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Enhancing Global Competitiveness Through The Integration Of Artificial Intelligence (AI) In Teaching Entrepreneurship Education In Tertiary Institutions In Nigeria

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ABSTRACT

The research design used for this study was descriptive survey. This design aimed to ascertain the difference in the availability and the level of usage of Artificial Intelligence (AI) among Entrepreneurship education lecturers in public and private universities in Nigeria. The population of the study consisted of all the lecturers teaching Entrepreneurship Education in public and private universities in South – South and South – West, Nigeria. A simple random sampling technique was used to select two public and two private universities in two geo-political zones in Nigeria with a sample size of 36 lecturers. The instrument used for data collection was self-structured questionnaire. The four-point Likert scale was used. Validation of the instrument was done and the reliability co-efficient of 0.79 was generated using Cronbach Alpha. Data collected were analyzed using t-test statistics to test the hypotheses at 0.05 level of significance. It was recommended that government should provide and make available the Artificial Intelligence (AI) tools in all tertiary institutions in Nigeria.

Keywords: Global Competitiveness, Integration, Artificial Intelligence, Entrepreneurship Education, Tertiary Institution, Nigeria

INTRODUCTION

In the context of the rapid global technological advancement, the pervasive application of Artificial Intelligence (AI) is profoundly transforming various industries, including the realm of education. Institutions of higher learning, as integral components of the national innovation system, bear the crucial responsibility of nurturing high-caliber, innovative talents. Entrepreneurship education, a pivotal element within the collegiate educational framework, aims to kindle students' innovative thinking and entrepreneurial potential, enhancing their capability to address practical issues. However, traditional models of entrepreneurial education often suffer from oversimplified curricula, outdated pedagogical methods, and inefficient resource utilization, thereby struggling to meet the demands of the new era for innovative talents. The integration of AI technologies offers novel perspectives and tools to address these constraints. Through an analysis of the application pathways of AI in entrepreneurial education within higher education institutions and the challenges it faces, this paper endeavors to explore how AI can

facilitate the integrated development of entrepreneurial education in tertiary institutions, providing strategic recommendations for cultivating more innovative talents equipped to thrive in the future society. The tremendous improvement from Artificial Intelligence (AI) seems to be reshaping numerous sectors, including the business environment. In particular, digital entrepreneurship is undergoing significant transformations due to AI's capabilities and tools. In picturing the future jobs and successful business managers requirements, business teachers must equip learners (students) with the proficiency of digital entrepreneurship tools that will make them effective and efficient in the engagement of entrepreneurial activities for successful enterprises management (Ukata & Agburuga, 2024a).

The world's constant innovative changes have shown that the future is unpredictable especially as it concerns education, knowledge, skills, competencies and technology which are considered the bedrock of economic, social and political growth. According to Alam (2021), technological development in the world poses many challenges and opportunities, and perhaps the most increased competition among institutions, enterprises, around markets in changing competitive environment, where knowledge, technology, research and development activities have become increasingly important as the dominant advantage of contemporary economics and strength of nations and the institutions are measured by their progress in technology, research and development (Chen, Jane & Wenting, 2023).

Artificial intelligence (AI) and machine learning are poised to revolutionize the educational landscape by providing personalized learning experiences for teachers and students. For teachers, this means access to tools that can adapt to the learning pace and style of individual students in business education that offer real-time feedback and generate an insight into students' performance that can give instructional strategies. Adamopoulou and Moussiades (2020) state 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 and entrepreneurship education practices in various ways including personalized learning systems and tailors entrepreneurship education 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 entrepreneurial experiences (Surugiu, Gradinaru & Surugiu, 2024). Business education is the type of education that assists individual to acquire skills, which they can apply to solve problems in business and office occupation. According to Nwaigburu and Eneogwe (2019), business education has a definite role in preparing and equipping students with skills that increase their chances of finding jobs across territorial boundaries after schooling. Nwaigburu and Eneogwe further observe that business education equips students with knowledge and skills they need to create their own employment. Business education involves teaching students the fundamental theories and processes of business. Anyaeneh and Nzegwu (2017) affirm that it typically prepares students for an occupation in business or a business related field or a teaching career in academics. Business education is offered in both secondary and tertiary educational institutions as its courses are taught in Management, Office Technology, Marketing and Accounting. Students are expected to have relevant skills; knowledge and attitude to enable them perform effectively in their private business and public offices. Entrepreneurship practice is the process of creating, managing and growing a new business venture or enterprise. It involves identifying opportunities, mobilizing resources, and taking calculated risks to innovate, produces and deliver products or services that meet customer needs. Alqahtani (2023) states that by understanding the concept of entrepreneurship practice, individuals can develop the skills and mindset necessary to succeed in creating and growing innovative and sustainable business.

Artificial Intelligence (AI)

AI is the theory and development of computer systems that are able to perform tasks requiring human intelligence, such as business management, teaching, visual perception, speech recognition, decision-making, and translation between languages (Ukata & Agburuga, 2024a; Ukata & Agburuga, 2024b; Pattam, 2021). Artificial intelligence is the science of making machines to 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 imitation to demonstrate what human beings can do by those technologies (Ukata & Amini, 2024).

Artificial Intelligence Tools

AI tools are software applications that use artificial intelligence algorithms to perform a specific task and solve problems that ordinarily would have been done by human being. AI tools can be used in a variety of ways from healthcare industries to business, finance, sales, marketing to image generators, video creation to education, contents, and many more. Artificial Intelligence has now become a big part of present and future generations, moreover in this era of digital entrepreneurship. These AI tools may include Market Research and Trend Analysis, business simulation, conversica, ChatGPT, Grammarly, among others (Geeksforgeek, 2024).

Entrepreneurship

Entrepreneurship is an organized process of identifying society problems, planning, organizing resources together and executing the plan to solve the problem to satisfy the customers so as to retain their loyalty and keep the business running. Entrepreneurship is also identifying the needs (problems) of the immediate environment, pulling resources together with a calculated risk for the reason of satisfying the customers and making profit (Ukata & Adejola, 2018). Although the reason for going into business is for profit making, entrepreneurs must learn how to satisfy their customers first so as to command their loyalty for the sustainability of the business. Entrepreneurs must also learn to take calculated risk so as to reduce loss at all times (Ukata, Kalagbor & Ochie, 2017). The effectiveness and efficiency of entrepreneurial activities which focus on nurturing entrepreneurial attitudes and abilities are aimed at fostering innovation, creativity, and practical business skills for success. The business environment today is in the world wide web or internet, therefore, the need for digital entrepreneurship with the needed skills development. The overall objectives for a course in entrepreneurship education are: practical skills, technical skills development, business management skills development and personal entrepreneurial skills development, among others, (Ukata, 2019a).

The Feasibility of AI Technology Enabling the Integration and Development of Innovation and Entrepreneurship Education in Colleges and Universities

Nowadays, AI technology has transitioned from a distant future concept to an increasingly integral component of contemporary educational tools. It adeptly analyzes students' learning behaviors and preferences, tailoring personalized educational pathways for each individual. This bespoke pedagogical approach not only heightens students' efficiency but also fuels their creative potential. In entrepreneurial education, AI can simulate actual business environments, enabling students to practice entrepreneurial ventures in virtual scenarios. This method allows students to amass valuable practical experience in a relatively secure setting, thus enhancing their entrepreneurial competencies. Furthermore, AI technology facilitates the intelligent updating and distribution of educational content, ensuring that students are promptly exposed to the latest knowledge in innovation and entrepreneurship. Traditional educational materials often update at a sluggish pace, falling behind the rapid shifts in market and technological developments. Conversely, AI technology employs data mining and intelligent push mechanisms to update teaching resources in real-time, keeping students abreast of the forefront of innovation and entrepreneurship. For instance, AI can aggregate the most recent domestic and international entrepreneurial cases and technological trends, automatically filtering pertinent content related to students' fields of study to enhance the teaching's pertinence and effectiveness. In terms of evaluation, AI technology exhibits significant advantages. Traditional evaluation methods often rely on teachers' subjective judgments, prone to bias. AI, however, leverages big data analytics and machine learning to conduct objective and comprehensive assessments of students' learning outcomes. This assessment approach not only provides more accurate feedback but also aids educators in promptly identifying students' learning issues and implementing effective corrective measures. Beyond transforming instructional models and evaluation methods, AI technology also facilitates profound integration between

higher education institutions and enterprises, fostering collaboration. Universities can utilize AI technology to construct resource-sharing platforms, introducing real-world business requirements and projects into the classroom, allowing students to learn and practice within actual projects. This collaboration model enables students to better understand market dynamics and elevate their innovative capabilities and practical skills. Simultaneously, enterprises can identify more promising innovative projects and talents through these platforms, achieving mutual benefits.

Application of Artificial Intelligence in Business Education

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

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.

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 students' needs and materials and also allows students to learn at their own speed, adjust 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. Chen, Jane and Wenting (2023) state that the application of artificial intelligence in business education increases student's motivation and interest and enhances comprehension and retention among students, it also reduces time spent on reviewing materials; it provides a clearer picture of students' knowledge, foster strong bonds and trust that enhances teacher-student relationship. By tailoring education to each students' unique needs, personalized learning aims to maximize academic potential and foster a lifelong interest of learning.

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.

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. Artificial intelligence driven analytics can forecast career trajectories, helping students make informed decisions. It can pinpoint areas where students need skill development, enabling targeted learning. AI can assist students in setting and achieving career goals and creating personalized plans. Artificial intelligence powered career guidance can revolutionize the way students approach their professional futures, making business education more effective and impactful (Banfield, Lombard &Wax, 2015).

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. Artificial intelligence-powered automated grading can accurately score objective questions and instantly grade multiple-choice, true/false and numerical answers questions. It can also access subjective answers and evaluate essay-type questions, using natural language processing (NLP) to analyze

content, structure and language use. According to Berglund, Bousfiha and Mansoor (2020), artificial intelligence can generate feedback reports, highlighting strength, weaknesses and areas for improvement. The provided feedback can help students identify knowledge gaps and improve their understanding. Supporting adaptive learning through adjust assessment difficulty and content based on student performance. Facilitating data analysis by providing insights into student performance, helping instructors refines their teaching methods. It can automate much faster than human teachers, freeing up time for teaching and mentoring and increasing grading consistency, apply grading criteria consistently reducing bias and errors. It enhances student learning, providing feedback that can help students identify knowledge gaps and improve their understanding.

Effectiveness in entrepreneurship and Efficiency in entrepreneurship

Effectiveness in entrepreneurship is the ability to reach organizational goals by following the established process and this can be measured by key performance indicators (output) or feedback from customers on how good or bad the organization is doing. Effectiveness in entrepreneurship is how professionals in a business organization are able to achieve organizational targets by following the established process by the organization. Effectiveness in entrepreneurship is how team members in business are focusing on completing their tasks according to the company's established standard. Efficiency in entrepreneurship involves personnel maximizing the available resources, time, and money to achieve the company's objectives, and can be tracked by looking at the impact on revenue and inventory rate of turnover. Efficiency in entrepreneurship shows how team members focus on reducing expenses, saving time and resources while ensuring they achieve the best result or make profit (Indeed Career Guide, 2024). You can measure your efficiency in the company by tracking how your contributions have resulted in a change in the company's revenue and inventory rate of turnover. In effectiveness and efficiency in entrepreneurship, to achieve organizational goals with positive key indicators such as customer satisfaction, maximum output and make profit may be possible via the application of AI to create digital entrepreneurship tools.

Types of AI Tools to Teach Learners For Effective And Efficient Digital Entrepreneurship

According to Crescenzi-Lanna (2023), artificial intelligence has applications across many fields, such as entrepreneurship education, finance, automotive, entertainment, and more, and it is rapidly transforming industries through automation and intelligent decision-making systems. Artificial intelligence (AI) tools are becoming key assets in Business and Entrepreneurship Education, offering tools that enhance learning, streamline operations, and develop critical thinking. Accordingly, the following stated and explained are some of the AI tools needed to teach learners for effective and efficient digital entrepreneurship skills development, (Amesi & Peterside, 2024).

Business Simulations

Simulation venture in artificial intelligence provides business simulation environments where business and entrepreneurship education lecturers and students can practice decision making strategy. Example, google trends and think with google utilizes artificial intelligence to analyse search trends, which could also be used to help business and entrepreneurship education students to identify emerging market demands and consumer behaviours. In this way, business and entrepreneurship education students will be effective and efficient in market research and trend analysis. in realistic business scenarios. AI-driven simulations can also be used to let students or graduates of business and entrepreneurship education run virtual companies by helping them understand market dynamics, finance, and management.

Market Research and Trend Analysis

Crimson hexagon, an artificial intelligence empowered students and lecturers as an insights tool that analyses online conversations and trends, provides data-driven insights for business strategy. Example, google trends and think with google utilizes artificial intelligence to analyse search trends, which could also be used to help business and entrepreneurship education students to identify emerging market

demands and consumer behaviours. In this way, business and entrepreneurship education students will be effective and efficient in market research and trend analysis.

Financial Management

Financial tools like QuickBooks and Xero artificial intelligence tools to automate bookkeeping, generate financial reports, and provide insights into cash flow management. Also, Kabbage and Fundbox are artificial intelligence-driven platforms that could offer business and entrepreneurship education students quick access to working capital through data-driven lending models.

ChatGPT

This is an AI-driven chatbots tool that offers instant, interactive learning experiences. For example, students can ask complex business and entrepreneurship education questions, by engaging in scenario-based learning, or get feedback on business and entrepreneurship related plans. It also helps to create custom chatbots that simulate students' interactions, project inquiries, or business consultations which are of usefulness in customer service skills development and delivery.

Based Mentorship and Networking

This is an Artificial intelligence-driven tool like MentoBot, a connecting device that connects business and entrepreneurship students with virtual mentors or coaches, by offering advice, feedback, and guidance on various business-related issues. Business and entrepreneurship education students could also use devices like LinkedIn's to help them connect with the right networks based on interests, industry trends, and mutual connections.

Pitching and Funding

An artificial intelligence software like Pichbol is a tool that could help business and entrepreneurship education students refine their pitches by offering feedback on presentation structure, storytelling, and investor interests. The Gust for instance is also an artificial intelligence driven platform that could also help students and graduates to connect with investors, streamlining the pitch process with data insights and matching capabilities.

AI technology supports the change of teaching mode of innovation and entrepreneurship education

The application of AI technology in the realm of entrepreneurship and innovation education within academic institutions first manifests in its support for the transformation of educational and teaching models. Traditional pedagogical methods are often teacher-centric, with content being rigid and ill-equipped to meet the individualized needs of each student. The integration of AI technology, however, renders teaching models more flexible and diverse. Personalized education stands out as a highlight of AI technology. Leveraging AI systems, educators can offer tailored educational content and methods based on each student's learning progress, interests, and capabilities. For instance, AI can analyze a student's performance in online courses, automatically adjusting the difficulty and pace of the curriculum so that each student can find a suitable learning path. This not only enhances the efficiency of student learning but also boosts their interest and motivation. The smart evaluation and feedback system represents another significant application of AI technology. Traditional evaluation methods often rely on the subjective judgment of teachers and are time-consuming and laborious. In contrast, AI technology can automate assessments and provide instant feedback on students' learning status. This not only alleviates the workload of teachers but also aids students in identifying and correcting their mistakes in a timely manner. AI can even furnish more detailed analysis reports, assisting students in understanding their strengths and weaknesses, thereby refining their study methods more effectively. The enrichment of course resources is another aspect that cannot be overlooked. With the aid of AI technology, institutions of higher learning can integrate more online resources and multimedia content, offering students a more comprehensive study material. For example, AI can intelligently recommend relevant academic papers, research materials, and practical cases based on students' needs. These resources not only broaden students' knowledge horizons but also stimulate their innovative thinking and practical abilities. AI technology also supports the construction of virtual simulation and experimental platforms. For entrepreneurship and innovation education, practical operations and project-based practices are

indispensable. However, due to limitations in equipment and venues, many institutions struggle to provide sufficient practical opportunities. AI technology can facilitate virtual simulations, allowing students to conduct practical operations and project drills in a safe and controlled environment. This not only enhances the safety of teaching but also significantly boosts the effectiveness of the educational process. The introduction of AI technology can also promote innovative interactions between teachers and students. Online teaching platforms combined with AI technology can achieve more efficient and personalized interaction methods. For example, AI chatbots can answer students' questions at any time and provide learning support. Intelligent auxiliary tools in the classroom can also help teachers organize teaching activities more effectively, enhancing the interactivity and fun of the classroom

Challenges of Artificial Intelligence in Entrepreneurship Practice

Acknowledging and addressing these challenges is paramount if we are to harness the potential of artificial intelligence to enhance entrepreneurship practice and foster a more innovative and resilient entrepreneurship ecosystem. The challenges are briefly discussed below:

Limited access to Artificial Intelligence Resources Infrastructure: Limited access to AI resources and infrastructure is a significant challenge in integrating Artificial Intelligence (AI) into entrepreneurship practice. AI requires powerful computational resources, such as high-performance GPU, TPU or cloud computing services. Limited access to these resources hinders entrepreneur's ability to develop and train artificial intelligence models. Also, limited access to data centers cloud storage, or data management tools make it difficult for entrepreneurs to handle large dataset. According to Abdulkadir (2018), access to AI software, frameworks and tools, such as tensor flow, PYTorch or Scikit-learn, is crucial for developing AI applications as limited access to these resources restricts entrepreneurs' ability to build and deploy AI models effectively. It requires specialized expertise, including data scientists, machine learning engineers and artificial intelligence researchers. Limited access to talent with artificial intelligence hinders entrepreneur's ability to develop and implement artificial intelligence solutions.

High Cost of Artificial Intelligence Power Tools: The high cost of AI power tools and platforms is a significant challenge in integrating Artificial Intelligence (AI) into entrepreneurship practices this is because artificial intelligence software, platforms and tools such as machine learning frameworks, natural language processing libraries and predictive analytics software can be expensive to purchase or subscribe to it since requires vast amounts of data, which can be expensive to acquire, store and manage.

Lack of Literacy in Artificial Intelligence: Lack of literacy in Artificial Intelligence (AI) is a significant challenge in integrating AI into entrepreneurship practices. This is because the entrepreneurs may lack the technical expertise to understand artificial concepts, tools, and applications, making it difficult to implement AI solution. The inability to collect, analyze and interpret data effectively hinders artificial intelligence adoption of data as the foundation of AI application.

Ethical Concerns/bias: The ethical concerns and bias are significant challenges in integrating artificial intelligence into entrepreneurship practices. Artificial intelligence algorithms can perpetuate and amplify existing biases present in the data used to train them, leading to discriminatory outcomes. Its decision-making processes can be opaque, making it difficult to identify and address biases. AI system can be vulnerable to cyber attacks, compromising sensitive data and decision-making processes.

Dependence on Data Quality: The dependence on data quality is a significant challenge in integrating Artificial Intelligence (AI) into entrepreneurship practices. Artificial intelligence requires accurate data to produce reliable results as inaccurate data leads to identifying patterns and relationships incomplete data sets which can lead to flawed decision-making. Artificial intelligence application benefits from diverse data sources and formats, but inconsistent data types can create integration challenges.

Need for Continuous Updating: The need for continuous updating is a significant challenge in integrating Artificial Intelligence (AI) into entrepreneurship practices. Artificial intelligence technologies and techniques are constantly evolving, requiring entrepreneurs to stay updated on the latest development. Entrepreneurial businesses are dynamic and their needs change rapidly. Artificial intelligence system must be updated to address these changing needs.

Addressing Potential Job Displacement: Addressing potential job displacement and societal impact is a significant challenge in integrating Artificial Intelligence (AI) into entrepreneurship practices. Artificial intelligence can automate routine and repetitive tasks, potentially displacing jobs in sectors like manufacturing, customer service and data entry. It may require new skills sets, making existing skills obsolete and potentially displacing workers who cannot adapt. It redefines jobs, requiring workers to take on new responsibilities and potentially displacing those who cannot adapt.

Ensuring Inclusivity and Diversity in AI driven: Ensuring inclusivity and diversity in AI driven entrepreneurship is a significant challenge in integrating Artificial Intelligence (AI) into entrepreneurship practices. Underrepresentation of diverse groups in artificial intelligence development teams can result in artificial intelligence systems that neglect diverse needs. Artificial intelligence powered products and services may not be accessible to people with disabilities or those from low-income backgrounds. It may not be compatible with diverse languages, limiting accessibility.

Navigating Regulatory/Legal Framework for AI in Entrepreneurship: Navigating the regulatory and legal framework for AI in entrepreneurship practice is a significant challenge in integrating Artificial Intelligence (AI) into entrepreneurship practices. Lack of clear guidelines, unclear or evolving regulations for artificial intelligence development and determining ownership and intellectual property rights for artificial intelligence generated content and establishing liability and accountability for artificial intelligence- driven decisions and actions is a challenge.

Statement of the Problem

The integration of Artificial Intelligence (AI) in teaching Entrepreneurship Education presents with both significant opportunities and challenges. While AI has the potential to revolutionize the way Entrepreneurship is taught by providing personalized learning experiences, data-driven insights, and practical simulations, there is a lack of comprehensive research and understanding regarding its effective implementation in this field. The problem lies in the gap between the promise of AI technology and its actual application within Entrepreneurship Education programmes. Many educational institutions struggle with the lack of infrastructure, inadequate AI literacy among educators, and the challenge of aligning AI tools with existing curricula. Also, there is limited empirical evidence on how AI can specifically enhance entrepreneurial skills, foster creativity, and prepare students for real-world, business challenges. Without addressing these issues, the full potential of AI in shaping the future of Entrepreneurship Education may remain untapped, leaving a significant disconnect between technological advancements and traditional teaching methods in Entrepreneurship Education.

Purpose of the Study

The purpose of the study was to ascertain the availability and level of usage of Artificial Intelligence (AI) in teaching Entrepreneurship Education in public and private universities in Nigeria. Specifically, the study sought to:

1. Determine the mean difference in the availability of Artificial Intelligence tools for teaching Entrepreneurship Education in public and private universities in Nigeria.
2. Determine the mean difference in the level of usage of Artificial Intelligence in teaching Entrepreneurship Education in public and private universities in Nigeria.

Hypotheses

H₀₁: There is no significant mean difference in the availability of Artificial Intelligence tools for teaching Entrepreneurship Education among lecturers in public and private universities in Nigeria.

H₀₂: There is no significant mean difference in the level of usage of Artificial Intelligence in teaching Entrepreneurship Education in public and private universities in Nigeria.

METHODOLOGY

The research design used for this study was descriptive survey. This design aims to ascertain the difference in the availability and the level of usage of Artificial Intelligence (AI) among Entrepreneurship Education lecturers in public and private universities in Nigeria. The population of the study consisted of all the lecturers teaching Entrepreneurship Education in public and private universities in South – South

and South – West, Nigeria. A simple random sampling technique was used to select two public and two private universities in the two geo-political zones with a sample size of 36 lecturers. The instrument used for data collection was self-structured questionnaire titled “Integration of Artificial Intelligence in Teaching Entrepreneurship Education in Tertiary Institutions in Nigeria (IAITEETIN)”. The questionnaire was adopted and categorized into three sections; Section A – Bio-data of respondents; Section B – Availability of Artificial Intelligence; Section C – level of usage of Artificial Intelligence. The 4 – point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with numerical values of 4, 3, 2, 1 respectively was employed. Validation of the instrument was done. The reliability co-efficient of 0.79 was generated using Cronbach’s Alpha which was adjudged reliable for the study. Data collected were analyzed using t-test statistics to test the hypotheses at 0,05 level of significance.

RESULT

Hypothesis one: There is no significance mean difference in the availability of Artificial Intelligence tools for teaching Entrepreneurship Education among lecturers in public and private universities in Nigeria.

Table 1: Summary of t-test analysis of availability of Artificial Intelligence tools for teaching Entrepreneurship Education among lecturers in Public and Private Universities

Source	N	Mean	SD	df	t-value	p-value	Decision Variance
Public universities	21	15.10	2.98	34	7.86	0.00	Significant
Private universities	15	27.13	6.09				

Significant at P<0.05

In the table 1 above, the p – value is 0.00 which is less than 0.05 level of significance at 34 degree of freedom. This indicates that at P<0.05, the difference in the availability of Artificial Intelligence tools for teaching Entrepreneurship Education among lecturers in public and private universities is statistically significant. That is, there is a significant mean difference between the availability of Artificial Intelligence tools for teaching Entrepreneurship education among the lecturers in public and private universities in Nigeria. Hence, the null hypothesis was rejected.

Hypothesis Two: There is no significant mean difference in the level of usage of Artificial Intelligence in teaching Entrepreneurship Education in public and private universities in Nigeria

Table 2: Summary t-test analysis of level of usage of Artificial Intelligence in teaching Entrepreneurship Education in public and private universities in Nigeria

Source	N	Mean	SD	df	t-value	p-value	Decision Variance
Public universities	21	22.24	4.48	34	5.93	0.86	Significant
Private universities	15	31.33	4.61				

Significant at P< 0.05

In table 2, the p-value is 0.86 which is greater than 0.05 level of significance at 34 degrees of freedom. This indicates that at P< 0.05, the difference in the level of usage of Artificial Intelligence in teaching Entrepreneurship Education in public and private universities. Hence, the null hypothesis was retained.

DISCUSSION OF FINDINGS

Results on availability of Artificial Intelligence tools for teaching Entrepreneurship education in public and private universities showed that private university lecturers have more Artificial Intelligence tools made available to them than those in the public universities. This could be attributed to the fact that private university lecturers have access to online platforms than that of public university lecturers in teaching their curriculum content. This result corroborate the findings of Akinola, and Peters (2023) who stressed that Artificial Intelligence in teaching Entrepreneurship Education revolutionizes learning by

providing personalized an interactive experiences that accelerate venture creation. Key applications include generative Artificial Intelligence for ideation, predictive analytics for market research, and simulations for risk-free decision making. These tools enhance critical thinking, streamline business planning, and allow for real-time feedback (Adeyi,2024). Again, Artificial Intelligence tools allow students to quickly analyze competitor landscape, identify customer preferences, and identify market gaps. Ajifuni (2024) observed that Artificial Intelligence requires significant teacher training, updated curricula, and investment in technological infrastructure. In teaching Entrepreneurship Education, Artificial Intelligence tools adapt to each student's progress and needs. A student struggling with financial planning, for example; may receive targeted resources like simulations and exercise. This flexibility improves engagement and learning outcomes.

The findings on the level of usage of Artificial Intelligence in teaching Entrepreneurship Education in public and private universities in Nigeria showed that private university lecturers use Artificial Intelligence more than public university lecturers. Although, the difference was not significant. That is, there was no significant difference in the level of usage of Artificial Intelligence in teaching Entrepreneurship Education among lecturers of public and private universities. This could be traced to the fact that it is the technology available that will be utilized by lecturers for teaching. The finding is in line with that of Ajifuni (2024) who observed that there is little or no difference in the usability of internet by the public and private university lecturers in Nigeria. AI promotes interactive and realistic learning. It increase motivation with rewards, challenges, and feedback. In teaching and learning of Entrepreneurship education, AI tools helps students analyze real business data, test business ideas, and get real – time feedbacks. Virtual assistants guide them in developing strategies or writing business plans.

CONCLUSION

Based on the findings, the study concludes that private universities in Nigeria have more resources in utilizing the Artificial Intelligence (AI) tools available for use by her lecturers than that of public universities. Hence, there is a significant difference between the availability of Artificial Intelligence tools in teaching Entrepreneurship Education by lecturers in public and private universities. Furthermore, the level of usage of Artificial Intelligence for teaching Entrepreneurship Education by lecturers in public and private universities is not significant different. This implies that Entrepreneurship Education lecturers, irrespective of whether they are in public or private universities, can effectively use Artificial Intelligence (AI) in teaching and learning; what they need is the availability of technology.

RECOMMENDATIONS

Based on the findings, the following recommendations were made:

1. Since innovation in technologies is continuous and going at a very fast speed, the government in collaboration with heads of tertiary institutions should continuously organize more training and re-training programmes that would aptly expose lecturers in both public and private universities to the use of Artificial Intelligence.
2. Lecturers in public universities should not always wait till government provide them with technology needed to make them deliver on their mandate of digital instructional delivery they should also sacrifice their finances and work in teams to procure and use relevant technologies that would expedite the teaching and learning process.
3. There is a gap between knowledge and usage of digital tools, therefore, there is the need for teacher education programmes to improve awareness of pedagogical technological methods and provide effective support to address challenges faced by university lecturers.
4. Government should provide and make available the Artificial Intelligence (AI) tools in all tertiary institutions in Nigeria.
5. Public and private lecturers should be trained by government in collaboration with institutions and integrate AI tools in their teaching and learning across the country for global competitiveness.

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