ARTIFICIAL INTELLIGENCE AS A TOOL FOR ENTREPRENEURIAL DEVELOPMENT OF BUSINESS EDUCATION STUDENTS

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Abstract

This paper examined the ways artificial intelligence system could be leveraged upon for entrepreneurial development of business education students. It argued that artificial intelligence system is embedded with tools that have the capacity to enhance students' engagement and motivation; improve their knowledge retention and application; customize learning paths to cater for their individual needs; give real-time and targeted improvement; give access to a wide range of educational resources tailored to their individual interest; and therefore, has the capacity to serve as a stimulant for entrepreneurial development. In order to establish this fact, the paper discussed the various AI tools and how they could impact entrepreneurial development of business education students. The paper also discussed the business education programme and its goals establishing that these goals could be effectively and efficiently achieved with the use of artificial intelligence tools like nature language processing tools; customer relation management tools (CRM); content creation tools, and data analysis/visualization tools. The paper also looked at the ways some of the tools could be practically engaged and the entrepreneurial development of business education student and concluded that artificial intelligence plays a transformative role in the entrepreneurship development of business education students by enhancing skills, fostering innovation, creating new opportunities, addressing ethical considerations, and overcoming challenges. It suggested among others that institutions should provide accessible AI resources, such as software tools, computing resources, and online learning materials, to help develop entrepreneurial skills among students.

Keywords: Artificial, Intelligence, Entrepreneurial Development, Business Education

Introduction

Artificial Intelligence (AI) has continued to make waves in the world of business, providing the support needed to streamline tasks, increase efficiency and skyrocket productivity. Conley (2024) averred that Artificial Intelligence is revolutionizing the way business owners manage their workloads, from automating repetitive tasks to enhancing decision making. Artificial Intelligent tools are designed to improve efficiency, save time and reduce stress. Businesses are leveraging these innovative tools, from AI powered assistants to advanced scheduling software to enhance productivity and simplify complex tasks. Thus, many organizations are opting for artificial Intelligence to improve performance thereby boosting productivity. This rapid adoption is changing the way entrepreneurs work, making smart technology an essential part of staying

competitive. If this assertion is correct, it therefore suggests that artificial intelligence should be engaged in preparing our future entrepreneurs.

Propenici and Kerr (2017) described Artificial Intelligence as computer software or devices capable of carrying out human-like processes, such as learning, adaptation, synthesis, self-correction and the use of data for complex processing tasks. In their view it comprises technologies that can be combined in different ways to sense, comprehend and act. It is focused on creating systems that can perform tasks that typically require human intelligence. AI is not clearly programmed for every single task, it is patterned to learn, reason, perceive and make decisions based on data. AI, as it concerns entrepreneurship acts as a powerful enabler that reduces barriers to entry, enhances decision-making and drives innovation (Li & Chen, 2019). Li and Chen went further to submit that AI fundamentally changes how new ventures are created, managed, and scaled. In entrepreneurship, it is a strategic partner that automates key processes and provides critical insights, allowing entrepreneurs to compete with larger, more established companies.

Entrepreneurship refers to the qualities, activities and mindset associated with being an entrepreneur. An entrepreneur is someone who initiates, organizes and manages a business venture, taking on financial risks with the aim of making a profit. Entrepreneurial development refers to the enhancement of the skills, knowledge and capabilities of individuals to enable them to successfully start, operate and grow their own businesses. This development includes training, education, support services and creation of an enabling environment that fosters innovation, risk-taking and development of entrepreneurial spirit.

Entrepreneurial development encompasses the process, initiatives and activities aimed at fostering an entrepreneurial mindset, skills and capabilities among individuals or groups. It involves nurturing, creativity and opportunity recognition to facilitate the creation and growth of entrepreneurial ventures. Drucker, (2015) averred that entrepreneurial development involves fostering the skills, knowledge, and mindset needed for individuals to successfully create and manage businesses. Entrepreneurship education was formally incorporated by Nigeria into its school system, particularly at the tertiary level in 2006 though it had been part of business education program. This was a strategic response to high youth unemployment and to foster economic diversification. From the foregoing, it can be deduced that entrepreneurship education serves as a powerful tool for individual empowerment. This assertion underscores the importance of the integration of digital tools in the entrepreneurship education of business education students.

Business Education

Business education is a course of study designed to teach students the foundational knowledge, skills, and theories of the business world. In the opinion of Ibrahim (2022), it prepares individuals to be productive in the economy as employees or self-employed persons by equipping them with practical skills required to enter into the labour force and be productive in the economy. It is an entrepreneurship-based programme which equips students with relevant skills, knowledge and attitude required in the business world. According to Udo in Ariwodo and Emeasoba (2023), business education is a comprehensive activity-based occupational education programme that is concerned with the acquisition of practical skills, work habits, competences, and knowledge requisite to success in any chosen business occupation. Edokpolor and Egbri in Ariwodo and Emeasoba (2023) stipulated that the actual goals of business education are to: prepare students for specific career in office occupations; equip students with the requisite skills for job creation and entrepreneurship and expose students with knowledge about business, including a good blend of computer technology, which incorporates information and communication technology. Business education offers recipients who wish to pursue a career the opportunity to develop

skills, abilities and understanding that will enable them to enter, perform and progress in any business occupation and also have a decent work.

The core goals of business education as a skill-based programme cannot be achieved without application of right tools and correct environment. Therefore, the digital era calls for incorporation of new technologies as they emerge in order to inculcate new skills and innovativeness into the students. This is because new technologies give people opportunity to access, manage, integrate and evaluate huge amount of information real-time and accurately. One of such devices that advancement in technology has offered in the recent times is the Artificial Intelligence software.

Artificial Intelligence

Artificial intelligence as a software technology that mimics human intelligence of visual insights, speech recognition, making quality decisions and giving recommendations comprises the elements of Expert system, Heuristic Problem solving, Natural Language Processing, Vision and Big Data according to Huang and Rust, (2018). Thus:

Expert System: Is a mechanical system where human knowledge is combined with machine memory to give an intelligent solutions and decision makings to a problem through a dataset.
Heuristic Problem Solving: Is a software system that measure unlimited area of human activities in proffering the best solution to a certain problem.
Natural Language Processing: Is the interaction between machine and people in the natural language. **Vision:** Is the ability to predict the future problems to ensure a proactive prevention.
Big Data: This provides AI with the massive amount of data needed to learn and improve.
These elements are all fundamental components of AI that play distinct roles in enabling machines to perform complex human-like tasks (Huang & Rust, 2018).

Though AI offers numerous tools that are particularly useful to entrepreneurs, this paper is concerned with tools and technologies like; machine learning tools, natural language processing tools, data analytics, robotic process automation and artificial intelligence powered decision marking. These tools have been noted as having the capacity to enhance students' engagement and motivation; improve knowledge retention and application; customize learning paths to cater to individual needs; offer real-time feedback for targeted improvement and give access to a wide range of educational resources tailored to student interests (Fishel, 2023). No wonder, Naoley (2023), emphasized that these AI tools take education away from the one-size-fits-all mode to create a more dynamic and student-cantered learning environment; which is achieved through personalized learning, immediate and targeted feedback; intelligent tutoring systems; gamification and interactive elements; fostering autonomy and ownership in the students.

Entrepreneurship Activities

According to Drucker, (2015), Entrepreneurship is the process of designing, launching, and running a new business, often initially a small business, offering a product, process, or service for sale or hire. The people who create these businesses are called entrepreneurs. Muda, (2019) opined that entrepreneurship involves identifying opportunities in the market, developing innovative ideas, and taking risks to bring those ideas to fruition in the form of a new or improved product or service. Schumpeter (2024) added that innovation is at the heart of entrepreneurship. It involves creating new products, services, or processes, or improving existing ones to meet market needs more effectively. Entrepreneurs often drive economic growth through innovative thinking and new business ventures that disrupt existing markets and industries. They also take risks. Entrepreneurs typically undertake significant risks when starting and running a business. These risks can be financial, emotional, and social. Successful entrepreneurs manage these risks through careful planning and decision-making, often facing uncertainty and ambiguity. In the opinion of Kuratko and Audretsch (2022), entrepreneurship deals with opportunity recognition; entrepreneurs are skilled at recognizing unmet needs in the market and identifying opportunities

for creating value. This ability to perceive gaps in the market is crucial for entrepreneurship, as it drives the innovation process. Whereas Shane and Venkataraman, (2000) count them as resource mobilizers. This involves gathering the necessary resources such as capital, talent, and materials to launch and grow the business. Entrepreneurs must strategically manage these resources to sustain their ventures and drive growth.

Entrepreneurship is crucial for economic development, job creation, and innovation. It stimulates economic growth by creating new markets and increasing competition. Entrepreneurs contribute to society by introducing new products and services, fostering innovation, and driving technological advancement (Audretsch, 2007).

Artificial Intelligence and Entrepreneurship

Akinyemi and Adejumo, (2018), asserted that, in contributing to change in the economic situations of all countries, entrepreneurs need the right technology in order to experience survival and success in this 21st century. Therefore, the importance of artificial intelligence cannot be over-emphasized if entrepreneurship must thrive and accomplish the purpose for its creation in Nigeria which include economic development, and individual empowerment.

Data are critical elements for entrepreneurial survival as they enable entrepreneurs to take quality decisions, discover opportunities in uncertain business environment as well as understand the behaviour of customers and their business operations, Agrawal, (2018) and Bell and Levesque, (2020) all accented to the importance of technology in the present digital world as it is used to gather customer information to enhance the growth and development of businesses and entrepreneurs. Big data are essential for gathering customers' information using data storage technology with cost effectiveness and innovative information processing (Nunan & Di-Domenco, 2019). On the other hand, artificial intelligence ensures successful sharing of data which helps to identify the new market trends and also ensure corrective measures on outsourcing and switch suppliers (Uford, 2018).

Artificial intelligence technology's effective and efficient supply chain procedures are readily integrated into demand, inventories' management and creates back up when there is a change in market demand, (Markopolous, 2019). According to Kusuma, (2022), supply chain is made possible by artificial intelligence as it allows supply chain parties to share documents and trade in a reliable and accurate way. Furthermore, it is of benefit to business enterprises and entrepreneurship that, there is rapid change of designs that enhance decision making in entrepreneur's supply and logistics. Vasiljeva, (2023), submitted that infusion of artificial intelligence into entrepreneurship has contributed significantly to the change in the behaviour of consumers, better entrepreneurial decision, and reduction of cost of operations as well as increased the performance and competitiveness of entrepreneurial market environment. Artificial intelligence is very important to entrepreneurs and business enterprises as it has enabled global position system which is used for tracking supply chain and logistics, as data entered into the system cannot be tampered with, (Faella & Romano, 2019). Though artificial intelligence tools are relatively new technology in the space of the business and entrepreneurship world, it is affirmed that, artificial intelligence technology ensures successful transactions in terms of being easily saved and traceable when situation calls for that, as the transaction are recorded in the public and private keys. According to Novillo, (2022), the adoption of block chain and artificial intelligence technology opens opportunities for businesses including small and medium enterprises. Akhavin, Islam and Namvar, (2021), affirm that entrepreneurs use block chain technology to develop a theoretical framework for supply chain management knowledge on production, storing, sharing and application in the small and medium enterprises business process, ensuring trust, monitoring and distribution of information regarding business enterprises and products information. The adoption of this new technology into entrepreneurship is a new trend and revolution in the entrepreneurial and business world as it has changed the operations

and process of entrepreneurship bringing about innovations and creativity which have birthed new products and services.

Using Artificial Intelligence Tool for Entrepreneurial Development of Business Education Students

Considering that the integration of artificial intelligence into business courses presents both opportunities and challenges. Several authors have delved into the impact of artificial intelligence and entrepreneurship development in business courses. One notable study by Li and Chen (2019) explored how artificial intelligence technologies such as machine learning and natural language processing are reshaping the entrepreneurial landscape. The authors argued that artificial intelligence enables businesses to streamline administrative tasks, enhance decision–making processes and create innovation solutions, thereby fostering entrepreneurial ventures.

Similarly, Hwang and Kim (2020) examined the integration of artificial intelligence tools in entrepreneurship education for business education students, their research highlighted that exposure to artificial intelligence driven platforms and technologies equip students with essential skills in data analysis, automation and predictive modelling, empowering them to navigate the complexities of modern business environments.

Additionally, Lee and Park (2021) investigated the role of artificial intelligence in facilitating entrepreneurial opportunities for business education students. Their findings suggested that artificial intelligence driven solutions provide students with insights into emerging industries, competitive landscape, and consumer behaviours, fostering a proactive and adaptive approach to entrepreneurship developments and improved decision–making. Artificial-intelligence could provide business students with real-time data and analytics, allowing them to make informed decision about their business strategies.

According to Dell, Ghilic, and Pachai (2024) the use of AI as a tool for entrepreneurial development of business education students can be done through multi-faceted approach that spans from curriculum design, pedagogical methods, to resource allocation. It is not just about teaching AI as a subject, but about using it as a tool to enhance the entire learning process. In their opinion, the following areas could be explored:

Curriculum Integration: AI could be embedded into core courses, which suggests the integration of AI applications directly into existing subjects. An example could be to make students to use AI tools for market segmentation in a marketing course. AI focused projects should also be emphasized by making students use AI to solve real-business problems like using Natural Language Processing (NLP) to analyse customers' feedback.

Pedagogical Methods: Using AI-powered business simulations to create realistic, dynamic scenarios where students can practice entrepreneurial decision-making could be adopted. AI powered tutors that can offer personalized support to students could also be engaged. Students may be taught the act of effectively collaborating with AI.

Institutional Support and Resources: Training could be organized in the institutions to provide professional development for lecturers to ensure they are comfortable and competent in teaching with and about AI. Workshops are also necessary to learn ways to integrate AI tools into lesson plans and designing assignments that leverage AI for enhanced learning. Institutional support on provision and making accessible AI tools and platforms and provision of ethical framework should be implemented.

Conclusion

The discussion underscores the transformative role of Artificial Intelligence in shaping entrepreneurship development among business education students. By enhancing skills, fostering innovation, creating new opportunities, addressing ethical considerations, and overcoming challenges through its provision of personalized learning, and facilitating data-driven

decision-making, AI technologies empower students to thrive as entrepreneurial leaders in the digital age.

Suggestions

From the foregoing, it is suggested that:

1. Institutions should provide accessible AI resources, such as software tools, computing resources, and online learning materials, to help develop entrepreneurial skills among students.
2. Institutions should invest in content creation development programs to enhance students on entrepreneurship development.
3. Educational institutions should stay updated with data analysis and visualization tools on developing managerial skills.

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