

CHALLENGES AND SOLUTIONS IN THE APPLICATION OF AI IN TEACHING BUSINESS EDUCATION COURSES IN RIVERS STATE TERTIARY INSTITUTIONS

Dr. Ukata, Philip Festus

Department of Office Technology and Management,
School of Business and Administrative Studies,
Port Harcourt Polytechnic, Rumuola, Port – Harcourt, Rivers State.
Email: ukata4mephilip@yahoo.com or phillip.ukata@portharcourtpoly.edu.ng
Phone NO: +2348038877937
ORCID: <https://orcid.org/0000-0001-5019-450X>

Dr. Amadi, Anita Eberechi

Department of Business Education,
Faculty of Education,
Ignatius Ajuru University of Education,
Rumuolumeni, Port Harcourt, Rivers State.

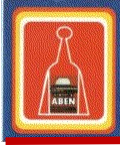
Abstract

Artificial Intelligence (AI) is enhancing teaching process however, accompanied by numerous challenges but with available solutions. Therefore, this study determined challenges lecturers faced and solutions in the application of artificial intelligence (AI) in teaching business education courses in River's state tertiary institutions. Two research questions guided the study and two null hypotheses were tested. Descriptive survey research design was adopted. From a population of 62 lecturers, a census survey sampling was employed. A four-point response options questionnaire was used for data collection, and it was validated by three experts. The reliability of the instrument was established using Cronbach's alpha which yielded coefficients of 0.82 and 0.83. Mean and standard deviation were used to answer the research questions and measure the spread in respondents' opinions, while one-way analysis of variance (ANOVA) was used to test the null hypotheses at 0.05 level of significance. Findings revealed high challenges and very high solutions to the challenges in the application of AI in teaching business education courses. The study further revealed that level of education and years of experience played vital roles in the application of AI. Based on the findings, it was concluded that if the challenges are curbed via the solutions, it will positively transform the programme and lead to AI employability skills development among the learners. Among other things, it was recommended that lecturers should be constantly trained on the challenges and solutions to the application of AI so that they will be able to transfer the skills to learners in River's state tertiary institutions.

Keywords: Challenges lecturers faced in AI, artificial intelligence (AI), solutions to application of AI, teaching business education courses.

Introduction

Artificial Intelligence (AI) is rapidly transforming various industries, including education. AI as an aspect of information and communication technologies (ICTs) is being used in educational system to enhance teaching and learning process, improve student outcomes, and streamline administrative tasks with numerous challenges. In recent years, AI has also made inroads into the education sector, particularly in educational management (Igbokwe, 2023; Ukata & Agburuga, 2024a). AI can help improve the teaching and learning process, enhance teacher's performances,



student outcomes, and automate administrative tasks but with track problems of dehumanisation of making humans as if they lack mental capacity and loss of personal touch with the needed interactions among staff and students in the educational system (Gupta, 2020; Forero-Corba, & Negre Bannasar, 2024; Ukata, 2024).

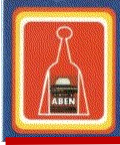
Machine Learning (ML) as an aspect of AI has been oriented towards educational tasks (Zafari et al., 2021), which highlights the need to strengthen Teachers' Digital Competence (TDC) which is also a great challenge (Surugiu, Grădinaru, & Surugiu, 2024; Khosravi, 2022). Many teachers avoid Artificial Intelligence Education (AIE) due to lack of understanding and skills (Crompton, Jones and Burke, 2022). To effectively integrate AI tools, teachers should update their educational practices and embrace the challenges of technology in teaching (Skavronskaya, Hadinejad & Cotterell, 2023). Researchers, policymakers, and practitioners are integrating Artificial Intelligence Education (AIE) to enhance teaching, personalised learning, assessments, and administrative services but are afraid of issues of data privacy and security breaches with the cost implications (Zhang & Aslan, 2021; Chiu et al., 2023).

AI represents progress in education, offering benefits on multiple levels, and stimulates the evolution of teaching and learning through technologies like chatbots, Marvis Beacon Teaches Typing (MBTT), robots, automated assessment, documents converters, and intelligent tutoring systems. However, the challenges of lack of transparency and interpretability because of the complexity and difficulty to understand the potential errors, students cheating with AI and the pedagogical approach best needed to be adopted are of serious worries (Chiu et al., 2023; Mekuri-Ndimele & Ukata, 2024).

AI is the theory and development of computer systems that are able to perform tasks requiring human intelligence, such as teaching, visual perception, speech recognition, decision-making, and translation between languages (Pattam, 2021). Artificial intelligence is the science of making machines that can think and act like humans. AI is an advanced part of information and communication technology (ICT) which adopts the application of hardware and software in imitating to demonstrate what human beings can do by those technologies. AI as an aspect of information and communication technologies (ICTs) has roles to play in the implementation of business education programme in which technologies are integral part (Ukata & Agburuga, 2024b).

National Universities Commission (2022) posited that Business Education is a specialized profession designed to provide students with knowledge, skills and competence leading to employability and advancement in office occupations, pedagogical skills in teaching business subjects at different levels of educational system as well as self-employment or being an employer of labour. As an aspect of Vocational Education and Training, Business Education is designed to fill the gap between knowledge and practice by exposing students to General Education as well as specialized areas in Accounting, Entrepreneurship, Marketing and Office Technology and Management (Ukata & Nmehielle, 2024a). Business Education contents are all encompassing programme with areas in Business Management, Business Administration, Office Information Management System, Office Technology and Management, (Information and Communication Technology or Information Management System, Purchase/Supply Education among others, which require the application AI (Ukata & Nmehielle, 2024b). Ukata & Sila-Dikibo, 2020: Ukata, 2019). It is an education that theoretically and practically prepared the learners with the required skills needed at the global workplaces (Ukata, Adejola & Okoye, 2018). Business education programme is offered as a course in universities, colleges of education and as an option in the polytechnics.

Accordingly, running his list, Lynch cites current areas AI is used in education which are applicable to business education to include but not limited to: Classroom/Behaviour Management, Lesson Planning, Classroom Audio-Visual, Parent-Teacher Communication, Language Learning,



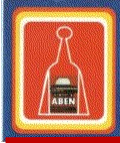
Test Prep, Assessment, Learning Management Systems, Gamification for Enhanced Student Engagement, Staff Scheduling and Substitute Management, Professional Development, Transportation, Maintenance, Finance, Cybersecurity, Academic Fraud Detection, Safety and Security (Ukata & Amini, 2025; Onlinedegrees, 2024; Smith, 2021; Singh & Singh, 2021). AI is currently used in Plagiarism Detection (Turnitin, Eagle Scan), Academic Research, Online Teaching and Learning, Chatbots for Enrolment and Retention, Learning Management Systems, Transcription of Faculty Lectures, Enhanced Online Discussion Boards, Analysing Student Success Metrics and Connected Campuses (Ukata & Mekuri-Ndimele, 2025; Onlinedegrees, 2024; Smith, 2022). According to Rose Luckin, a professor of learning-centred design at University College London, as she said, “The real power of artificial intelligence for education is in the way that we can use it to process vast amounts of data about learners, about teachers, about teaching and learning interactions.” Ultimately, AI can “help teachers understand their students more accurately, more effectively (Onlinedegrees, 2024).” Unfortunately, in the Core Curriculum and Minimum Academic Standard for Nigerian University System (CCMAS) published by the National Universities Commission in 2022 nothing was mentioned about AI in Business Education programme, and its application by business education teachers despite the abundant benefits in the teaching and learning, perhaps, because of the challenges involved.

There are numerous AIs needed in the application of teaching of business education courses. However, the below stated and explained are some of the AIs that may be needed in the application of teaching business education courses:

Gentle, (2024) posited that the software Mavis Beacon Teaches Typing was first released in 1987 as a tool to train new computer and advanced users on keyboard skills (touch typing). Beacon was praised for helping make computer education more accessible and easier to people of different colour, with modern day super fans going so far as to create deep fake footage of Barack Obama and Oprah Winfrey celebrating her influence. The software (AI), Mavis Beacon Teaches Typing, whether you want to learn essential keyboarding skills as a beginner or improve your overall typing efficiency, Mavis Beacon Teaches Typing Anniversary Edition will guide you on your road to success. It gives beginners ways and improves speed and accuracy with detailed assessments, customized lessons and skill-building games which are needed in different global workplace (Broderbund, 2024).

QuillBot paraphrasing tool (AI) is an online writing platform with a bunch of tools aimed at elevating and perfecting writings. QuillBot (AI) paraphrases, summarizes, checks for grammar error and plagiarism, translate, outline, create citations and set researchers up for success in schools, workplaces and personal engagements (QuillBot, 2024). Onlinedegrees (2024) outlined some AI tools for teachers and learners in educational system to comprise Palitt which was built to help instructors to easily create “their own custom lecture series, syllabus or textbook for teaching and learning. Jill Watson is also an AI-enabled virtual teaching assistant introduced by the Georgia Institute of Technology in 2016 for teaching and learning. Brainly is another wonderful social media site for classroom questions. Nuance is a great speech recognition software used by students and faculty; capable of transcribing up to 160 words per minute; especially very helpful for students who struggle with writing or have accessibility needs. Contents Technologies is another instructional design and contents application solutions fuelled by artificial intelligence with research engines to aid in teaching and learning.

Similarly, Smith (2021& 2022), Ukata and Agburuga, (2024c) outlined several areas of applications of AI in teaching and learning as follows: 1. Personalized learning: Is an AI used to create customized learning paths for individual students, based on their strengths and weaknesses, learning styles, and interests. 2. Intelligent tutoring systems: Is an AI-powered tutoring system that



provides real-time feedback to students, adapt to their individual learning needs, and track their progress. 3. Student performance prediction: Is an AI algorithm that analyses data on student performance, attendance, and other factors to predict which students may be at risk of falling behind and intervene early. 4. Automated grading: Is an AI that is used to grade multiple-choice and shoot-answer questions, freeing up teacher time for other tasks. 5. Chatbots and virtual assistants: Are AI-powered chatbots and virtual assistants that provide students with instant answers to common questions, freeing up teachers and administrators to focus on more complex tasks. 6. Financial aid and student services: Is an AI that helps institutions to automate financial aid applications, identify students who may be eligible for scholarships or other forms of aid, and provide personalized support to students. 7. Curriculum development: Is an AI used to analyze trends in the job market and identify the skills and knowledge that students will need in the future, informing the development of new curricula and programs (Ukata & Obinichi-Aaron, 2025; Ukata & Agburuga, 2024d; Southworth et al., 2023; Chiu et al., 2023 & Hopcan et al., 2022).

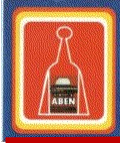
Zotero (AI) is an open-access, easy-to-use reference management tool that serves as your personal research assistant and helps you collect, organize, cite, and share your research sources. Zotero allows teachers and learners to: save references from library catalogues, research databases, and the web. It allows researchers to add PDFs, images, audio and video files, snapshots of web pages, and more, write annotations and attach them to citations and create bibliographies using most major citation styles (Libraries Central Michigan University, 2024).

Although AI has the potential to revolutionize educational system by improving on the efficiency and effectiveness of various processes. There are also numerous challenges as well as solution to the application of AI in the teaching, learning and management of administrative functions which are applicable to business education programme with some outlined and discussed below (Igbokwe, 2023; Adlawan, 2024 Bailey, 2024 & (Awofiranye, 2024):

One of the noteworthy challenges of AI in educational system is the potential for bias or partiality and discrimination. As contended by Mason and Rennie (2018), AI algorithms (procedure and process) may replicate and amplify existing favouritism and discrimination in educational systems leading to further inequality and injustice. For example, AI may disseminate, voice copying, gender or racial partialities in student evaluations or admissions decisions. Educational managers need to be aware of these challenges and work to ensure that AI is used in a fair and equitable manner. Hart, (2024) suggested that institutions, implementers and learners should be educated about potential biases since AI draws its information from text written by humans, there can be biases and partially present in AI-produced work. It is really important to educate students about the fact that AI is not inherently neutral, so that they are aware of these issues and can learn ways to identify and counteract it.

AI in educational system also raises concerns about job displacement, moreover teachers without the needed knowledge and skills. This may not be happening yet, but it is an anxiety that the advancement and adoption of AI is impacting on the need for certain job roles in education. The way AI continues to automate more aspects of the education process, there may be fewer demands for human educators, which could lead to both improved productivity and potential job loss (Adlawan, 2024). Teachers should embrace technological challenges since it is the global direction. There is need for tertiary institutions to send their staff on AI specialise trainings. Teachers too should enrol in personal training so as to upgrade their skills and remain relevance in their field of endeavours.

Another substantial challenge of AI in educational system is the lack of transparency and interpretability. As noted by Veletsianos (2019), AI algorithms (procedure and process) can be complex and difficult to understand, making it challenging for educational system and stakeholders.



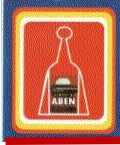
Melo, (2023) claimed that in finding transparency, interpretability, reliable and trustworthy doing partnership with AI manufacturers is crucial for the successful integration of AI into the classroom. This can be a technology company, a local university, or a non-profit organization that specialise in AI education. The right partner can provide support, training, and guidance to help teachers effectively incorporate AI into their teaching practices.

Another major challenge of AI in education is that it is costly to implement by teachers, learners and schools' management. Not all learners, teachers, schools and educational institutions have a dedicated budget for investing in AI tools and technologies. Plus, the cost of mass-implementing AI into schools may be too great at this time. If the teacher will be the one to shoulder the cost, it can be expensive, and challenging to maintain. Melo, (2023) suggested that rather than trying to implement AI across the entire curriculum, it is recommended that tertiary institutions and teachers should start little by little and work their ways up. This allows teachers to gain experience with the technology, build confidence, and refine their teaching practices with appropriate instructional methods over time. For example, teachers could start by incorporating QuillBot, AI-powered learning games, use of Mavis Beacon Teaches Typing, Zotero, Turnitin into their lessons or using AI algorithms to provide students with personalized feedback on their assignments. Institutions and institutions, as well as institutions and industries collaboration are strongly as a solution high cost of implementing AI programmes. Federal and state government should vote in enough funds for AI programme implementation.

Data privacy and security breaches is a notable challenge of AI in educational system. As maintained by Akkaya-Kalayci and Yildirim (2020), the use of AI in educational system requires access to large amounts of data, including personal information about students, faculty, and staff. This data is vulnerable to cyberattacks and other security breaches, potentially exposing sensitive information and undermining the trust and confidence of stakeholders. Melo, (2023) claimed that in finding data privacy and avoiding security breaches with AI in educational system, partnering with AI manufacturers and training specialists by tertiary institutions are crucial for the successful integration of AI into the classroom to provide security and background backup services.

AI in educational system has the potential for dehumanization and loss of personal touch with academic community. This was why Peters and Besley (2020), argued that the use of AI in educational system may lead to a reduction in human interaction and personalisation, leading to a less satisfying and engaging educational experience for students. Educational managers need to strike a balance between the efficiency and effectiveness of AI and the importance of human interaction and personal touch in education. Teachers and AI can collaborate in co-teaching scenarios, where AI systems may assist in instruction, assessment, and real-time feedback and tutoring, while teachers offer guidance, interpretation, and deeper engagement with the material (Adlawan, 2024). The role of teachers as counsellors, mentors, motivators, and facilitators of learning will remain essential. Teachers bring human connection, empathy, social-emotional skills, and the ability to foster creativity and critical thinking for a specific classroom situation, which cannot be replicated by AI.

One of the primary challenges of AI in educational system is the lack of ethical and legal guidelines. AI algorithms can produce biased and discriminatory results since it is all about take in what is given and give out what was taken in. So, it is essential to ensure that AI is used ethically and transparently. It is crucial to have guidelines that protect students and staff privacy, ensure data security, and prevent AI from being used for surveillance purposes (Igbokwe, 2023). As simple as it looks, teachers can still have the power to set rules and boundaries in class. Set a strict rule of prohibiting the usage of internet in any face-to-face class activities and allow students to think freely and creatively using their gained knowledge from past lessons (Adlawan, 2024).



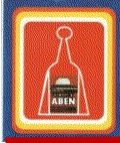
Lack of technical expertise and resources are among the worrying challenges of using AI. AI requires specialized knowledge and skills, and educational institutions may lack the necessary resources to implement AI effectively. Training and professional development opportunities must be provided to ensure that educators and administrators have the skills to use AI effectively. This was why Hart (2024), suggested the need in offering AI training to staff because one of the most common barriers to using AI effectively in schools is a lack of technical skills and knowledge. If staff have never been trained to use AI, they may struggle with knowing where to start. Therefore, offering some helpful AI training to staff before asking them to use AI technology in their classrooms is highly recommended as a solution.

Lack of interoperability and compatibility between different AI systems is also another problem. Educational institutions use several different systems, such as learning management systems, student information systems, and assessment tools, payroll system which are likely to pose a lot of challenges in terms of interoperability and compatibility. It is essential to ensure that these systems can work together seamlessly to provide a cohesive and efficient educational experience (Adlawan, 2024).

Services of experts should be employed to do a thorough analysis so as to know the compatibility combination of the various AIs without interoperability in the process of application. Additionally, the integration of AI into the educational system will mean that teachers will need to be adequately trained and well-prepared for the purpose to be actualized. However, this will not be as easy as it seems; some demands will have to be met. Also, unifying the system means it will have to be adopted globally. Consequently, the educational systems of many countries will not be able to accommodate this development (Awofiranye, 2024). Institutions and implementers should know that the wave of changing technology dominating all aspect of life is real and no going back. Therefore, institutions and their staff should prepare adequately via training and development for the challenges thrown by advanced technologies.

A further challenging factor which affects most technology-reliant disciplines is the fact that field evolves incredibly quickly. Designing curricula and teacher qualification requirements are difficult when the contents and state of the art of the field evolves at such a rapid pace. Establishing mechanisms within policy institutions (such as national ministries, educational agencies and certification bodies), and within educational institutions which provide a system for rapidly updating curricula requirements is a continued challenge and one which must be considered further (Technopolis, 2024). Global institutions and experts in technologies have subscribed to the ideas of reviewing technological curriculum every five years nationally with regular yearly review by implementers. Therefore, it is a matter of readiness and voting out enough funds for regular curriculum reviews.

The adoption of artificial intelligence in the educational system will in turn foster technology addiction among students and even teachers. Students and teachers will now have to use smartphones, iPads, or laptops for educational activities rather than pen, paper, or books. This will lead to increased screen time and a possible addiction to technological devices. There is also a growing concern about the over-reliance on AI in educational system by teachers, learners and other staff in jobs performance in the areas of academic and administrative activities (Ukata & Worgu, 2025; Melo, 2023 & Hart, 2024). AI should not replace human educators but rather support them in their work. It is essential to ensure that AI is used as a tool to enhance teaching and learning, not a total replacement for human functions. In summary, AI has the potential to transform educational system, but there are also significant challenges that need to be considered and addressed by proffering solutions which requires careful planning, funding, ongoing evaluation, and a commitment to ethical and responsible use of AI in educational system. There is serious need of

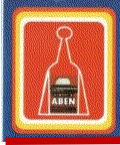


setting strict rules to prohibits using AI in the face-to-face class activities, this can serve as solution to AI problem technology addiction and excessive dependence.

The subjects for this study are male and female business education lecturers with different levels of educational attainment and years of teaching experience in River's state tertiary institutions. Mohammad et al, (2011) averred that how well lecturers demonstrate the knowledge of AI related teaching experience depend on their level of educational qualification, training and retraining, age and teaching experience. For example, lecturers with higher degrees such as (PhD and M.Sc. /M.Ed.) are expected to possess higher knowledge and skills with AI related teaching experience than those with HND/B.Sc./B.Ed (Ukata & Udeh, 2022; Ezenwafor & Ukata, 2022). Accordingly, Ukata and Okeke, (2023), Ukata and Nmiehelle, (2022) claimed that teaching experience and age are among the factors that influence lecturers' knowledge and skills with AI related teaching experience because younger and experienced lecturers are more likely to possess them higher than older and less experienced ones. Also, lecturers who have spent 10 years and above in teaching AI related courses are expected to possess higher knowledge and skills to be able to know the challenges lecturers faced in and solutions to the application of AI in teaching business education courses than those with less than 10 years teaching experience. Consequently, the study tested the influence of these respondents' variables on their level of educational attainment and years of teaching experience with AI related knowledge and skills concerning the challenges they faced in and solutions to the application of AI in teaching business education courses in River's state tertiary institutions.

There is no doubt that AI is rapidly transforming various industries, including education but it looks like there are numerous challenges (Igbokwe, 2023). AI may have helped to improve teaching and learning process, enhance teacher's performances, student outcomes, and automate administrative tasks but seem to have problems of dehumanisation of making humans look as if they lack mental capacity and loss of personal touch, including the needed interactions required among staff and students in the academic community (Gupta, 2020; Forero-Corba, & Negre Bannasar, 2024). It may also be true that Machine Learning (ML) as an aspect of AI has been oriented towards educational tasks (Zafari et al., 2021), but it also highlights the need to strengthen Teachers' Digital Competence (TDC) which may be a great challenge during implementation (Surugiu, Grădinaru, & Surugiu, 2024; Khosravi, 2022).

Many teachers seem to avoid Artificial Intelligence Education (AIE) due to a lack of understanding and essential required skills (Crompton, Jones and Burke, 2022). Even though many researchers, policymakers, and practitioners are integrating Artificial Intelligence Education (AIE) to enhance teaching, personalised learning, assessments, and administrative services but they seem to be afraid of issues of data privacy and security breaches with the cost implications (Zhang & Aslan, 2021; Chiu et al., 2023). Additionally, while AI represents progress in education, offering benefits on multiple levels, and stimulates the evolution of teaching and learning through technologies like chatbots, Marvis Beacon Teaches Typing (MBTT), robots, automated assessment, documents converters, and intelligent tutoring systems. there appear to be challenges of lack of transparency and interpretability because of the complexity and difficulty to understand the potential errors, students cheating with AI and the pedagogical approach that is best needed to be adopted during implementation (Chiu et al., 2023). Looking at the above arguments, the researcher(s) is/are highly worried that despite the great benefits of AI, there seem to be numerous challenges lecturers faced but with what seem to be promising solutions to the application of AI in teaching business education courses. These and many more are the justifications for the study, "challenges lecturers faced and solutions in the application of artificial intelligence (AI) in teaching business education courses in River's state tertiary institutions." Additionally, findings of the study



will provide empirical data to enable stakeholders suitably address the challenges lecturers faced and proffer solutions to the application of AI in teaching business education courses so as to develop global workplace employability skills among business education graduates and reduce the level of graduates' unemployment in Nigeria.

Methodology

The study adopted a descriptive survey research design. Population of the study was all the 62 business education lecturers from the four Rivers state tertiary institutions (two universities (Rivers State University (RSU) 21, Ignatius Ajuru University of Education (IAUE) 17), two polytechnics (Captain Elechi Amadi Polytechnic (CEAPOLY) 14, and Kensaro Wiwa Polytechnic (KENPOLY) 10) are the Rivers state tertiary institutions that offer business education programme as a course or as an option in Office Technology and Management. Census survey was adopted to sample all the 62 business education lecturers because it is of manageable size. The instrument used for data collection was a self-designed four-point response options questionnaire titled "Challenges Lecturers Faced and Solution in the Application of AI in Teaching Business Education Courses (CLFSAAITBEC)". It contains two sections. Sections A and B. Each section carries 12 items and were rated as very high (4.50 - 5.00), high (3.50 - 4.49), moderate (2.50 - 3.49), and low (1.50 - 2.49). The questionnaire was subjected to face and contents validation by three experts from the Faculty of Education in Nnamdi Azikiwe University, Awka. The measure of internal consistency method was used to establish the reliability of the instrument. The instrument was administered to 17 lecturers from the University of Uyo who were not part of the population of the study. The Cronbach's alpha was applied to compute the reliability coefficient which yielded alpha values of 0.82 and 0.83. This high reliability coefficients show that the instrument was reliable for the study as recommended by Nworgu (2015) that a research instrument with a reliability index of 0.70 and above is reliable.

The researcher(s) personally administered the copies of the questionnaire to the respondents in their schools with the help of three research assistants who were adequately briefed on the modalities to follow. The researcher(s) first visited each of the tertiary institutions and sought consent from the relevant Heads of Department for the study. Thereafter, the researcher(s) and assistants visited each school and handed over the required number of copies of the instrument to the Heads of the Department to distribute to the business education lecturers for completion and, revisited after five working days to retrieve the completed copies. Fifty-seven copies of the instrument were correctly filled, retrieved and used for data analysis. The arithmetic mean and standard deviation were used to answer the two research questions and ascertain how homogeneous or heterogeneous the respondents' opinions were relative to the questionnaire items and the aggregated mean. The one-way analysis variance (ANOVA) was used to test the null hypotheses at 0.05 level of significance. The ANOVA was used for the two null hypotheses because it measured one categorical independent variable with three levels of moderating variables. A null hypothesis was accepted where the calculated significant (Sig.) value, (p- value) was greater than or equal to (\geq) the alpha value of 0.05. Otherwise, the null hypothesis was rejected. The data analysis was carried out using Statistical Package for Social Sciences (SPSS) version 25.

Result Presentation, Analysis and Discussion

Research Question 1

What are the challenges lecturers faced in the application of AI in teaching business education courses in River's state tertiary institutions?

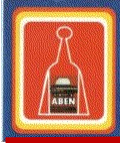


Table 1: Respondents’ mean ratings on the challenges lecturers faced in the application of AI in teaching business education courses. N = 57

| SN | Challenges lecturers faced in the application of AI in teaching business education courses | \bar{X} | SD | Remarks |
|-----------------------|--|-------------|-----|-------------|
| 1 | AI can be bias and discrimination in its application | 3.78 | .71 | High |
| 2 | AI may lead to job displacement of staff | 3.72 | .85 | High |
| 3 | There are lack of transparency and interpretability in AI | 3.56 | .84 | High |
| 4 | It is costly to implement AI in schools | 3.60 | .88 | High |
| 5 | AI has issues of data privacy and security breaches | 3.67 | .90 | High |
| 6 | AI can cause dehumanization and loss of personal touch | 3.75 | .81 | High |
| 7 | AI has problem of lack of ethical and legal guidelines | 3.75 | .81 | High |
| 8 | AI has issues of technical expertise and resources | 3.76 | .79 | High |
| 9 | AI has issues of interoperability and compatibility | 3.72 | .85 | High |
| 10 | Inadequate preparedness of teachers is an issue in AI | 3.55 | .84 | High |
| 11 | Rapid evolution of AI and updating curricula is a problem | 3.60 | .88 | High |
| 12 | AI cause facilitates technology addiction and excessive dependence | 3.56 | .84 | High |
| Aggregate Mean | | 3.66 | | High |

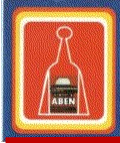
Table 1 shows that all the 12 listed items indicate high challenges lecturers faced in the application of AI in teaching business education courses with mean scores that ranged from 3.55 to 3.78. Likewise, the aggregate mean score of 3.66 which also shows high challenges lecturers faced in the application of AI in teaching business education courses. The standard deviations for the 12 listed items ranged within 0.71 to 0.90 which shows that respondents were homogeneous in their opinions that all the listed are high challenges lecturers faced in the application of AI in teaching business education courses in River’s state tertiary institutions.

Research Question 2

What are the solutions to the challenges lecturers faced in the application of AI in teaching business education courses in River’s state tertiary institutions?

Table 2: Respondents’ mean ratings on solutions to the challenges lecturers faced in the application of AI in teaching business education courses. N 57

| SN | Solutions to the challenges lecturers faced in the application of AI in teaching business education courses | \bar{X} | SD | Remarks |
|----|---|-----------|-----|-----------|
| 1 | Educating students and staff that AI is not neutral can serve as a solution to bias and discrimination in its application | 4.50 | .82 | Very High |
| 2 | Acquiring the needed AI teaching skills can serve as a solution to job displacement of staff | 4.52 | .81 | Very High |
| 3 | Collaborating with AI companies with trained staff can be a solution to lack of transparency and interpretability in AI | 4.51 | .81 | Very High |
| 4 | Start AI implementation little by little can be a solution costly to implementation of AI in schools | 4.50 | .72 | Very High |



| | | | | |
|-----------------------|--|-------------|-----|------------------|
| 5 | Partnering with AI manufacturers and training specialist solution to AI issues of data privacy and security breaches | 4.52 | .81 | Very High |
| 6 | Teachers and AI collaborating as co-teacher in scenarios can serve as a solution to AI dehumanization and loss of personal touch | 4.51 | .81 | Very High |
| 7 | Setting strict rules to prohibits using AI in face-to-face class activities serve as solution to AI problem of lack of ethical and legal guidelines | 4.54 | .79 | Very High |
| 8 | Training and professional development of staff can serve as solution to AI issues of technical expertise and resources | 4.53 | .85 | Very High |
| 9 | Employing the services of experts in the management of AI can serve as a solution to issues of interoperability and compatibility | 4.52 | .79 | Very High |
| 10 | Preparing adequately via training and development serve as solution to inadequate preparedness of teachers in the issue of AI | 4.52 | .81 | Very High |
| 11 | Adequate funding of every five years national government and yearly internal reviews by implementers can serve as solution to rapid evolution of AI updating in the curricula as a problem | 4.51 | .81 | Very High |
| 12 | setting strict rules to prohibits using AI in the face-to-face class activities can serve as solution to AI technology addiction and excessive dependence. | 4.54 | .79 | Very High |
| Aggregate Mean | | 4.51 | | Very High |

Table 2 shows that all the 12 listed items are very high solutions to the challenges lecturers faced in the application of AI in teaching business education courses with mean scores that ranged from 4.50 to 4.54. Similarly, the aggregate mean score of 4.51 shows very high solutions to the challenges lecturers faced in the application of AI in teaching business education courses. The standard deviations for the 12 listed items ranged within 0.72 to 0.85 which shows that respondents were homogeneous in their opinions that there are very high solutions to the challenges lecturers faced in the application of AI in teaching business education courses in River's state tertiary institutions.

Hypotheses Testing

HO₁: There is no significant difference in the mean rating of lecturers on the challenges they faced in the application of AI in teaching business education courses based on their educational attainment.

Table 3: ANOVA summary of male and female lecturers on the challenges they faced in the application of AI in teaching business education courses based on their educational attainment.

| Sources of Variance | Sum of Squares | Df | Mean Square | F-cal. | Sig. | Decision |
|---------------------|----------------|-----------|-------------|--------|------|------------------------|
| Between Groups | 2.458 | 2 | 1.229 | 1.388 | .373 | Accept H ₀₁ |
| Within Groups | 53.357 | 55 | .777 | | | |
| Total | 58.615 | 57 | | | | |

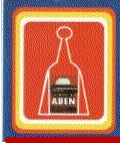


Table 3 shows a calculated F-value of 1.38 with a significant (sig.) p-value of 0.37 which is greater than the alpha value of 0.05 ($0.37 > 0.05$) at degrees of freedom of 2 and 55. Therefore, the null hypothesis (H_{01}) was accepted. This means that there is no significant difference in the mean rating of male and female business education lecturers on the challenges they faced in the application of AI in teaching business education courses based on their educational attainment in River's state tertiary institutions.

HO₂: Lecturers do not differ in their mean rating on the solutions to the challenges they faced in the application of AI in teaching business education courses based on their years of experience.

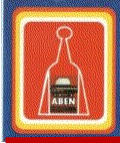
Table 4: ANOVA summary of male and female lecturers on the solutions to the challenges they faced in the application of AI in teaching business education courses based on their years of experience.

| Sources of Variance | Sum of Squares | Df | Mean Square | F-cal. | Sig. | Decision |
|---------------------|----------------|-----------|-------------|--------|------|-----------------|
| Between Groups | 1.741 | 2 | .830 | 1.261 | .382 | Accept H_{02} |
| Within Groups | 47.959 | 55 | .784 | | | |
| Total | 48.600 | 57 | | | | |

Data on Table 4 shows a calculated F-value of 1.26 with a significant (sig.) p-value of 0.38 which is greater than the alpha value of 0.05 ($0.38 > 0.05$) at degrees of 2 and 55. Therefore, the null hypothesis (H_{02}) was accepted. This means that male and female business education lecturers do not differ in their mean rating on the solutions to the challenges they faced in the application of AI in teaching business education courses in River's state tertiary institutions based on their years of experience.

Discussion

The first finding of the study shows high challenges lecturers faced in the application of AI in teaching business education courses. The finding concurs with the views of Mason and Rennie (2018), Veletsianos (2019), Peters and Besley (2020) who claimed that bias and discrimination, job displacement, lack of transparency and interpretability, cost of implementation AI in tertiary institutions, data privacy and security breaches as some of the challenges lecturers faced in the application of AI in teaching courses in the educational system. Additionally, Igbokwe, (2023), Awofiranye, (2024), and Technopolis, (2024) argued that lack of ethical and legal guidelines, lack of technical expertise and resources, inadequate preparedness of teachers, rapid evolution of ai and updating curricula, as among the serious challenges lecturers faced in the application of AI in teaching business education courses in the tertiary institutions. The second finding of the study shows a very high solutions to the challenges lecturers faced in the application of AI in teaching business education courses. The finding corroborates with the arguments of Hart, (2024), Adlawan, (2024), Melo, (2023) and Technopolis, (2024) who suggested that institutions, implementers and learners should be educated about potential biases and and discrimination, and teachers should embrace technological challenges since it is the global direction. They also suggested the need for tertiary institutions to send their staff on AI specialise trainings, partnership with AI, starting little by little, manufacturers as crucial to successful integration of AI into the classroom, and teachers should continue to act as counsellors, motivators, and facilitators in application of AI in teaching courses. Additionally, adequate funding of every five years by national government and yearly internal reviews by implementers in collaboration with their institutions can serve as solution to rapid evolution of AI updating in the curricula as a problem. The fact that there is a very high



solutions to the high challenges lecturers faced in the application of AI in teaching business education courses shows that the challenges are surmountable. This also shows that AI could be successfully deployed in teaching and learning business education courses in River's state tertiary institutions to develop AI employability skills and address the problem of un-employment among business education graduates.

Finally, findings of the study further shows that there is no significant difference in the mean rating of business education lecturers on the challenges they faced in the application of AI in teaching business education courses based on their educational attainment. This finding corresponds with the report of Mohammad et al., (2011) that how well lecturers demonstrate the knowledge of AI in teaching depend on their level of educational qualification, training and retraining. Additionally, finding of the study indicates that business education lecturers do not differ in their mean rating on the solutions to the challenges they faced in the application of AI in teaching business education courses based on their years of experience. The finding concurs too with the interpretations of Ukata and Okeke, (2023), Ukata and Nmihelle, (2022) who claimed that teaching experience and age are among the factors that influence lecturers' knowledge and skills of AI related teaching experience because younger and experienced lecturers are more likely to possess them higher than older and less experienced ones in the River's state tertiary institutions. The fact that there is no significant difference in the opinions of the lecturers shows that level of educational qualification, training, retraining and years of teaching experience play vital roles of having knowledge and skills on the challenges lecturers faced and proffering solutions to the application of AI in teaching business education courses so as to develop global employability skills among business education graduates and reduce the level of graduates' unemployment in Nigeria.

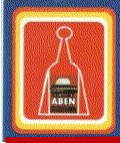
Conclusion

Based on the findings from the discussions of the study, it was concluded if the challenges such as inadequate funding, bias and discrimination, job displacement, lack of transparency and interpretability, cost of implementing AI, data privacy and security breaches among others lecturers faced in the application of AI in teaching business education can be curbed through the solutions of adequate funding, specialise staff trainings in AI, partnership with AI manufacturing companies, starting little by little as crucial to the application of AI in the development of employability skills among business education graduates to reduce the level of graduates' unemployment in Nigeria Also, it was concluded that, if the challenges are overcome, it will transform the business education programme positively, lead to AI skills development and enable the learners to acquire the needed employability skills for the global workplace. It was also concluded that educational attainment and years of teaching experience play vital roles in identifying the challenges of AI and proffering solutions to the application of the AI in teaching business education courses in River's state tertiary institutions in particular and Nigeria in general.

Recommendations

Based on the findings and conclusion of the study, the following recommendations were made:

1. Since whatever knowledge one acquires remains with the person, the business education lecturers should make personal sacrifices from their earnings and engage in AI trainings through online and offline short courses to enable them acquire a very high AI knowledge and skills to teach business education courses as well as sustain, improve and remain relevance in their areas of operations.
2. Federal, state, local governments and institutions running business education should proffer solution to the challenges lecturers faced in the application of AI through adequate funding, five years national and yearly internal curriculum reviews by lecturers in collaboration with their

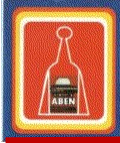


institution. Federal, state, local governments and institutions should provide the needed facilities, specialists staff trainings, partnership with AI manufacturers, starting little by little, and teachers should continue to act as counsellors, mentors, and facilitators in the application of AI in the classroom management so as to maintain the academic environment connection and standard.

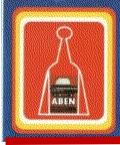
3. Since the level of educational attainment and years of experience play vital roles in identifying challenges and proffering solutions to the application of AI in classrooms management, business educators with required academic qualifications and years experiences should be employed by the institutions running business education programme. These will assist in implementing AI curriculum and transferring AI skills to learners to acquire the needed employability skills.

References

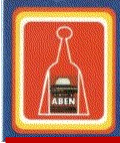
- Adlawan, D. (2024). *The pros and cons of AI in education and how it will impact teachers in 2024*. Retrieved from <https://www.classpoint.io/blog/the-pros-and-cons-of-ai-in-education> in August 19, 2024
- Akkaya-Kalayci, T., & Yildirim, S. (2020). Ethics of artificial intelligence in education: A literature review. *Journal of Educational Technology & Society*, 23(3), 84-99.
- Awofiranye, M. (2024). *The challenges of using AI in education*. Retrieved from <https://www.afterschoolafrica.com/78994/the-challenges-of-using-ai-in-education/> in August, 2024.
- Bailey, J. (2024). *AI in education: Challenges and risks*. Retrieved from <https://www.educationnext.org/a-i-in-education-leap-into-new-era-machine-intelligence-carries-risks-challenges-promises/> in August 11, 2024.
- Broderbund (2024). *Mavis Beacon teaches typing anniversary edition*. Retrieved from <https://www.broderbund.com/mavis-beacon-teaches-typing-anniversary-edition> on August 3rd, 2024.
- Chiu, T., Xia, Q., Zhou, X., Chai, C. S. & Cheng, M., (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence*, 4 (1). <https://doi.org/10.1016/j.caeai.2022.100118>
- Crompton, H., Jones, M. & Burke, D. (2022). Affordances and challenges of artificial intelligence in K-12 education: a systematic review. *Journal of Research on Technology in Education*, [e-journal]. <https://doi.org/10.1080/15391523.2022.2121344>.
- Ezenwafor, J. I. & Ukata, P. F. (2022). ICTs instructional competencies possessed by lecturers for implementing OTM curriculum in public tertiary institutions in River's state. *NAU Journal of Technology & Vocational Education*, 7 (1), 73-81.
- Forero-Corba, W., & Negre Bennasar, F. (2024). Techniques and applications of machine learning and artificial intelligence in education: a systematic review. <https://doi.org/10.5944/ried.27.1.37491>.
- Gentle, D. (2024). *Mavis Beacon, 'the world's greatest typing teacher,' does not want to be found by Oakland filmmakers*. Retrieved from <https://www.sfgate.com/sf-culture/article/mavis-beacon-teaches-typing-documentary-18635435.php> on August 3rd, 2024.
- Gupta, A. (2020). Artificial intelligence in education: A systematic literature review. *Education and Information Technologies*, 25(5), 4389-4418. doi: 10.1007/s10639-020-10287-3.



- Hart, A. (2024). Solutions to AI problems and challenges in schools. Retrieved from <https://www.twinkl.com.ng/blog/solutions-to-ai-problems-and-challenges-in-schools> in August 19, 2024.
- Hopcan, S., Polat, E., Ozturk, M. E. & Ozturk, L. (2022). Artificial intelligence in special education: A systematic review. *Interactive Learning Environments*, 1 (1), 1-9. <https://doi.org/10.1080/10494820.2022.2067186>. <https://www.twinkl.com.ng/blog/solutions-to-ai-problems-and-challenges-in-schools> in August 19, 2024.
- Igbokwe, I. C. (2023). Application of artificial intelligence (AI) in educational management. *International Journal of Scientific and Research Publications*, 13 (3), 300-307.
- Khosravi, H., Shum, S. B., Chen, G., Conati, C., Tsai, Y. S., Kay, J., Knight, S., Martinez-Maldonado, R., Sadiq, S. & Gasevic, D. (2022). Explainable artificial intelligence in education. *Computers and Education: Artificial Intelligence*, 3(1) 1-22. <https://doi.org/10.1016/j.caeai.2022.100074>.
- Libraries Central Michigan University, (2024). *Zotero and how it works: Zotero? What is it?* Retrieved from [https://libguides.cmich.edu/Zotero#:~:text=Zotero%20\(pronounced%20%22zoh%2DTAIR,research%20databases%2C%20and%20the%20Web](https://libguides.cmich.edu/Zotero#:~:text=Zotero%20(pronounced%20%22zoh%2DTAIR,research%20databases%2C%20and%20the%20Web) on 3rd August, 2024.
- Mason, M., & Rennie, F. (2018). Ethics and privacy in the adoption of learning analytics: A guide for academic leaders. *Education Review*, 53(6), 36-48.
- Mekuri-Ndimele, J. A. & Ukata, P. F. (2024). 18th International Conference of the Academic of Management of Nigeria. Held at Ignatius Ajuru University of Education, Rumuolumene, Port Harcourt, Rivers State, from 25th – 26th September, 2024. Application of Artificial Intelligence (AI) on Lecturers` Job Performances in Selected Rivers state Tertiary Institutions.
- Melo, N. (2023). Incorporating artificial intelligence into the classroom: An examination of benefits, challenges, and best practices. Retrieved from <https://elearningindustry.com/incorporating-artificial-intelligence-into-classroom-examination-benefits-challenges-and-best-practices> in August 15, 2024.
- National Universities Commission (2022). Core curriculum and minimum academic standard for Nigerian university system (CCMAS). A publication of the National Universities Commission, Abuja, Nigeria.
- Nworgu, B. G. (2015). *Educational research: Basic issues & methodology*. Enugu: University Trust Publishers.
- Onlinedegrees, (2024). *43 examples of artificial intelligence in education*. Retrieved from <https://onlinedegrees.sandiego.edu/artificial-intelligence-education/on> the August 25th, 2024.
- Pattam, A. (2021). *Artificial intelligence, defined in simple terms*. Retrieved from <https://www.hcltech.com/blogs/artificial-intelligence-defined-simple-terms#:~:text=Artificial%20intelligence%20is%20the%20science,decisions%2C%20and%20judge%20like%20humans> on July 20th, 2024.
- Peters, M. A., & Besley, T. (2020). AI, ethics and education: The governance of AI and the place of ethics in an age of intelligent machines. *Education Sciences*, 10(11), 313.
- QuillBot, (2024). *How does QuillBot work?* Retrieved from <https://quillbot.com/blog/quillbot-tools/how-does-quillbot-work/> on August 3, 2024.
- Singh, V., & Singh, A. (2021). Role of artificial intelligence in educational management. *Journal of Education and Practice*, 12(12), 78- 85.



- Skavronskaya, L., Hadinejad, A. & Cotterell, D. (2023). Reversing the threat of artificial intelligence to opportunity: a discussion of ChatGPT in tourism education. *Journal of Teaching in Travel and Tourism*, 23(2), 253-258. <https://doi.org/10.1080/15313220.2023.2196658>.
- Smith, J. (2021). Applications of AI in educational management. *International Journal of Educational Technology in Higher Education*, 18(1), 1-17. <https://doi.org/10.1186/s41239-021-00279-9>.
- Smith, J. (2022). Applications of artificial intelligence in educational management. *Educational Technology Research and Development*, 70(2), 457-478. <https://doi.org/10.1007/s11423-022-09981-1>.
- Southworth, J., Migliaccio, K., Glover, J., Glover, J., Reed, D., 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*, 4 (1), 1-10. <https://doi.org/10.1016/j.caeai.2023.100127>.
- Surugiu, C., Grădinaru, C. & Surugiu, M. R. (2024). Artificial intelligence in business education: Benefits and tools. *Amphitheatre Economic*, 26 (65), 241-258.
- Technopolis (2024). *Challenges in teaching AI and preparing tomorrow's workforce*. Retrieved from <https://www.technopolis-group.com/sv/challenges-in-teaching-ai-and-preparing-tomorrows-workforce/> in August 14, 2014.
- Ukata P. F., Nmehielle, E. L. (2024a). Office technology and management (OTM) curriculum development and review in Nigeria: Opportunities, challenges and trends in tertiary institutions in Rivers State. *NAU Journal of Technology and Vocational Education*, 9, (2), 43-55.
- Ukata P. F., Nmehielle, E. L. (2024b). Information and communication technology instructional competencies possessed by lecturers for implementing office management and technology curriculum in tertiary institutions in Rivers State. *Nigerian Journal of Business Education*, 11(2), 318-325
- Ukata, P. F. & Udeh, C. P. (2022). Utilization of new technologies by business education lecturers for teaching accounting courses in tertiary institutions in River's state. *International Journal of Innovative Information Systems & Technology Research*, 10(2), 29-38.
- Ukata, P. F. Silas-Dikibo, I. D. (2020). Extent of students' satisfaction with business experiences acquired through business education programme in River's state universities. *World Journal of Entrepreneurial Development Studies (WJEDS)*, 5 (2), 1 - 11.
- Ukata, P. F. & Agburuga, V. (2024a). 3rd International/36th Annual National Conference of Association of Business Educators of Nigeria (ABEN) Held at Abuja at Chinua Achebe International Conference Centre, Mamman Vatsa Writers Village, Mpape, Abuja from 9th - 11th October, 2024. Application of Artificial Intelligence (AI) in Teaching Business Education Courses in Rivers State Tertiary Institutions.
- Ukata, P. F. & Agburuga, V. (2024b). 3rd International/36th Annual National Conference of Association of Business Educators of Nigeria (ABEN) Held at Abuja at Chinua Achebe International Conference Centre, Mamman Vatsa Writers Village, Mpape, Abuja from 9th - 11th October, 2024. Challenges Lecturers Faced and Solutions to the Application of Artificial Intelligence (AI) in Teaching Business Education Courses in Rivers State Tertiary Institutions.
- Ukata, P. F. & Agburuga, V. (2024c). 11th Annual Conference 2024 of Colleges of Education Academic Staff Union (COEASU), tagged: Integrating Emerging Technologies in Teacher Education for Global Competitiveness. Held at College of Education Afana Nsit, from 19th



- March – 22nd March, 2024. Application of Modern Instructional Technologies by Business Education Lecturers for Teaching Accounting Courses in Tertiary Institutions in Rivers State.
- Ukata, P. F. & Agburuga, V. (2024d). Application of Modern Instructional Technologies by Business Education Lecturers for Teaching Accounting Courses in Tertiary Institutions in Rivers State. *British Journal of Contemporary Education (BJCE)*, 4 (1).
- Ukata, P. F. & Amini, M. C. (2025). Exploring the power of artificial intelligence (AI) for improving the teaching of Business Education courses in government tertiary institutions in Rivers State. *Research Journal of Mass Communication and Information Technology*, 11 (1), 73-89.
- Ukata, P. F. & Mekuri-Ndimele, J. A. (2025). Teaching students artificial intelligence tools required for digital entrepreneurship to acquire decent employments in selected Rivers State Tertiary Institutions, 2 (3), 1-8.
- Ukata, P. F. & Nmihelle, E. L. (2022). Utilization of multimedia technologies by lecturers for instructional delivery of OTM courses in tertiary institutions in River's state. *Journal of Management & Environmental Studies*, 1 (2), 275-287.
- Ukata, P. F. & Obinichi-Aaron, E. O. (2025). Teaching artificial intelligence tools required of undergraduates for communication and digital entrepreneurship in public tertiary institutions in Rivers State. *GRS Journal of Multidisciplinary Research and Studies*, 2 (4), 21-27.
- Ukata, P. F. & Okeke, V. N. (2023). Survey of corruption and falling standard of education in tertiary institutions in Rivers and Anambra states with impact on Nigeria. *International Journal of Current Educational Studies*, 2 (1), 62-76.
- Ukata, P. F. & Worgu, S. (2025). Teaching learners artificial intelligence tools for effective and efficient digital entrepreneurship in public tertiary institutions in Rivers State. *World Journal of Innovation and Modern Technology*, 9 (1), 142-155.
- Ukata, P. F. (2024). International Council for Education, Research and Training Conference Book of Abstract, 20th December, 2024, held at the M.D.S.D. College Ambala City Haryana India. Exploring the power of artificial intelligence for improving the teaching of business education courses in government tertiary institutions in Rivers State.
- Ukata, P. F., Adejola, B. C. & Okoye, A. J. C (2018). Business education students learning experience and programme satisfaction in River's state university. *World Journal of Innovation and Modern Technology*, 2 (1), 9-34.
- Veletsianos, G. (2019). A case study of machine learning in education: Shifting ontologies. *Educational Researcher*, 48(7), 397-405.
- Zafari, M., Sadeghi-Niaraki, A., Choi, S. M., & Esmaeily, A. (2021). A practical model for the evaluation of high school student performance based on machine learning. *Applied Sciences (Switzerland)*, 11(23). <https://doi.org/10.3390/app112311534>.
- Zhang, K. & Aslan, A. B. (2021). AI technologies for education: Recent research and future directions. *Computers and Education: Artificial Intelligence*, 2 (1), 1-11. <https://doi.org/10.1016/j.caeai.2021.100025>.