



APPLICATION OF ARTIFICIAL INTELLIGENCE (AI) TOOLS FOR TEACHING ENTREPRENEURSHIP PRACTICE IN NIGERIA

Yoromar Jennifer Gbogbor (PhD)

School of General Studies,
Nigeria Maritime University,
Okerenkoko,

Delta State, Nigeria.

E-mails: jennifer.gbogbor@nmu.edu.ng,

jenywhyte20@gmail.com

GSM: 08056359709.

Abstract

This paper discussed the application of Artificial Intelligence (AI) tools for teaching Entrepreneurship Practice in Nigeria. The paper defined Artificial intelligence (AI), as the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. Entrepreneurship practice is gaining wide momentum among the programme of studies in tertiary institutions in Nigeria and all over the entire globe. Since entrepreneurship practice entails the acquisition of skills and competencies to meet up with today's technological and digital demands in the industry and economic landscape, there is urgent need to deploy Artificial Intelligence (AI) tools to teach students undergoing studies in Entrepreneurship Practice for them to be fit in the present dynamic world of work. The paper identified some AI tools like ChatGPT4, Google Bard, Chatsonic, Midjourney, DALL-E, SlidesAI, Alli AI, Hotspot Free AI, Content Writer, Paradox, Synthesia and other various Artificial Intelligence Tools and how they are applied to enhance the teaching and learning of Entrepreneurship Practice in Nigeria. Some benefits of using Artificial Intelligence Tools to teach Entrepreneurship Practice like the provision of specific tasks and intelligent decision support through automated data integration, improving clarity and simplicity for participants were identified in the paper. The paper established that the degree of reference of participants to AI decisions making is proportional to the complexity of the task. The paper concluded that since there is astronomical shift from manual ways of conducting businesses all over the world, emphasis must be shifted to train students with the right tools to make them fit into the demands of industries. It was recommended among others that government should deploy sufficient funds to drive Artificial Intelligence gathering in our tertiary institutions in Nigeria to curb the wave of unemployment.

Key words: Application, Artificial Intelligence, Artificial Intelligence Tools, Teaching, Entrepreneurship Practice.

Introduction

In anticipating prospective job opportunities and the apparatus needed to fit into the world or work, business educators must impart and equip students with skills to enable them adapt to the rigors and demands of the labor market. Lecturers to a large extent are the major stakeholders to nation building by enlightening and imparting prospective and future generation of youths that will eventually become self-reliant. Tan (2020), opined that the lecturer functions in a variety of roles and this includes: "content creator and content expert", a dispenser of knowledge, and "an ethical spiritual guide" with wisdom. On the other hand, the students ought to be able to comprehend information and keep abreast of the facts that have been disseminated to him/her particularly as it



relates to his/her immediate environment (Elhajjar, Karam & Borna, 2021). In this sense, the crave for creative and innovative lecturers coming to terms and embracing change, incorporating contemporary methods and materials and fostering the interaction of students and artificial intelligence is growing in leaps and bounds.

According to Nuseir, Basheer and Aljumah, (2020), artificial intelligence encapsulates the requisite skills and competencies to function effectively and efficiently in a work environment. Artificial intelligence also serves as a partner in enhancing the quality and delivery of business education thereby improving content and skills (Tan, 2020). Similarly, Elhajjar, Karam and Borna (2021), clamours for the incorporation of artificial intelligence to equip students with skills needed for prospective job opportunities as well as meeting the job requirements in a digitalized world like ours. These competencies include innovation, creativity and design thinking. Artificial intelligence uses a variety of mechanism, tools and methods in executing educational activities (McGrath et al., 2023). Spending heavily in individuals to accept artificial intelligence tools is crucial for societal development despite the large amount of distrust and negative perception about artificial intelligence's role in the day-to-day life of individuals particularly in the spheres of entrepreneurship and business education (Antonenko and Abramowitz, 2023).

It is expected that artificial intelligence is expected to grow rapidly in the next few years opening new opportunities and setbacks (Ouyang and Jiao, 2021; Zhang and Aslan, 2021; Khosravi, 2022). Educational stakeholders in the industry are incorporating artificial intelligence to improve and enhance the quality of educational delivery, individualized learning, continuous assessment (formative and summative) and clerical services within the school premises (Zhang and Aslan, 2021; Chiu et al., 2023). Artificial intelligence signifies a growth in business education providing advantages on a variety of phases and accelerates the growth of instructional delivery through Information and Communication Technology like Chatbots, robots, automated assessment, digitized artefacts, and intelligent tutoring systems, despites the numerous setbacks in the organizational setting (Chiu et al., 2023).

The crave for adaptive and reformative digital learning powered by artificial intelligence has increased rapidly in the past few years inspired by the numerous setbacks ranging from the Covid 19 pandemic and ethnic and regional wars in western countries (Matzavela and Alepis, 2021). There is the prevalence of on-line and blended learning in western societies and third world countries as they persist to incorporate these techniques in the system of education. Artificial intelligence fosters tangible and effective means of resolving complexities in contemporary societal problems assisting students to participate actively in resolving economic and social issues and cultivate competencies for solving these problems (Southworth et al., 2023).

In this discourse, the researcher ascertained the factors influencing the utilization and promotion of artificial intelligence tools in the delivery of teaching and learning of entrepreneurship education. The researcher identifies a gap in the literature relating to the perceived low level of awareness on the benefits of the utilization of artificial intelligence in entrepreneurship education though a large amount of them has previously been exposed to artificial intelligence. In addition to that, it is perceived that there seems to be a lack of preparedness amongst the lecturers and students to utilize artificial intelligence tools in the teaching and learning process.

The Relationship between Artificial Intelligence and Entrepreneurship Practice

The term "industry" was framed by Kagermann et al (2021) synthesizing the observed and the real world in relation to the adoption of engineering tools such as robotics, digitalization and automation. (Das et al, 2015). disclosed that, a host of studies have been conducted by authors on the subject of automation with regards to artificial intelligence since the 1950s using theoretical machine learning models. However, the latest infusion of revolution 4.0 have offered authors with



an opportunity to bring into fruition all these theoretical models (French et al, 2021). In this sense, artificial intelligence is regarded as a burning issue in the area of research and its adoption are expected to grow exponentially into any sphere of contact needing human intelligence (Oztemel & Gursev, 2018).

It is utilized in small industries that are comprehensively related to production systems, particularly functioning without human involvement. Thanks to the creation, distribution, and analysis of the flowing data needed to operate inherent duties for manufacturing (Lasi et al, 2014). Artificial intelligence facilitates a maintenance and intelligent control over the total system particularly in the area of scheduling interventions for the automated machines establishing operating flows of systemic production, regulating the quality and quantity of output and automatically programming and executing stability and routine activities (Meziane et al, 2014, Murray, 2019)

Relatedly, artificial intelligence is essential to the internet of things (IOT), which is an extended and related network of physical devices that could communicate amongst themselves and could be regulated and controlled routinely (Ashton, 2019) for Internet of Things (IOT). Artificial intelligence refines and transforms a large amount of data for the purpose of producing important results, linking the software languages that IOT devices implement. Artificial intelligence is also utilized in the Augmented Reality (AR). It is a human computer interconnectivity system that synthesized three dimensional objects in practical situations (Azuma et al, 2001). Artificial intelligence enhances the accuracy and richness of the image processing and the numerous tasks that emanates from it (Sahu et al, 2020).

Conclusively, artificial intelligence is connected to block chain which is a regulated chain that stores all the records of digital assets in a transparent and safe manner (Treiblmaier, 2018). Artificial intelligence tools depend on data to learn and make sound decisions. By this synthesis, artificial intelligence is influenced to work on genuine, digitally certified and securely disbursed data in a decongested ledger resulting to a more advanced and trusted output (Dinhand & Thai, 2018). These new inventions are enhancing the quality and delivery of entrepreneurial practice especially in the area of invention of a new product (Elia et al, 2020). Artificial intelligence holds crucial place in the area of how entrepreneurs create, design and improve their enterprises in the entrepreneurial process (Chalmers et al, 2021). As an important innovator, artificial intelligence could inspire entrepreneurs and foster the establishment of new products opportunities, inventing new products that are previously non-existent through entrepreneurial means (Obschonka et al, 2020).

Additionally, artificial intelligence could enhance decision making systems taken by entrepreneurs, enhancing the quality of the decisions taken in relation to their efficacy thereby improving the operational effectiveness as emphasized by (Krause et al, 2020). In relation to that, artificial intelligence could only enhance the productivity of artificial intelligence backed enterprises but also to inspire organizations that are technologically backward enterprises to create and develop their business models through artificial intelligence. The infusion of the artificial intelligence in this present era has accelerated the biggest entrepreneurship opportunity in all phases of civilizations (Iansiti & Lakhani, 2020).

Artificial Intelligence in Entrepreneurial Practice for Learners

In entrepreneurial practices, intelligence improves students' engagement and performance (Zhang and Aslan, 2021). Chiu et al. (2023) enumerated on the important functions of artificial intelligence for students which includes: evaluation, competency-based task, evaluation (formative and summative), well-equipped adaptive digitalized learning environment and students machine interaction. Similarly, Zhang and Aslan (2021) postulated on other peripheral functions of artificial



intelligence which ranges from enhanced instructional resources, psychomotor skills interactivity between lecturers and students. In the same vein, Southworth et al. (2023), enumerated on the benefits of integrating artificial intelligence in the teaching and learning of entrepreneurial practice and this includes: impartation of technical skills, innovation and creativity, and problem-solving skills for students. Artificial intelligence enables students consolidate and personalize what has been taught in class and interact to meet the educational needs and aspirations with abilities while also improving efficiency (Hopcan et al., 2022; Southworth et al., 2023).

Instructional resources that are customized are provided based on students' assessments centering comprehensively on their strengths and deficiencies (Hopcan et al., 2022). Li and Wang (2023), clamours for the use of Artificial Intelligence to facilitate the conduciveness of the learning environment thereby facilitating student's learner networks with enhanced accessibility to information disseminated in the course of the lesson for prospective young students. Adaptive learning experiences solidify students' academic prowess and discourse in digitalized environment enhancing the acquisition of saleable skills (Southworth et al., 2023). Communication and active participation in the instructional process exponentially increases among students and lecturers. Khosravi et al. (2022) elaborated on the functions of artificial intelligence in a variety of learning environment. In the context of remote students, artificial intelligence provides added advantage through simulation issues pertaining to difficult topics challenges to resolve in an academic environment (Asakura et al., 2020).

Artificial Intelligence in Entrepreneurship Practice for Lecturers

Crompton, Jones and Burke (2022), opined that artificial intelligence consolidates on learning theories that have been previously been propounded by scholars thereby fostering the utilization of educational tools and incorporating modern techniques to improve the quality and delivery of the instructional process. Artificial intelligence assist lecturers and the quality of the instructional process through well-constructed content for students, enhances the knowledge bank for specially gifted learners and slow learners, studying predictive models, individualized instructional resources, enhanced classroom management, improved delivery and quality of the teaching and learning process, fostering enhanced academic performance of students and acquisition of skills and facilitating the effective communication between students and students and students with their lecturers (Zhang and Aslan, 2021; Chiu et al., 2023). Artificial intelligence unravels new doors in the area of research in an academic setting by widening the scope of experimental and scientific enterprises and publishing the results of the study (Li and Wang, 2023).

Lecturers could specialize on difficult academic discourse as artificial intelligence provides intelligent answers to students' academic puzzles (Southworth et al., 2023). Khosravi (2022), enumerated on incorporating explainable artificial intelligence in entrepreneurship practice while taking into cognizance the creation of instructional resources that are human centered. It also includes the evaluation of explainable artificial intelligence adoption and improving the networks of artificial intelligence for the impartation of knowledge to students. It has been observed that numerous lecturers do not utilize artificial intelligence in the teaching and learning process as a lack of proficiency in artificial intelligence (Crompton, Jones and Burke, 2022). To facilitate the incorporation of artificial intelligence resources and tools, lecturers should be adequately equipped in the discharge of their pedagogical tasks and keep abreast of the fact in the area of setbacks in the utilization of artificial intelligence (Skavronskaya, Hadinejad and Cotterell, 2023). Futuristically, lecturers could incorporate modern pedagogical techniques in altering learners' behavior ranging from emotions, attention, gestures and movement with the aid and incorporation of artificial intelligence in the teaching and learning process (Crescenzi-Lanna, 2023).



Artificial Intelligence in Education in Assessment and Administration

Chiu et al. (2023) enumerated on two major impact of artificial intelligence in the administration and evaluation of business education programmes. These includes: prompt release of students results and nipping at the bud unforeseen circumstances related to the organization of student on-line classes. The quality and pace of feedback given to students after the evaluation process is instant and constructive and lecturers could assist students in modifying specific instructions (Hopcan et al., 2022; Southworth et al., 2023). Cope, Kalantzis and Searsmith (2021) enumerated on the functions of artificial intelligence in the evaluation process not in the traditional format but particularly linked to dissecting process and offering “just-in-time feedback”.

Artificial intelligence could enhance the evaluation (Al Braiki et al., 2020), with advantages elucidating on its strengths and weaknesses, effectiveness and consistency (Chassignol et al., 2018) and creating the prospects of digitalizing the evaluation process. Zhang and Aslan, 2021; Chiu et al., (2023), assert that the sustenance offered by artificial intelligence in business education to strengthening and improving the effectiveness of management sites, analysis and elaboration of scaled data, individualization of a variety of academic discourses, enhancing job performance of business educators and administrative personnel and consistency in the process of making choices and decision. The efficacy of artificial intelligence could be instrumental in executing tasks that take lecturer’s time at a rapid rate, showcasing students’ choices and learning preferences to create individualized learning plans and inspiring them with timely and direct feedback or helping lecturers in their bid to generate or analyze data (Chen, Chen and Lin, 2020).

Artificial Intelligence in Entrepreneurial Practice and AI tools

Artificial intelligence tools like [ChatGPT4](#), [Google Bard](#), [Chatsonic](#), [Midjourney](#), [DALL-E](#), [SlidesAI](#), [Alli AI](#), [Hubspot Free AI](#), [Content Writer](#), [Paradox](#) and [Synthesia](#) equip and improve the competencies and skills proficiency and accelerates innovation and creativity as well as expanding the horizon of businesses and enterprises (Nuseir, Basheer and Aljumah, 2020). Also, artificial intelligence tools provide tangible strength and awakening in practical situations for students to grasp business ideas. According to Yang et al., (2022) artificial intelligence strengthens students position to acquire business skills and broaden their knowledge on business growth and productivity of their businesses like attracting prospecting clients, branding of their products, and widening the scope and horizon of their businesses and enterprises (Yang et al., 2022).

Artificial intelligence has a track record for enhancing the quality and delivery of entrepreneurship education programmes. These include infusion of intelligent learning, or teaching systems, learning analytics, data mining, computer vision and prediction systems, intelligent learning or teaching systems, learning analytics, facial recognition systems, voice or speech recognition systems, virtual laboratories, augmented reality, virtual reality, hearing and sensing technologies, edge computing, virtual personalized assistants, real-time analysis, AI Chatbot, image recognition, personalized learning approach, academic analytics, and adaptive learning method (al-Zyoud, 2020; Han, Park and Lee, 2022).

Conclusion

Based on the information revealed in this study, this is perhaps the first of a kind that exhaustively investigate an academic discourse related to the nexus between artificial intelligence and entrepreneurship practice. To solve the problem of the study, the researcher carried out a systematic literature review of several articles and journals. The study emphasized on the influence of artificial intelligence tools for entrepreneurship education students particularly in terms of equipping them for the challenges in the labour market that is becoming digitalized and also gave insight on the implications for entrepreneurship education curriculum. Relatedly, the study revealed



the impact of artificial intelligence that the study specifically referred to as “AI enabled entrepreneurial process”. First, at the “opportunity phase”, Artificial Intelligence inspires the entrepreneur to invent new brands and products for his business that are previously non-existent. Second, at the “decision making” phase awakens the consciousness of the entrepreneur on the techniques and strategies to be adopted to foster sound decision making.

Third, at the “performance phase”, artificial intelligence inspires the entrepreneur to adopt marketing strategies to attract prospective clients to the business thereby increasing the productivity of the business. Conclusively, and at the “education and research” fosters the overall process and fills the gap that exist between entrepreneurship research and practice. This study provides a framework that serves as a guide the analysis of the implications of the infusion of artificial intelligence into the curriculum of entrepreneurship and business education. This could be instrumental for future researchers, entrepreneurs and prospective entrepreneurship and business education graduates that intend to adopt the artificial intelligence for entrepreneurial discourse. Additionally, it offers a blueprint for prospective research by taking into consideration the growing technological syndrome and problems stimulated by this revolution. Conclusively, the study agreed to the notion that the infusion and growth of industrial revolution and that the entrepreneurial decisions taken today would invariably shapen the future to a large extent.

Recommendations

Based on the information x-rayed in this study, it was recommended amongst others that:

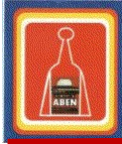
1. The Ministry of Education at Federal and State Levels should as a matter of urgency should assist in providing the conducive learning environment where entrepreneurship educators could become abreast with the prescribed tools of artificial intelligence.
2. There should be regular and periodic in-service training for entrepreneurship and business educators to adequately equip them to use artificial intelligence tools to impart students with skills to fit in adequately into a digitalized labor market.
3. The institutions of higher learning should establish adequate computer laboratories facilities for the lecturers’ and students’ use with access to artificial intelligence tools at subsidized prices to enable put to work the skills they learn in class in practical situations.
4. The government as a matter of priority should inspire and motivate entrepreneurship and business educators to regularly adopt artificial intelligence and process to facilitate the upgrade of their knowledge on the use of AI tools for application of entrepreneurship and business education programmes. This can be attained through increased funding to drive Artificial Intelligence gathering in our tertiary institutions in Nigeria to curb the wave of unemployment.

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