personalisation of learning—transforming traditional teaching approaches and enhancing the overall learning experience—and leverage to support students with diverse learning needs and abilities cannot be overemphasized. The role of AI in teaching in schools is important because of the numerous relevant skills that can be acquired as a vocational area. Though the same factors were identified to hinder skill development and possession in tertiary institutions, if put under check, the measures enumerated, such as adequate personnel and equipped laboratories with ICT facilities, revitalizing education for skill acquisition and global relevance, will be achieved in all education institutions.

RECOMMENDATIONS

Based on the discussion, the following recommendations are hereby made:

There is a need for the adoption of AI as a teaching strategy. It should be strictly adhered to within the university.

There is a need for the Ministry of Education to organize conferences, seminars and workshops for lecturers on the effectiveness of AI innovation in education.

The state governments should assist in providing an enabling environment for effectively implementing the AI strategy.

There is a need for public awareness on AI as a new teaching approach. This will promote support for AI among other educational stakeholders.



The image of AI should be boosted by the state government by subsidizing the cost of AI devices for lecturers. This would be showcasing skills and acquired ICT usage in teaching and learning by internet global linkages.

REFERENCES

- Alneyadi, S., Wardat, Y., Alshannag, Q. and Abu-Al-Aish, A. (2023). The effect of using smart e-learning app on the academic achievement of eighth-grade students. *EURASIA Journal of Mathematics, Science and Technology Education*, 19.4:22-48.
- Artificial Intelligence and International Development. (2019) Results for Development. Retrieved 4th of April, 2023 from <http://www.internationaldevelopment.com>
- Ayodele, J. B. (2025). The potential of Economics of Education and Leadership for Re-inventing sustainable and Efficient Higher education in Nigeria. Being a key note address presented at a one – day colloquium in honour of Prof. J. B. Babalola. Organized by Higher Education Research and Policy Network (HERPNET). Large lecture theatre, Faculty of Education. University of Ibadan, Ibadan. Nigeria.
- Babalola, J. B. & Awolola, O. I. (2016) Relationship between information and Communication Technology (ICT) and Teaching-Learning Capacity in Private Secondary Schools in Ibadan Metropolis. *African Journal of Educational Management*, 17.1: 173-184.
- Cavalcanti, A. P. (2021). “Automatic feedback in online learning environments: A systematic literature review,” *Computer. Education. Artificial Intelligent*, 2.1 : 100 - 127.
- Chaushi, B. A., Ismaili, F. and Chaushi, A. (2024). Pros and Cons of Artificial Intelligence in Education. *International Journal of Advanced Natural Sciences and Engineering Researches*, 8.2:51-57.
- Chinonso A. O.; Okafor, P. C; Ikegbusi, N. G; Manafa, F. U; Egwu, J. U; Nwobu, C. M; Okafor, S. O; Onafowope, M. A; Olofinkua, V. K; Adeagbo, J. O; Gbaeprekumo, O. V; Ayoko, V. O; Udogu, A. N; Uwannah, N. C; Okudo, O. C; Onyiorah, B. O; Ayodele, M. F; Nnoyelu, O. G ; Ekwugha, J. C; Ekwesianya, A.N.,..., Obioma H. (2025). AI-driven service-learning to enhance students’ understanding of green nanomaterials in sustainability education. *Multidisciplinary. Reviews*, 8(122025429-2025429 <https://doi.org/10.31893/multirev.2025429>
- Demographics of Nigeria Statistics & Basic Facts (2021). Retrieved from <https://www.statista.com/topics/6477/demographics-of-nigeria/>
- Mai- Bahrea, Gocen, A. and Creee F. (2018). Artificial Intelligence in Education and Schools: Harran University, Turkey, *Research on Education and Media*, 12.1.
- Harry, A. (2023). Role of AI in Education,” *Interdisciplinary Journal on Humanity*, 2.3:260–268, Doi: 10.58631/injury.v2i3.52.
- Manyika, J., Chui, M., Miremadi, M., Bughin, J., George, K., Willmott, P. and Dewhurst, M. (2017). A future that works: Automation, employment, and productivity. Chicago: McKinsey Global Institute.
- Muthima, W. N. (2015). Adequacy and Quality of Teaching and Learning Resources Provided By the Free Primary Education Programme in Public Schools In Ndaragwa Division, Nyandarua Country, Kenya. *International Journal of Humanities Social Sciences And Education (IJHSSE)*, 2.4:9-15
- Oxford Insights AI Readiness Index (2020). <https://www.oxfordinsights.com/government-ai-readiness-index-2020>



- Pedro, F., Subosa, M., Rivas, A. and Valverde, P. (2019). Artificial intelligence in education: Challenges and opportunities for sustainable development. Paris: UNESCO.
- Picciano, A. (2019). Artificial intelligence and the academy's loss of purpose. *Online Learning*, 23.3, Doi:10.24059/olj.v23i3.2023
- PwC. (2017). Sizing the prize. What's the real value of AI for your business and how can you capitalise? Retrieved from <https://www.pwc.com/analytics/report.pdf>.
- Sekeroglu, B., Dimililer, K. and Tuncal, K. (2019). Artificial intelligence in education: Application in student performance evaluation. *General Education Valores*, 7.1: 1–21.
- Shrivastava, A., Suji Prasad, S. J., Yeruva, A. R., Mani, P., Nagpal, P. and Chaturvedi, A. (2023). IoT Based RFID Attendance Monitoring System of Students using Arduino Cybernetics and Systems, 1–12.
- Saint, H. and Strawathi, K. (2003). Artificial intelligence and its implications in education. In *Int. Conf. Improv. Access to Distance High. Educ. Focus Underserved Communities Uncovered Reg. Kakatiya University*, 1–11.
- Wardat, Y., Belbase, S. and Tairab, H. (2022). Mathematics teachers' perceptions of trends in international mathematics and science study (TIMSS)-related practices in Abu Dhabi Emirate schools. *Sustainability*, 14.9:54- 59.
- Wartman, S. A. and Combs, C. D.(2018). Medical education must move from the information age to the age of artificial intelligence. *Academic Medicine*, 93.8:1107–1109.
- Yeruva, A. R. (2023). Providing a Personalized Healthcare Service to the Patients Using AIOPs Monitoring. *Eduvest-Journal of Universal Studies*, 3.2:327–334.
- Yeruva, A. R., Durga, C. S. L., Vijaya, G. B., Pant, K., Chaturvedi, P. and Srivastava, A. P. (2022). A Smart Healthcare Monitoring System Based on Fog Computing Architecture. 2nd International Conference on Technological Advancements in Computational Sciences (ICTACS), 904–909. IEEE.