

INTEGRATION OF ARTIFICIAL INTELLIGENCE (AI) TOOLS INTO BUSINESS EDUCATION PROGRAMME FOR ACQUISITION OF DIGITAL SALEABLE SKILLS AMONG BUSINESS EDUCATION UNDERGRADUATES.

Chiedu Augustina

Abstract

In recent times, technology is making ways for digital advancement including the adoption of Artificial Intelligence (AI) tools into educational system. The study examined how Artificial Intelligence (AI) can be utilized in adoption of multitasking functions, synthesis and analyze them for prompt learning acquisition of saleable skills. This paper also looked at the different AI tools that can be used in teaching and learning processes and their benefits, roles in preparing under graduates for digital skills, readiness for the world of work and challenges faced in utilization of artificial intelligence tools in teaching business education programme. Some recommendations were made in line with the benefits and challenges such as: there should be massive design, development and implementation of Artificial Intelligence-based tutoring systems for teaching and learning processes in all institutions of learning.

Keywords: Artificial Intelligence tools, business education programme and digital skills.

Introduction

In recent years, artificial intelligence (AI) has increasingly attracted academic attention due to its disruptive impact on business and management practices in education. Technology has changed and reshaped the boundaries of teaching and learning processes. The integration of Artificial Intelligence (AI) tools into business education programme has brought tremendous increase in creativity and innovation and diverse opportunities to revolutionize how business education future leaders are trained to think critically and make informed decisions.(Qinglan Wu (2025).The integration of AI in academic environments raises critical questions related to equity, accessibility, and the evolving role of traditional teaching methods. The influence of AI on business education is transformative and multifaceted. Adamopoulou and Moussiades (2020) stated that artificial intelligence (AI) is a broad field that encompasses various techniques and approaches used to build intelligent machines capable of performing tasks that typically require human intelligence. It is transforming business education practices in various ways including personalized learning systems and tailors to individual student's needs, skills and learning styles. It also has driven virtual mentors, offering guidance support and feedback to teachers, students and simulating real-world experiences (Surugiu, Gradinaru&Surugiu, 2024).

Concept of Artificial Intelligence (AI).

Artificial Intelligent (AI) is the development of computer students that can perform tasks that typically require human intelligence; and the system can learn from data experiences and interactions, enabling them to improve their performance and adapt to new situations. It can also draw conclusions, make decisions and solve problems using logic, rules and patterns.

Artificial Intelligence system can identify and resolve problems often using creative and innovative approaches. The system can interpret and understand data from sensors, images, speech and text, enabling them to understand the world around

them. According to Berglund, Bousfiha and Mansoori (2020), artificial intelligence system can also comprehend and generate human language, enabling them to communicate with humans using algorithms to process data, learn from experiences and the system rely on high-quality data to learn, improve and make accurate decisions. Berglund, Bousfiha and Mansoori further stated that the system requires significant computing power to process large amounts of data and perform complex tasks. The artificial intelligence systems uses sensors to perceive the environment and to interact with the physical world.

Concept Of Business Education

According to Alabi (2022) business education is part of the total educational programme and also an aspect of vocational education. Business education has been known in the history of education in Nigeria. Business education is significant in the nation's development as it develops vocational skills, attitude and knowledge for employment and advancement in business career.

Business education is a course that is offered at the universities, colleges of education and at secondary school level 'Business Studies'. The programme gives the mastery of teaching business courses. It is the acquisition and development of skills and competencies, attribute and attitudes which are essential for effective economic system. This position was backed up by the national policy on education which emphasized the acquisition and development of appropriate skills and the development of the mental, physical and social abilities and competencies as attributes for individuals to live in and contribute to the development of the society (Federal Republic of Nigeria, 2004).

The introduction of business education programme in tertiary institute is not just a welcome development but a step towards solving economic problem through imparting skills, knowledge and attitudes into the learners for job creation and employment opportunities.

Business education also focuses on the retraining of workers who find their skills outdated as technology changes. This retraining allows workers to have contemporary skills for the jobs and thereby lead to competency in their jobs and the economy of the country at large. The attainment of competencies leads to the achievement of the needed vocational development right from the secondary school level. In all, the recipient will be equipped with the appropriate attitude, knowledge and skills to contribute in the labor market (Koko, 2015).

Aims Of Business

The aims of business education programme according to Koko (2015) are the following;

- i. To introduce students to the world of business.
- ii. To expose students with key business topics.
- iii. To enlighten students with numerous activities that take place in the Nigerian business sector.
- iv. To provide students with a wide understanding of various business ideas in connection to science and technology.
- v. To strengthen the student's capacity to improve his or her business management skills.

Based on the definition of business education and its objectives, artificial intelligence is highly needed in order to perform academic and administrative functions faster and

efficiently. Therefore, the adoption of artificial intelligence in business education is long overdue.

Application Of Artificial Intelligence In Business Education

Artificial Intelligence can be applied in business education through the following ways:

- i. **Intelligence Tutoring System;** an Intelligent Tutoring System (ITS) is a computer-based system that provides personalized guidance and feedback to students, mimicking the role of human tutor. It aims to adapt to individual learning needs, offering tailored support and instruction. Assessing students' knowledge, skills and learning style. Also, organizing and storing content expertise. It adapts to individual pace and needs of the students. According to Tuomi (2018), intelligent tutoring offers effective and efficient learning experiences, making education more accessible and engaging and it supplements traditional teaching method and preparing students for standardized tests as well as providing tailored support for diverse learners.
- ii. **Personalized Learning:** Personalized learning is an educational approach that tailors learning experiences to individual students' needs abilities, and learning styles. It aims to provide each student with a unique learning pathway, allowing them to learn at their own pace and focus on their strengths and weaknesses. It is student centered thereby focuses on individual difficulty and content to match student progress, offers various routes to achieve learning goals. Regularly evaluates students' progress and adjusts instruction. Teachers guide and support students rather than lecturing. More so, artificial intelligence in business education helps to leverage digital tools and resources to enhance learning through technology integration.
- iii. **Enhanced Accessibility:** By leveraging artificial intelligence to enhance accessibility, business education can become more inclusive, providing equal opportunities for all students to succeed and reach their full potential. Enhance accessibility in the application of Artificial Intelligence (AI) in business education is the use of AI technologies to make learning more inclusive and accessible for all students, particularly those with disabilities or limitations.
- iv. **Career Guidance:** Career guidance in the application of Artificial Intelligence (AI) in business education is to the use of Artificial intelligence technologies to support students in exploring and navigating their career paths; it can assess students' interest, skills and values to suggest relevance career options. Also it offers tailored career guidance based on individual student strengths, weaknesses and aspirations.
- v. **Automated Grading;** Automated grading in the application of Artificial Intelligence in business education is the use of AI algorithms to evaluate and grade students' assignments, exams and other assessments. According to Berglund, Bousfiha and Mansoor (2020), artificial intelligence can generate feedback reports, highlighting strength, weaknesses and areas for improvement.

By extension, the role a business education has in meeting and fostering this transformation is worthy to be studied. This leads us to some questions, "what aspects of AI need to be taught and where should it be taught as part of a business education programme".

AI Tools for teaching and learning

Some of these AI tools used in teaching and learning are;

- i. **Gooru:** Gooru is a web-based learning navigator platform for discovering and exploring online learning content. The platform offers comprehensive tools for learners and educators to personalize teaching and learning interventions. It **enable learners** to experience and identifies gaps, delivers personalized resources and tracks progress towards mastery. It helps educators to monitor student's progress and suggests personalized interventions with curated courses in core subjects. Bola (2023) opined that it is a free search engine described as GPS for learning which is used by teachers and students to search for rich collections of multimedia resources, digital textbooks, web pages, videos, games and quizzes created by educators in the Gooru community. Gooru makes it easy for lecturers to address students' needs. courses designed in Gooru empower lecturers to construct personalized learning opportunities for students, enabling them to organize course content into comprehensible units of study comprise of narrated collections and assessments with access to immediate feedback (Wadhwa, 2017).
- ii. **Project Essay Grade (PEG) Writing Scholar:** This is an online learning environment that also allows users to improve their writing skills, get instant feedback with recommended activities that enable teachers to track the progress of each student. Using PEG Writing Scholar, students get immediate feedback to their submitted writings with suggestions to improve the student's writing, the teacher can also monitor the students' progress on the platform.
- iii. **Grammarly:** This is also a free-online proofreading website that can be used to survey documents for grammar mistakes. Grammarly is integrated with Machine Learning (ML) algorithms which automatically detects errors, plagiarism and suggest corrections for grammar, style, word usage, spelling, and punctuation. It can also be used as an appropriate tool to minimize errors and improve students' writing quality. This statement is in accordance with the study of Karyuatry, Risqan, Darayani (2018) who revealed that lecturers admitted that the use of Grammarly was very helpful to minimize tutor's correction on students' essays and the students actively participated in the writing process.
- iv. **Padlet:** Padlet/Padlet.com is a free web application featuring a virtual wall where multiple users can post comments and media in real-time (www.padlet.com). For teaching and learning purposes, this can be useful to encourage collaboration and knowledge sharing among students, between students and teachers and around particular topics synchronously thereby enhancing whole class discussion and participation. Padlet walls are used for viewing students' work, grading submitted answers and continual assessment of students' progress, viewing teacher's comments, getting feedback, and for revision/reference. Padlet is a suitable tool for brainstorming because it provides an easy and quick way to place students' ideas on the wall which are viewed simultaneously by other students thus contributing to the generation of new ideas (Martin, 2019).
- v. **Presentation Translator:** This tool works like PowerPoint but it creates real-time subtitles of what the teacher is saying, displaying them below the presentation, translate the conversation into over 30 languages. Presentation translator allows students to hear and read teachers spoken words in their native language. With the

use of this tool, students who speak and understand different languages can learn and participate in a class at the same time (Mamudu and Lamido, 2017).

- vi. **Smartboards:** Smartboards or Interactive Whiteboards (IWB) are potential tools for collaboration, improving students' learning outcomes and streamlining lesson planning. This tool enhances interactions in combination with a remote device, support collaborative learnings, facilitate learnings, save teacher's time, promote idea sharing, and enhance class management and class preparation. IWB enables teachers to integrate computer applications like graphic design tools, spreadsheet tools, database tools, and use social networking technologies such as YouTube, Wiki, Facebook, and Twitter, to create profiles and share information with the entire class.
- vii. **Intelligent Tutoring System (ITS):** This is an AI programme that aims to provide immediate and customised instruction or feedback to learners using human-like interaction and conversation style dialogues. Intelligent Tutoring System are designed to simulate one-to-one personal tutoring by providing corrective feedback and tailoring of instructional materials to learners need. Examples of E-Tutor (for learning German as a second language (for learning Portuguese at the university level), Tabor, Carnegie Learning and Front Row (Kurshan, 2016).
- viii. **Intelligent Virtual Reality (IVR):** This is an AI-based avatars that can simulate realistic conversations with learners, which enables learners to gain fluency and build confidence through highly personalized practice. IVR is used to create authentic virtual reality and game-based learning environments. Virtual agents (avatars) can act as teachers, facilitators or students' peers.
- ix. **Speeko:** This is AI tool that can help user practice interviewing with an AI speech coach. It also helps user get better at public speaking.

Uses Of Artificial Intelligence For Assessment In Business Education Programme

- a. **Gradescope:** This is an AI-based grading system used by universities to assess word length, spelling errors, and the ratio of the upper case to lower case letters. This tool can reduce grading time by 90 percent. With this automated grading system, students receive immediate grades and feedback on their work after submitting rather than waiting for days or weeks to receive feedback and grades (Wiggers, 2019).
- b. **Intelligent Essay Assessor (IEA):** This is an internet-based tool that automatically uses text structure based on the six traits of writing, which include ideas, organization of texts, conventions, the fluency of sentences, the choice of words and way of writing. This AI tool assesses writing by considering the arrangement of text and the extent in which the written content reflect the provided topic (Stanojevic, 2020). It also evaluate factors like the style of writing, comprehensibility and usage of words in essay.
- c. **Automated Essay Scoring (AES):** This is an AI tool that have been integrated into the platforms of many higher education institutions including, providers of massive open online courses, EdX, Coursera, and Udacity, to score the writing of the thousands

of students who enrolled in a single course (Murphy, 2019). This engine also provide students with basic immediate feedback, guidance, and model writing samples to help students improve, revise their writing and detect plagiarism.

d. Robot: This is an AI tool that is reprogrammable and multifunctional manipulator which is designed to move material, parts, tools or specialised devices through variable programmed motions for the performance of a variety of tasks. Robots have been applied in education today for teaching, learning, assessment, providing feedback and as a tour guide for students on the campus. Robots can be used to provide customized answers in response to learners' messages, grade their performance, and provide tips on what area learners need to improve (Mamuduand Lamido, 2017).

e. Automated facial recognition: Automated facial recognition like biometric face scanning surveillance can be used to automate attendance roll marking in class and during examination. With machine vision, students face are captured during class and examination and are saved, thereby freeing the instructor the time that could have been spend for attendance roll call.

f. Turn-it-in: This is a web-based software that is used for plagiarism detection and is meant to aid and promote the originality of any research publication. Turn-it-in is using AI to assess, provide feedback to students' writings and ascertain their level of plagiarism when they "turn it in". Turn-it-in shows the parts that are likely to have been plagiarised, the potential sources, and the percentages of plagiarism from these sources (Karsenti, 2019).

AI Tools for Research in Business Education

AI tools used for research in business education programme includes some of the followings:

1. Scopus: This is a multidisciplinary citation and abstract database for research literature and quality web sources. Scopus makes use of AI tools for tracing, analysing and visualizing research information. It can be used to generate precise citation search results and automatically create and update researcher profiles thereby enhancing connections between scholars, published ideas, and institutions.

2. Web of Science: This AI tool connects publications and researchers through citations and controlled indexing in curated databases from various disciplines. The cited reference search in Web of science uses AI to track prior research and monitor current developments in over 100 years' worth of content, records and back files that are fully indexed.

3. Grammarly Premium: This is an AI automated proofreading system that can identify errors related to 250 grammar rules while preventing plagiarism. The use of Grammarly premium will enable lecturers to focus and concentrate on the idea they want to convey rather than on spelling or grammatical errors.

4. Research gate: This is an AI tool that is used for collaboration with colleagues and peers of similar interest in research (Thomas &Gambari, 2022).

Benefits of Artificial Intelligence on Business

Education Programme

The impact of Artificial Intelligence on business education programme cannot be overemphasized. Alabi (2022) posited some of the reasons business education programme could benefit from Artificial Intelligence which include some of the following:

- a. Reducing the workload of Lecturers: One major opportunity for in Artificial Intelligence in the teaching and learning of business education programme is the role that Artificial Intelligence can play in solving workload related problems experienced by business education lecturers. In recent years, the lecturers have often shown dissatisfaction with the high workload experienced during teaching and learning processes.
- b. Personalized learning: The application of Artificial Intelligence in personalized learning is considered a great opportunity. Lecturers have limited time and attention and therefore cannot teach each student individually. Artificial Intelligence does not have this limitation. This allows an Artificial Intelligence to better align education with the wishes of the students
- c. Supporting the teacher with data-driven insights (learning analytics): Artificial Intelligence can support the lecturer by combining data and making it interpretable. With these learning analytics, the lecturer can gain holistic and well-founded insights into students. Artificial Intelligence can expose cognitive biases and thus make education fairer with regard to ethnicity or gender for example. For example, an Artificial Intelligence who is not aware of ethnicity or gender cannot take these variables into account in the school advice.
- d. Assistance: The adoption of AI in teaching and learning have created a lot of assistance to both the lecturers and students. Lecturers who have tried AI have found that it can help make their jobs easier, from coming up with lesson plans to generating student project ideas to creating quizzes. With assistance from artificial intelligence, lecturers can gain more time to spend with their students.
- e. Speed: If a student feels “stuck” while working on an assignment, artificial intelligence programs can provide immediate, helpful assistance if the lecturer is not available. For instance, a student can ask, “How do I solve for X?” to be reminded of the steps for solving an equation. A student can even ask, “What are some effective strategies for improving my essay writing?” and ChatGPT can offer advice and resources right away.
- f. Individualization: AI programs can help individualize learning opportunities for students. For instance, ChatGPT can quickly and easily translate materials to another language, making it easier for students who speak another language to understand assignments. ChatGPT can also revise materials so they are suitable for varying grade levels and tailor projects to suit students’ skills and interests.

Expected Digital Skills Required For Readiness For Work

Business Education Graduates According to Azubuike, Nwambam, Ngele, Nnamonu, Ngwuta, & Umar (2024), business are expected to possess the following digital skills that will enable them to perform better in the world of work. Such skills include the following:

1. Analytical Skill: This skill enables students to approach business problems with logical thinking, and then to model and solve them using measurable data, quantitative methods, and critical reasoning. In a contemporary real-world, problems are often complex and cut across contexts. Analytical reasoning helps us make sense of this complexity, and analytical skills, which build bridges across business disciplines and organizational functions, help us to solve 21st-century problems.

2. Integrative Skill: Integrative learning in business means addressing real-world problems and opportunities across functional disciplines such as marketing, finance, accounting, management, and operations. It means viewing business situations from multiple perspectives including customer, supplier, employee, shareholder, community, and the natural environment.

3. Spatial Skill: A spatial approach to business involves analysing business opportunities and problems through the lens of location, distance, and territory. With spatial proficiency, students can become professionals who use location intelligence to influence corporate strategies and create added value for organizations. Spatial business

Transformers boast a unique combination of skills such as strong grasp of business strategy and an understanding of the ways in which location intelligence can strengthen decision-making and improve operational and business results.

4. Entrepreneurial Skill: Those with an entrepreneurial mindset can extend their knowledge to recognize business opportunities where others do not. They excel in thinking at higher levels of complexity and are lifelong learners who continually challenge assumptions. Starting from a strong foundation of knowledge, they are able to analyze and prioritize information; to gather resources and take action; and to establish teams and alliances that can create solutions.

5. Collaborative Skill: Collaboration connects people, engages teams, and delivers effective project management. Interpersonal skills are vital to collaborative endeavors, so productive collaboration brings together people with different expertise and a range of backgrounds and experience to analyse problems, generate solutions, and implement strategies. Collaborative approaches to business problems and possibilities engage students in ways that foster innovation and lead to creative outcomes. Curricular collaboration occurs in organizational behavior courses, where team concepts are mastered.

6. Persuasive Skill: Persuasive skills for business rely on critical thinking, data-driven analysis, and practical reasoning. With these tools, we learn to communicate the legitimacy of ideas and convince others of the viability of our proposals. Persuasion relies on a complex matrix of logical reasoning, grounded emotional appeal, and cultural knowledge. Underlying this is the understanding that persuasive

communication is above all relationship between people which is built on trust, empathy, and integrity.

7. Ethical Skill: Ethical decision-making is a purposeful, character-driven, and values-based process that enables business decision-makers to effect positive social change by executing decisions that create value for all stakeholders. It reflects a deep and thoughtful appreciation of the moral and ethical responsibilities of leaders to society while remaining mindful of diversity in an increasingly integrated world. An ethical approach to responsibilities within an organisation and to society at large.

8. Societal Skill: A societal understanding of business recognizes that individual and organizational actions take place within a larger set of social, cultural, political, and economic contexts. Societal-conscious business decision-making strives to understand and anticipate the broader impacts of actions and practices, and recognizes the diversity of organizations and the people who work within them.

9. Environmental Skill: It was recognized that the balance of environmental, social, and economic sustainability must be considered in determining business success. A skill of the 21st century is understanding this triple bottom line. An environmental approach to business attends to the complexities and sustainable potential of the physical environment, the competitive environment, and the hiring and human resources environment.

Challenges of Artificial Intelligence in Business Education Programmes

In incorporating AI in business education, there are some challenges that may be encountered. These includes:

a. Keeping the curriculum up-to-date. AI is a rapidly evolving technology, and new advancements are being made all the time. This means that business education programme must be constantly updating their curriculum to ensure that students are learning the most current information.

b. Another challenge is ensuring that students have access to the necessary resources. Incorporating AI into the curriculum requires specialized equipment and software, which can be expensive. This can be a barrier for some students, particularly those from low-income backgrounds.

c. Bias: Artificial intelligence is only as knowledgeable as the information it has been trained on. If a program like ChatGPT is trained on biased information, then when a student asks it a question, they could get a biased response, which can perpetuate stereotypes and social inequalities. If a biased AI tool is used for grading, students could receive low grades based on their race or gender.

d. Errors: In addition to bias, artificial intelligence may generate misinformation. The data that AI draws from may have errors, be outdated, or spread misinformation. Neither students nor teachers should assume that information provided by AI is accurate.

e. Cheating: Students can use ChatGPT to write entire essays, answer quiz questions, or do their homework. Ironically, now there are AI programmes that can detect AI writing to help teachers determine if their students are cheating. But sometimes those programmes may falsely identify a student's original work as plagiarism.

f. Finally, there is a need for business educators to address ethical considerations surrounding AI. As AI is being integrated in more and more aspects of our lives, it is important that future business leaders are familiar with the ethical implications of AI and how to navigate them. This includes understanding the potential biases that can be built into AI systems and the potential negative impact on society and the workforce. Integrating Artificial Intelligence into Business Education Programme

Artificial Intelligence (AI) is rapidly transforming the business landscape, and it is having a significant impact on business education programme. Institution of learning offering business education programme are adapting to this technological revolution by integrating AI into their curriculum and research. This is important because it equips future business leaders with the skills and knowledge necessary to navigate the rapidly changing business environment. In this article, we will explore the benefits and challenges of incorporating AI in business education programme and how it is shaping the future of the industry.

Conclusion

The journey of integrating Artificial Intelligence (AI) into business education programme is both challenging and exciting. It offers a path to creating more engaging, personalised, and effective learning experiences that prepare students for the realities of the modern business world. From personalized learning journeys and enhanced teaching to AI-driven business career and skill development, Artificial Intelligence is reshaping the landscape of business education programme. By leveraging Artificial Intelligence, educators can better understand students' learning needs and design curricula that align with industry demands. AI empowers students and professionals to acquire the skills and knowledge required in the fast-paced and competitive business world. As AI technologies continue to advance, business education will continue to evolve, embracing innovative solutions that foster lifelong learning and workforce empowerment.

Recommendations

The following recommendations were made:

1. There should be massive design, development and implementation of Artificial Intelligence-based tutoring systems for teaching and learning process in all institutions of learning.
2. The Nigerian Federal Government should deliberately fund artificial intelligence projects for sustainability in education and the lecturers should be well represented and actively involved in policy making and deliberation on the project.
3. There should also be adequate and incessant awareness creation of Artificial Intelligence. Awareness of the benefits of embracing AI should be continually highlighted in all Nigeria educational system. In this manner the threats and opportunities would be deliberated and gray parts cleared.
4. Academic and administrative staff should be exposed to training and retraining in the use of artificial intelligence in delivering of their services in order to achieve improved operational efficiency where the technology is to be adopted.
5. There must be proper policy formulation and implementation prior to, during and after the adoption of artificial intelligences.

6. All stakeholders, that is, government, individuals, alumni and management of business education must come together to proffer the way forward for artificial intelligence applications to be provided in the department to enable academic and administrative works to efficient and faster.

References

- Alabi E. B. (2022). Adoption of Artificial Intelligence in Business Education and School Administration. *Journal of Business Education, Management Science and Information Technology*, 8(2), 106-115
- Nnamonu, B. U., Ngwuta, M. F. & Umar, Z. A. (2024). *Twenty-First Century Skills and Competencies Required by Business Education Graduates for Effective Entrepreneurial Success in Ebonyi State*. Social Science and Humaniti
- Babu, G. (2023). *Artificial Intelligence and Business Education: Contemporary Challenges and Futuristic Solutions*.
<https://www.highereducationdigest.com/artificial-intelligence-and-business-education-contemporary-challenges-and-futuristic-solutions/>
- Baker, T. & Smith, L. (2019). *Educ-AI-tion rebooted? Exploring the future of artificial intelligence in schools and colleges*. Retrieved from Nesta Foundation. [https://media.nesta.org.uk/documents/future of AI and education v5 WEB.pdf](https://media.nesta.org.uk/documents/future_of_AI_and_education_v5_WEB.pdf).
- Brynjolfsson, E. & McAfee, A. (2017). The Business of Intelligence. *Harvard Business Review*, 7, 3-11.
- Cleopas, B. C. (2023). Advent of Artificial Intelligence: Prospects and Challenges in Nigeria education system. *International Journal of Educational Research*, 6(6), 1-9.
- Federal Republic of Nigeria (2004). *National Policy on Education*. Lagos: NERDC.
- Fitria, T. N. (2021). *Artificial Intelligence (AI) In Education: Using AI Tools for Teaching and Learning Process*. *Proceeding Seminar Nasional & Call For Papers*, p134-147.
- Halili, S.H. (2019). Technological advancements in education 4.0. *Online Journal of Distance Education and eLearning*, 7(1), 63–69.
- Hasanov, A.; Laine, T.H. & Chung, T.S. (2019). A survey of adaptive context-aware learning environments. *Journal of Ambient Intelligence and SmartEnvironments*, 11(5), 403-428
- Kaplan, A. & Haenlein, M. (2019). Siri, Siri in my hand, who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence. *Business Horizons*, 62(1), 15–25
- Karsenti, T. (2019). Artificial Intelligence in education: The urgent need to prepare teachers for tomorrow's schools. *Formation et profession*, 27(1), 112-116.
- Karyuatri, L., Risqan, M. D., & Darayani, N. A. (2018). Grammarly as a tool to improve students' writing quality, *Jurnal Sains Sosial dan Humaniora*, 2(1), 83 – 89..
- Koko M. N. (2015). *Teaching Business Methods and Procedures*. Harvey Publication Corp.

- Kurshan, B. (2016). *The future of Artificial Intelligence in education*.
<https://www.forbes.com/sites/barbarakurshan>
- Mamudu, F. & Lamido, A. A. (2017). A comparative analysis of the effects of robots on Nigeria economy. *Journal of Computer Engineering*, 19(5), 36-40.
- Martin, I. B. (2019). *Using Padlet for collaborative learning*, 5th International Conference on Higher Education Advances (HEAd'19), Universitat Politècnica de València, València.
- Murphy, R. F. (2019). *Artificial Intelligence applications to support K-12 teachers and teaching: A review of promising applications, opportunities, and challenges perspective*. Expert insights on a timely policy issue.
- Ocana, F. Y., Valensuela-Fernandes, L., & Garro-Aburto, L. (2019). Artificial Intelligence and its implications in education. *Propósitos y Representaciones*, 7(2), 536-568.
- Popenici, S. & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning*. 12(22), 1-13.
- Stanojevic, M. (2020) Best automated essay grading software 2020 guide.
<https://windowsreport.com/automated-essay-grading-software/?amp>
- Strusani, D., & Hounghonon, G. V. (2019). *The role of Artificial Intelligence in supporting development in emerging markets*. International Finance Corporation World Bank Group. www.ifc.org/thought.leadership
- Syed, A.B. & Soga, A.C. (2018). Artificial intelligence in radiology: Current technology and future directions. *Seminars Musculoskeletal Radiology* 22(5), 540-545.
- Thomas, G. & Gambari, A. I. (2022). *A Review of Artificial Intelligent for Teaching, Assessment and Research in Nigerian Universities*. Association for Innovative Technology Integration in Education (AITIE, 2021) Conference Proceedings, p199-207
- Usunboylu, H.; Prokopyev, A.I.; Kashina, S.G.; Makarova, E.V.; Chish, N.V. & Sakhieva, R.G. (2022). Determining the opinions of university students on the education they receive with technology during the pandemic process. *International Journal of Engineering Pedagogy (iJEP)*, 12(2), 48-61.
- Verma, M. (2018). Artificial intelligence and its scope in different areas with special reference to the field of education. *International Journal of Advanced Educational Research*, 3(1), 05-10.
- Wadhwa, D. (2017). Using Artificial Intelligence technologies for personalized learning and responsive teaching: A survey, *International Journal of Advance Research in Science and Engineering*, 6(1), 207-217.
- Wiggers, K. (2018). *Chinese schools are testing AI that grades papers almost as well as teachers*. <https://venturebeat.com/2018/05/28/chinese-schools-are-testing-Ai-that-grades-papers-almost-as-well-as-teachers/>
- Balogun A.M, Yahya L.O, Ayeni D.O & Abudu A.M. , *educational perspectives Vol 13, ISSUE 2*, (2025)
- Chukwu, Chinedu Ositadimma & Ibuot Cletus: Exploring the Effectiveness of AI-Driven Adaptive Learning Systems in Science Education, Impact on Student Engagement *Department of Educational Psychology, University of Calaba AJSTME, Volume. 11, Issue 2. 60-71, June, 2025.*
<https://www.ajstme.com.ng>