REVIEWING THE NIGERIAN EDUCATIONAL CURRICULUM AS A PANACEA TOWARDS AI ADOPTION IN NIGERIA'S EDUCATIONAL SYSTEM

AJAYI Oyedokun Samuel
Bamidele Olumilua University of Education, Science and Technology,
College of education, School of Multidisciplinary Studies,
Department of Arts Education, Ikere – Ekiti

Abstract
This paper looks at how the Nigerian curriculum is now structured and how inadequate it is at educating pupils for the quickly changing technology environment. It looks at how important it is to include artificial intelligence (AI) into the curriculum in order to improve student learning outcomes and give them the tools they need to succeed in the workforce in the future. The article highlights important issues such out-of-date curricula, poor infrastructure, and a shortage of qualified instructors and suggests curriculum improvement, teacher preparation, and improved infrastructure as remedies. It also emphasizes the significance of artificial intelligence (AI) in education, its transformational potential, and the calculated steps needed to successfully incorporate AI into Nigeria's educational system. To enable the successful and long-lasting adoption of AI, both short- and long-term policy actions are recommended.

Keywords: artificial intelligence (AI), Curriculum Development, Educational Infrastructure, Digital Literacy Teaching, Learning

Introduction

Although the Nigerian educational system has recorded significant growth through increased access to education at various levels, it still faces several difficulties. The country's progress is nonetheless hampered by problems like out-of-date curricula which seem not to have met the immediate needs of the society, poor infrastructure, inadequacy of teachers, and restricted access to high-quality educational resources. Despite these obstacles, the necessity to update and modify the educational system to better prepare students for the needs of the twenty-first century is becoming increasingly apparent.

Around the world, artificial intelligence (AI) is revolutionizing education. Artificial intelligence (AI) is the capacity of a computer or robot under computer control to carry out operations typically performed by intelligent entities. The phrase is commonly used to describe the endeavour of creating artificial intelligence systems that include human-like cognitive functions, like reasoning, meaning-finding, generalization, and experience-based learning. It has been shown that computers are capable of performing extremely complicated jobs, including finding proofs for mathematical theorems or playing chess, with remarkable proficiency ever since the digital computer was developed in the 1940s Groumpos (2023). Nevertheless, despite ongoing improvements in computer memory and processing power, no software can yet fully mimic human adaptability over a larger range of areas or in jobs requiring a great deal of common knowledge. (Britannica nd) Educational institutions may increase student engagement, provide

individualized learning experiences, and streamline administrative processes by utilizing AI. Artificial Intelligence (AI) technologies, including predictive analytics, adaptive learning platforms, and intelligent tutoring systems, are transforming the delivery of education and improving its effectiveness and accessibility. The movement around the world to incorporate AI into education highlights how it can help with some of the industry's most pressing problems and give students the tools they need for the job of the future Odukoya and Ohia (2023).

According to Su (2012), curriculum is largely understood to mean what teachers will teach, or more specifically, what students will learn. Actually, "curriculum" and "outcomes," or how effectively students learn, are tightly intertwined. Examining the Nigerian curriculum with an eye on improving teaching and learning processes that will accommodate the current trends of revolution in technology is the main goal of this review. This evaluation looks for holes in the current curriculum and suggests tactical changes that make use of AI techniques and tools. By doing this, the curriculum will be updated and brought into line with international best practices, guaranteeing that Nigerian children get an excellent education that will better equip them for the future.

It is expected that integrating AI into Nigeria's educational system will have many advantages. For education, it will mean improved learning outcomes through personalized and adaptive learning solutions, better teacher support, and more efficient administrative processes. For the Nigerian economy, the integration of AI into education will help produce a workforce equipped with the skills needed in the modern job market, fostering innovation and driving economic growth. Ultimate goal of this effort is to establish Nigeria as a competitive force on the international scene, able to use AI to further the growth and prosperity of the country.

Current State of the Nigerian Educational Curriculum

Overview of the Curriculum Structure

Nigeria established the 6-3-3-4 educational system in 1983 with the main goals of providing for the citizens' educational needs and giving the learners marketable skills that will enable them to become self-sufficient. Twenty-five years later, the Universal Basic Education (UBE), also referred to as the 9-3-4, a new educational system whose curriculum aims to accomplish the Millennium Development Goals (MDGs) by 2020. In the new educational system, the basic education which lasts for nine years, provides foundational skills in literacy, numeracy, and basic sciences. Secondary education of three years introduced students to more specialized subjects. Tertiary education includes universities, polytechnics, and colleges of education, offering undergraduate and postgraduate programs in various fields (Flashlearner 2024).

Key subjects in primary and secondary education are technology, basic science, English language, and Mathematics. Although, these subjects offer a foundational comprehension of scientific and technological ideas, they have no direct application to artificial intelligence. Programmes in computer science and engineering at the postsecondary level provide more specialized courses including programming, algorithms, data structures, and basic AI principles. These

courses are not very popular, though, as they frequently cover only a surface level of sophisticated AI subjects.

Assessment of Technology and Computer Science Education

According to Chima, (2021) the present curriculum of the primary and junior secondary school levels in Nigeria covers fundamental technology education in subjects like computer literacy, basic programming, and internet usage. Senior secondary students have the option to study computer science as an elective, including more complex subjects like databases, software applications, and fundamental programming languages.

Hewner & Guzdial (nd), submitted that computer science programs at the postsecondary level provide more in-depth coursework covering a range of technology and programming topics. A foundation in software development, systems analysis, and fundamental AI principles is provided by these courses. The depth and calibre of these programs, however, varied greatly throughout the various higher institutions.

According to Bali (2024), in Nigeria, the curriculum includes some instruction in computer science, but there are significant gaps when it comes to artificial intelligence. Students' early exposure to this important topic is limited by the inadequate treatment of AI principles in the current elementary and secondary curricula. While some colleges provide beginner AI courses at the tertiary level, there are not many advanced AI topics, real-world applications, or research opportunities. This disparity restricts Nigeria's ability to innovate and experience economic progress while also impeding the development of a workforce skilled in AI technology.

Importance of AI in Education

The two AI importance highlighted in this paper includes; enhancing learning and teaching and preparing students for the future workforce. Under the enhancing learning and teaching (Personalized learning experiences and AI tools for teachers and students) will be discussed while preparing students for the future workforce discussed (Relevance of AI skills in the job market and Examples of AI-driven industries in Nigeria and globally).

Enhancing Learning and Teaching

- *Personalized Learning Experiences*: AI has the power to revolutionize current educational paradigms by providing individualized instruction based on the requirements of each learner. AI-powered systems can assess students' areas of strength and weakness and provide tailored learning programs and information that improve comprehension and retention. Rizvi (2023) submits that AI-powered tutoring programs, for example, can provide students with immediate feedback and assistance so they can learn difficult subjects at their own pace. Holmes et al. (2019) claim that AI-enabled tailored learning increases student engagement and motivation in addition to improving academic achievement.

By tailoring training and competence to each learner's needs, artificial intelligence (AI) has the potential to completely transform the way that teachers now approach education Nguyen, Tran and Nguyen (2023). AI-driven systems can identify a

student's areas of strength and weakness and then deliver information and learning programs that are specifically designed to help with comprehension and retention. For instance, students can receive instant feedback and help from AI-powered tutoring tools, allowing them to progress through challenging material at their own pace. According to Holmes et al. (2019), in addition to raising academic achievement, AI-enabled personalized learning boosts student motivation and engagement.

- *AI Tools for Teachers and Students:* AI technologies are being incorporated into schools more and more to help both teachers and students Fitria (2021). Teachers can concentrate more on teaching periods and student interaction by using AI to handle administrative activities like grading and attendance tracking. AI can help teachers make data-driven decisions by giving them insightful knowledge about the behaviour and performance of their students Igbokwe (2023). AI-powered tools and programs, such virtual assistants and intelligent tutoring systems, provide extra assistance for learners outside the classroom. Luckin et al. (2016) claim that integrating AI into the classroom can greatly improve students' learning outcomes and teaching effectiveness.

Preparing Students for the Future Workforce

- *Relevance of AI Skills in the Job Market:* The rapid advancement of AI technologies is reshaping the global job market, making AI skills increasingly valuable. Professions across various sectors, including healthcare, finance, manufacturing, and entertainment, are integrating AI to improve efficiency and innovation Bajwa, Munir, Nori and Williams (2021. As a result, there is a growing demand for professionals with expertise in AI and related fields. By incorporating AI education into the curriculum, schools can equip students with the essential skills needed for these emerging job opportunities Olatunde-Aiyedun (2024). According to McKinsey Global Institute (2024), the adoption of AI is expected to create millions of new jobs globally, highlighting the importance of AI literacy for future employability.

1. *Examples of AI-Driven Industries in Nigeria and Globally:* In Nigeria, a number of industries are starting to use artificial intelligence (AI). The financial sector, for example, uses AI for risk management, automation of customer service, and fraud detection Odeyemi, Mhlongo, Nwankwo, and Soyombo (2024). In agriculture, AI technologies are being used to improve crop monitoring, yield prediction, and precision farming. Globally, AI-driven industries include healthcare, where AI is used for diagnostics and personalized medicine; transportation, with autonomous vehicles and logistics optimization; and retail, with AI used for personalized shopping experiences and inventory management. These examples highlight the transformative potential of AI and the need for an education system that equips students to prosper in an AI-driven economy. Ogunleye (2021) asserts.

Integrating AI into the Curriculum

To prepare students for the future, it is imperative that AI be incorporated

into the curriculum. Given how quickly technology is developing, it is crucial to give students the information and abilities they need to understand and use AI. This initiative involves comprehensive curriculum development, teacher training, and infrastructure enhancement.

Curriculum Development: Curriculum Development: According to Walter (2024), the process of incorporating AI into the curriculum entails developing age-appropriate modules that gradually increase core knowledge and abilities. Modules for primary education might include games and interactive activities to explain fundamental ideas like pattern recognition and simple algorithms. Lessons on data science, machine learning, and ethical issues may become more structured in secondary education. Advanced subjects like neural networks, natural language processing, and AI applications in numerous fields can be studied in higher education.
Identified recommended areas into the curriculum development include;

Basics of AI: being aware of the basics, history, and definition of artificial intelligence.

i. Machine Learning: Examining reinforcement, unsupervised, and supervised learning techniques.
ii. Data Science: An overview of gathering, analysing, and visualizing data.
iii. Ethics and Implications: Talking about AI's effects on society, the economy, and ethics.
iv. Real-World Applications: AI's practical uses in the fields of healthcare, banking, education, etc.

Teacher Training and Capacity Building: For educators to teach AI effectively, they must continue their professional growth Jamal (2023). Workshops, online courses, and certification programs are some of the ways that upskilling programs can be provided. Both academic knowledge and practical skills, such as how to use AI tools and incorporate them into the classroom, should be included in these programs Fitria (2021).

Collaborations between academic institutions and digital companies can improve teacher preparation by giving educators access to cutting-edge resources and studies. These partnerships may also provide professors and students with real-world projects, internships, and mentorship opportunities Abdallah, Alkaabi and Al-Riyami (2024).

Infrastructure and Resources

According to the Development Bank of South Africa (2024) cited in Ajayi & Akole 2024, infrastructure is directly linked to the economic development and growth of a country. Sufficient technology infrastructure is necessary for incorporating AI into education. This comprises:

- Devices and computers: supplying computers or tablets to every student.
- Internet access: in order to access online tools and resources, a dependable and fast internet connection is essential.
- Software: AI and data science software licenses for educational use (e.g., Python, TensorFlow).
- Funding: Getting money to invest in technology and training from the public and private sectors.
- Policies: Creating rules, such as data privacy laws and ethical norms, to facilitate the incorporation of AI into the curriculum.

Challenges and Solutions

There are several obstacles to incorporating AI into the curriculum, such as infrastructure and access, content quality, teacher training, data security and privacy and digital literacy Intelliverse, (2023). Implementation of the suggestions provided in this study will help in ensuring that AI is successfully incorporated into Nigeria's educational system.

Challenges

- Infrastructure and Access: One of the main issues is the differences in African nations' access to technology and the internet. For AI-powered learning, many students still lack the gadgets and dependable internet connections required. To guarantee equitable access, it is imperative to bridge this digital divide Afzal, Khan, Daud, Ahmad and Butt (2023).
- Content Quality: AI can improve learning outcomes by delivering content in a tailored way. Still, there is a dearth of excellent, regionally pertinent educational materials. It is crucial to create AI-driven content that is suited to various African situations Kamalov, Santandreu, Calonge and Gurrib (2023). .
- Teacher Training: Skilled instructors who can make use of AI platforms and tools are necessary for the successful integration of AI in education. To equip educators with AI skills, thorough teacher training programs are required Fitria (2021).
- Data Security and Privacy: Data security and privacy become issues when AI gathers and examines data for individualized learning. Strong data protection procedures are required in order to protect sensitive student information Devineni (2024).
- Digital literacy is important: To use AI-powered educational technologies effectively, teachers and students must be technologically literate. This implies that they must be proficient in using computers and the internet in addition to having the capacity to assess and make use of digital information Fitria (2021).

Solutions

Public-private partnerships

Government policies and incentives

According to Noordt, Medaglia & Tangi (2023), governments can create policies and incentives to encourage the adoption of AI in education. This includes providing grants and subsidies for schools to upgrade their technological infrastructure, funding teacher training programs, and developing standardized AI curricula. Policies that promote digital literacy and computational thinking from an early age can also help in building a foundation for AI education (Ng, 2019).

Critical stakeholders engagement

Engaging the critical stakeholders like industry experts and employers is vital for the successful integration of AI into the curriculum Southworth et.al. (2023), as a result. to ensure that the curriculum is relevant and meets the needs of the 21st century, it is important to involve critical stakeholders in the process. Moreover, community workshops and awareness campaigns can help demystify AI and highlight its importance, garnering broader support for its inclusion in education that will

lead to graduation of 21st century experts. (Díaz et. al 2021).

AI Policy Recommendations

Short-term Actions

- *Immediate steps to integrate AI into the existing curriculum:* Schools can begin by incorporating fundamental AI principles into already-existing computer science or technology subjects /courses in order to swiftly incorporate AI into the current curriculum. It is possible to include basic modules on data science, machine learning, and AI ethics without completely changing the curriculum. Furthermore, instant access to high-quality AI content can be obtained by utilizing internet resources and freely available educational materials (Holmes, Bialik, & Fadel, 2019).
- *Pilot programs and initial funding requirements:* Putting pilot programs into place in a few chosen schools can prove an idea and offer insightful information for wider rollout. These pilot projects might evaluate various pedagogical approaches and curricular schemes. Government grants, educational foundations, and private-sector collaborations might be approached for initial funding. This financing is essential for teacher training, creating instructional materials, and purchasing essential equipment (West & Allen, 2018).

Long-term Strategies

Continuous curriculum review and updates:

Since AI is a topic that is developing quickly, academic curricula need to be evaluated and revised frequently to stay up with new developments in technology. To make sure the curriculum stays current and useful, a council of educators, AI specialists, and business professionals should be established to supervise it. To stay current with the newest AI developments and pedagogies, educators must engage in regular professional development (Luckin et al., 2016).

Establishing centres of excellence for AI education

The calibre and scope of AI education can be greatly improved by establishing centres of excellence. These facilities can act as focal points for curriculum development, teacher preparation, and research. Additionally, they can encourage partnerships with academic institutions, tech firms, and global organizations, guaranteeing access to the newest teaching methods and technological advancements (Selwyn, 2019).

Conclusion

Artificial intelligence must be incorporated into Nigerian curricula in order to solve current issues and get students ready for the demands of the workforce of the twenty-first century. The educational system has made great strides, but there are still serious problems, like out-of-date curricula, poor infrastructure, and a lack of qualified teachers. Educational institutions can offer tailored learning experiences, increase the effectiveness of their instruction, and simplify administrative procedures by utilizing AI technologies. A multimodal strategy incorporating extensive curriculum creation, focused teacher training, and significant infrastructural investment is needed for this shift. In addition to enhancing learning outcomes, the effective

integration of AI would establish Nigeria as a major player in the global economy.

Recommendations

This study recommended that:

- Develop age-appropriate AI modules that gradually build core knowledge and skills.
- Implement continuous professional development programs for educators, including workshops, online courses, and certification programs.
- Foster collaborations between academic institutions and tech companies to provide access to cutting-edge resources and real-world projects.
- The government should provide infrastructure and resources such as computers/tablets, reliable and fast internet connections that will facilitate access to online tools and resources and obtain necessary software licences for educational use.

References

Abdallah, A. K., Alkaabi, A. M. & Al-Riyami, R. (2024). Cutting-Edge Innovations in Teaching, Leadership, Technology, and Assessment in the Advances in Educational Technologies and Instructional Design (AETID) Book Series, file:///C:/Users/mr%20bosun/Downloads/Fulltext-Cutting-EdgeInnovationsinTeaching.pdf

Afzal, A., Khan, S., Daud, S., Ahmad, Z., & Butt, A. (2023). Addressing the Digital Divide: Access and Use of Technology in Education. Journal of Social Sciences Review, 3(2), 883-895. file:///C:/Users/mr%20bosun/Downloads/77-addressing-the-digital-divide- arfa-afzal%20(2).pdf

Ajayi, O. S. & Akole, O. B. (2024). Reading Advocacy Crusade in Nigeria: Delusion or Reality. Journal of Educational Innovation and Development, Ekiti State University, Ado-Ekiti. 1(1), 38-48.

Anjum, S. (2020) Impact of internship programmes on professional and personal development of business students: a case study from Pakinstan. Future Business Journal, 6(1), 1-13

Bajwa, J, Munir, U, Nori, A, & Williams, B. (2021). Artificial intelligence in healthcare: transforming the practice of medicine. Future Healthc Journal 8(2), 188-194. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8285156/

Bali, B. (2024). Analysis of Emerging Trends in Artificial Intelligence in Education in Nigeria. Esearch Square, retrieved from file:///C:/Users/mr%20bosun/Downloads/Analysis_of_Emerging_Trends_in_Artificia__l_Intelli_g.pdf

Britannica (nd). Artificial Intelligence, retrieved from https://www.britannica.com/technology/artificial-intelligence/Methods-and-goals-in- AI on 23rd June, 2024.

Chima, T. S. (2021). Basic Science Curriculum and Development in

Nigeria: Post Covid-19 Challenges and Prospects. Unizik Journal of Educational Research and Policy Studies vol.7; retrieved from file:///C:/Users/mr%20bosun/Downloads/148 Article%20Text-302-1- 10- 20210727.pdf 20th June, 2024.

Development Bank of Southern Africa (2024). The Effects of Poor Infrastructure in Education, transport and communities. https://www.dbsa.org/article/effects-poor-infrastructure- education-transport-and-communities

Devineni, S. K. (2024). AI IN DATA PRIVACY AND SECURITY. International Journal of Artificial Intelligence & Machine Learning (IJAIML) 3(1), 35-49. file:///C:/Users/mr%20bosun/Downloads/IJAIML_03_01_004.pdf

Diaz-Nunez, C., Sanchez-Cochachin, G., Ricra-Chauca, Y., & Andrade-Arenas, L. (2021). Impact of Mobile Applications for a Lima University in Pandemic. *International Journal of Advanced Computer Science and Applications, 12*(2), 752–758.

Fitria, T. N. (2021). ARTIFICIAL INTELLIGENCE (AI) IN EDUCATION: USING AI TOOLS FOR TEACHING AND LEARNING PROCESS. Proceeding Seminar Nasional & Call For Papers ISSN Online: 2654-6590 | ISSN Cetak: 2654-5306. file:///C:/Users/mr%20bosun/Downloads/106-ArticleText-199-1-10-20211225.pdf

Flashlearner (2024) what is artificial intelligence and why is it matters in 2024? https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/what-is-artificial-intelligence

Groumpos, P. P. (2023). A Critical Historic Overview of Artificial Intelligence: Issues, Challenges, Opportunities and Threats. Artificial Intelligence and Applications, file:///C:/Users/mr%20bosun/Downloads/A_Critical_Historic_Overview_of_Artificial_Intelli.pdf

Hewner, M. & Guzdial, M. (nd). Attitudes about Computing in Postsecondary Graduates. Retrieved from https://web.eecs.umich.edu/~mjguz/csl/home.cc.gatech.edu/hewner/uploads/8/icer35-hewner.pdf 20th June, 2024.

Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. Boston: Center for Curriculum Redesign. Retreived from https://www.researchgate.net/publication/332180327_Artificial_Intelligence_in_Education_Promise_and_Implications_for_Teaching_and_Learning 21st May, 2024.

Igbokwe, I. C. (2023). Application of Artificial Intelligence (AI) in Educational Management. International Journal of Scientific and Research Publications, Volume 13(3), 300-307.

file:///C:/Users/mr%20bosun/Downloads/ApplicationnofAIinEducationalMgt.pdf

Intelliverse, (2023). The Challenges and Opportunities of AI in African Education retrieved from https://www.linkedin.com/pulse/challenges-opportunities-ai-african- education-intelliverse-ai-lab/

Jamal, A. (2023). The Role Of Artificial Intelligence (AI) In Teacher Education: Opportunities & Challenges. International Journal of Research and Analytical Reviews, 10(1), 139- 146. file:///C:/Users/mr%20bosun/Downloads/IJRAR23A2629.pdf

Kamalov, F., Santandreu Calonge, D., Gurrib, I. (2023). New Era of Artificial Intelligence in Education: Towards a Sustainable Multifaceted Revolution. Sustainability, 15, 12451. file:///C:/Users/mr%20bosun/Downloads/sustainability-15-12451.pdf

Luckin, Rose; Holmes, Wayne; Griffiths, Mark and Forcier, Laurie B. (2016). Intelligence Unleashed: An argument for AI in Education. Open Ideas; Pearson Education, London. Retrieved from https://oro.open.ac.uk/50104/1/Luckin%20et%20al.%20-%202016%20%20Intelligence%20Unleashed.%20An%20argument%20for%20AI%20in%20Educ.pdf 10th May, 2024.

McKinsey Global Institute (2024). Skill shift: Automation and the future of the workforce. https://www.mckinsey.com/featured-insights/future-of-work/skill-shift-automation-and-the-future-of-the-workforce 27th April, 2024.

Ng, W. (2019). Government Initiatives and Policies for AI in Education. Policy Futures in Education.

Nguyen, T. T. K., Tran, H. T. & Nguyen, M. T. (2023). Artificial Intelligence (AI) in Teaching and Learning: A Comprehensive Review in Empowering Education: Exploring the Potential of Artificial Intelligence. file:///C:/Users/mr%20bosun/Downloads/ISTES_Book_AIinTeachingandLearning_Chapter9.pdf

Noordt, C. V., Medaglia, R. & Tangi, L. (2023). Policy initiatives for artificial intelligence-enabled government: an analysis of national strategies in Europe. Public Policy and Administration retrieved from https://journals.sagepub.com/doi/epub/10.1177/09520767231198411

Odeyemi, O., Mhlongo, N. Z., Nwankwo, E. E. & Soyombo, O. T. (2024). Reviewing the role of AI in fraud detection and prevention in financial services. International Journal of Science and Research Archive, 11(01), 2101–2110. file:///C:/Users/mr%20bosun/Downloads/reviewingtheroleofAI_240218_070307.pdf

Odukoya, D. & Ohia, D. (2023). TRANSFORMATIVE IMPACTS OF ARTIFICIAL INTELLIGENCE IN EDUCATION; A COMPREHENSIVE EXPLORATION. file:///C:/Users/mr%20bosun/Downloads/TRANSFORMATIVEIMP

ACTSOFARTIFICIALINTELLIGENCEINEDUCATION.pdf

Ogunleye, I. (2021). Artificial Intelligence for economic development in Nigeria. Retrieved from https://citrispolicylab.org/wp-content/uploads/2021/12/Artificial-Intelligence- for-Economic-Development-in-Nigeria_Ifejesu-Ogunleye.pdf

Olatunde-Aiyedun, T. G. (2024). ARTIFICIAL INTELLIGENCE (AI) IN EDUCATION: INTEGRATION OF AI INTO SCIENCE EDUCATION CURRICULUM IN NIGERIAN UNIVERSITIES. International Journal of Artificial Intelligence for Digital, 1(1). file:///C:/Users/mr%20bosun/Downloads/ARTIFICIALINTELLIGENCEAIINEDUCATIONINTEGRATIONOFAIINTOSCIENCEEDUCAT.pdf

Rizvi, M. (2023). Investigating AI-Powered Tutoring Systems that Adapt to Individual Student Needs, Providing Personalized Guidance and Assessments. The Eurasia Proceedings of Educational & Social Sciences (EPESS), 31, 67-73. file:///C:/Users/mr%20bosun/Downloads/Investigating_AI-Powered_Tutoring_Systems_that_Ada%20(1).pdf

Selwyn, N. (2019). Should Robots Replace Teachers? AI and the Future of Education*. Polity Press.

Southworth, J., Migliaccio, K., Glover, J., Glover, J., Reed, D., Christopher McCarty, C., Brendemuhl, J., & Thomas, A., (2023). Developing a model for AI Across the curriculum: Transforming the higher education landscape via innovation in AI literacy. Computers and Education: Artificial Intelligence.

Su, Shao-Wen (2012). The Various Concepts of Curriculum and the Factors Involved in Curricula-making. Journal of Language Teaching and Research, 3(1), 153-158. Retrieved from http://www.academypublication.com/issues/past/jltr/vol03/01/19.pdf 3rd May, 2024

Walter, Y. (2024). Embracing the future of Artificial Intelligence in the classroom: the relevance of AI literacy, prompt engineering, and critical thinking in modern education. International Journal of Educational Technology in Higher Education 21(15), 1-29. file:///C:/Users/mr%20bosun/Downloads/s41239-024-00448-3.pdf

West, D. M., & Allen, J. R. (2018). How Artificial Intelligence is Transforming the World. Brookings Institution.