# CHALLENGES AND OPPORTUNITIES IN INTEGRATING EMERGING TECHNOLOGIES INTO ENTREPRENEURSHIP EDUCATION: PREPARING STUDENTS FOR DIGITAL VENTURES

**ONONFURHO, AVWENNAYERI EVELYN**
Department of Business Education, College of Education Warri, Delta State
Email: evelynonofurho1@gmail.com

**Abstract**
*The rapid evolution of emerging technologies is transforming entrepreneurial endeavour presenting both challenges and opportunities for entrepreneurship education. This paper discusses the challenges and opportunities of integrating emerging technologies into entrepreneurship education; preparing students for digital ventures. The paper review basic challenges of ensuring equal access to digital resources, addressing ethical concern and developing capacity to effectively integrate emerging technologies. It also reviewed basic emerging technologies skills require by students to successful develop and practice digital venture. It concluded that leveraging on emerging technologies; can create more engaging, interactive, and effective learning experiences that better prepare students for the demands of digital ventures. It recommended among others that Entrepreneurship education instructors should incorporate hands-on, project-based learning experiences that utilize emerging technologies in the teaching learning process to develop in students practical skills. There should be equal access to digital resources, tools and infrastructure to bridge the digital divide and promote inclusivity*

**Keywords:** entrepreneurship education, emerging technology, digital venture

## Introduction

The advent of emerging technologies has transformed the way people live, work, and conduct business. The rapid pace of technological advancements has created new opportunities for entrepreneurs, enabling entrepreneurs to develop innovative solutions, products, and services that can disrupt traditional industries and create new markets. However, this shift also presents significant challenges for entrepreneurship education, which must adapt to new technologies to prepare students for the demands of digital ventures. Nwankwo, Kanyangale, Eze and Ifejiofor (2022) asserted that graduate venture creation in university in many African countries is achievable through efficient and effective delivery mode of entrepreneurship education. Entrepreneurship education has long been recognized as a vital component of economic development, innovation, and job creation. In teaching students the skills and knowledge required to start and grow successful businesses, entrepreneurship education programs can empower students to become job creators rather than job seekers. Olubiyo and Olubiyo (2022) described entrepreneurship education as the type of education that shapes people's mindset and also provide the skills and knowledge that one requires to develop an entrepreneurial culture. Equally, entrepreneurship education relates to a process and approach for developing entrepreneurial mind-sets, skills, and competencies in students to recognize opportunities, manage risk, and create new ventures or solutions, whether on a commercial basis or for social good. This form of education is not limited to business venture but also nurtures creativity, critical thinking, resilience, and innovation relevant across lifelong learning and other sectors in an economy. Uchendu, Osim, and Odigwe (2015) sees entrepreneurship education as a problem-solving method to students empowerment, capable of leading students to acquire skills required to plan start run and grow a business whose focus is based on innovation and the development of new products and services. Similarly, Ajayi (2015) refer entrepreneurship education as a process of using a private initiative or turning business concept into a new venture or a process of diversifying existing venture with high growth potential. The capacity to recognize economic opportunities and calculated risk to source for resources that will meet the need in a given environment is predicated on entrepreneurial mind-set. It also enables students to acquire managerial skills, leadership skills and capacity to accept and adopt innovation.

According to Ogodogu, Otuedon and Akpomudjere (2022) one of mandate of entrepreneurship education centres in schools in Nigeria is to provide students with ample opportunities that will improve the productive capacities of enterprise development skills among students. The fulfilment of this mandate in

this age of technological driven business environment is achievable via adoption and utilization of emerging technologies. Hence, the need to incorporate latest advancements and innovation into entrepreneurship education practice in preparing students for digital venture discovery and application cannot be overemphasized. Emerging technologies are the harbingers of latest revolution in digital venture, a tide of advancement that is redefining boundaries of possibilities. These cutting-edge innovations are not merely improvements on existing technologies but a transformative force that are creating new paradigms on how humans live, work, and interact with one another. Chan, Peko, Sundaram and Sadovykh (2025) reported that emerging technologies are profoundly reshaping societies and industries and that innovations such as artificial intelligence (AI), blockchain, the Internet of Things (IoT), mixed reality, and the metaverse are simultaneously refining existing systems, which are challenging long-standing patterns. These technologies, though still evolving, are already influencing economic models, social behavior, and institutional practices. Emerging technologies is making teaching and learning of entrepreneurship skills more fascinating and easier which is beginning to stimulate students' curiosity in venture creation. Montoro, Colon, Moreno and Steffens (2019) define Emerging technologies as a science based on innovation, which enable the creation of a new industry or the transformation of existing industries. Emerging technologies have permeated every sector of our society education inclusive. This perhaps explained the potential benefits of emerging technologies in teaching and learning process which invariably enable students acquire skills required for survival.

Wahab and Akintade (2025) sited emerging technologies in teaching and learning in entrepreneurship education as: Artificial Intelligence (AI) for personalized learning, Augmented Reality (AR) and Virtual Reality (VR) for experiential simulations and virtual field trips, and learning analytics for data-driven insights into student performance. Etong (2022) also underscored other emerging technological tools utilized for teaching and learning purposes such as ubiquitous computing, collaboration platforms, extended reality, block-chain, internet of things, quantum computing, and edge computing. There is a pressing desire for a robust emphasis on integrating emerging technologies in teaching/learning of entrepreneurship education programme to enable seamless transition to the digital work environment where digital venture and routine activities are automated by digital solutions. According to Xionghui and Hui (2023) digital venture leverage the enabling mechanisms of digital technology to actualize opportunities and create value by integrating digital platforms and infrastructure as vital internal and external resources that drives venture growth. Integrating emerging technologies into entrepreneurship could facilitate cutting-edge teaching methodologies that align with modern trend in education; thus, making emerging technologies highly beneficial in entrepreneurship education classroom for teaching/learning necessitates competencies that students acquire. Building on this imperative, this paper discussed challenges and opportunities in integrating emerging technologies in entrepreneurship education.

**Challenges facing integration of emerging technologies in entrepreneurship education**

The integration of emerging technologies in entrepreneurship education in Nigeria has not been without some difficulties which have resulted in limited functionality of the programme in institutions. Hence, it is imperative that as institutions strive to harness the potentials of emerging technologies to enhance teaching and learning of entrepreneurship education, they must tackle a range of obstacles that can hinder successful integration. One of the primary concerns is the existing infrastructure, which may not be compatible with the demand of emerging technologies. Inadequate internet connectivity, out-dated hardware, and limited technical support can impede the effective integration of emerging technologies in entrepreneurship education. As Wahab and Akintade (2025) note digital divide marked by significant gap in access to emerging technologies between students in urban and rural areas as well as among different socio-economic groups poses a substantial challenge in technology integration. Resistance to change, lack of digital literacy and concerns about job security can also affect the integration of emerging technologies. The integration of emerging technologies raises important questions about data privacy, security and intellectual property. The need to protect data for instance and maintain robust security measures to prevent data reaches and cyber-attack becomes crucial, hence, it is imperative for institutions to develop robust policies and procedures to safeguard sensitive information and ensure that emerging technologies are used in a responsible and ethical manner

One of the primary challenges of integrating emerging technologies into entrepreneurship education is the need for educators to stay up-to-date with the latest developments in these technologies. This requires significant investment in professional development as well as a willingness to adapt curricula and teaching methods to incorporate emerging technologies. Grigge (2021) underscores the relevance of professional development of instructors, equipping them with needed competencies for technology integration in the teaching/learning of entrepreneurship education for effective students' engagement. Furthermore, the rapid pace of technological change means that emerging technologies can quick become outdated, making it essential for educators to be agile and responsive to changing industry needs. Another challenge is the need to balance the technical aspect of emerging technologies with entrepreneurial skills and knowledge required to develop successful digital ventures. In this wise, instructors need to be train and retrained to possess the needed teaching skills required to criss-cross the difficulties of emerging technologies. Entrepreneurship education must not only teach students how to use emerging technologies but also how to apply these technologies in a business setting, identifying opportunities, developing business models and creating value for customers.

**Opportunities of integrating emerging technologies into entrepreneurship education**

Despite these challenges, the integration of emerging technologies into entrepreneurship education presents numerous opportunities. By leveraging these technologies, educators can create more engaging, interactive, and effective learning experiences that better prepare students for the demands of digital ventures. For example, emerging technologies like virtual reality and augmented reality can be used to create immersive learning experiences that simulate real-world environments, allowing students to practice and develop their skills in a safe and controlled setting. Emerging technologies also offer new opportunities for entrepreneurship education to reach a wider audience, including students who may not have previously had access to entrepreneurship programs. Online learning platforms, social media, and other digital tools can be used to deliver entrepreneurship education programs, enabling students to learn from anywhere and at any time. Specifically, these platforms have truly enhanced the teaching delivery of entrepreneurship education in the following ways:

- Enhanced learning experience: Emerging technologies like Virtual Reality (VR), Augmented Realty (AR), and Artificial Intelligence (AI) are capable of creating tremendous and interactive learning experiences that could increase students learning engagement and knowledge retention. These technologies facilitate different unique teaching methods that enable instructors to present learning content in way that makes learning more interesting, fascinating and enjoyable unlike traditional classroom where presentation of learning experiences are done in a lopsided manner.
- Personalized learning: Students have diverse learning needs and abilities, and the presence of emerging technologies enables personalized learning experiences tailored to individual needs. In other words, with emerging technologies, students can learn at their own pace, in their own way and style.
- Access to global resources: Online platforms and digital tools can provide students with access to a vast array of educational resources, including videos, podcasts, and online courses from anywhere in the world. By leveraging global resources, learning experiences is not localized to a particular idea but to wider spring of knowledge
- Improved collaboration: Collaboration tools, social media, and online forums cam facilitate communication and teamwork among students, instructors and industry experts. Students have the advantage of collaborating with peers on projects through technology, sharing resources within their online academic platform.
- Real-time feedback: Technologies powered tools can provide instant feedback and assessment enabling students to monitor their progress and identify areas needing improvement.
- Entrepreneurship simulation: Emerging technologies like simulation software provides a risk-free environment for students to practice business skills, test ideas and learn from failures. It fosters creativity, innovation and decision-making skills preparing students for real world entrepreneurial challenges. Through simulating market dynamics, students develop strategic thinking, problem solving and leadership skills.

- Data driven insights: Emerging technologies empower students' entrepreneurs to make informed decisions, identify market trends and optimize business strategies. Through data analysis, students' entrepreneurs can uncover customers preferences, track performance metrics, and predict future opportunities, that could drive business growth and competitiveness in an increasingly data-centric environment which at the long run could provide information on product development and marketing.
- Increased accessibility: Increased accessibility in entrepreneurship education enabled students from diverse backgrounds to acquire essential skills and knowledge. Online platforms, digital resources and flexible learning options bridge geographical and socioeconomic gaps, promoting inclusivity and equal opportunities for aspiring entrepreneurs worldwide, regardless of location or financial constraints to pursue their entrepreneurial ambitions

**Preparing Students for Digital Ventures**

A digital venture is an entrepreneurial endeavour that leverages digital technologies to create, deliver and capture value. This enterprise involves designing digital products and services to meet the need of consumers such as software, apps or platforms. However, to prepare students for digital ventures entrepreneurship education programmes must focus on developing a range of skills that will enable students engage in digital business. Some of the skills include:

1. **Technical skills**: Students need to have a solid understanding of emerging technologies, including their applications, limitations, and potential impact on business.
2. **Entrepreneurial skills**: Students require skills and knowledge necessary to develop successful digital ventures, including opportunity identification, business model development, and pitching.
3. **Business acumen**: Students need to understand the business context in which digital ventures operate, including market analysis, financial planning, and marketing.
4. **Soft skills:** Students require strong communication, teamwork, and problem-solving skills to work effectively in digital teams and navigate the challenges of digital entrepreneurship.

Integrating emerging technologies into entrepreneurship education, instructors can create programmes that are more relevant, engaging, and effective in preparing students for the demands of digital ventures. This requires a holistic approach that combines technical skills, entrepreneurial skills, business acumen, and soft skills, enabling students to develop a comprehensive understanding of digital entrepreneurship.

**The Role of instructors and institutions**

Educators and institutions play a critical role in integrating emerging technologies into entrepreneurship education. They must be willing to adapt curricula, teaching methods, and assessment strategies to incorporate emerging technologies and ensure that students are prepared for the demands of digital ventures. This requires significant investment in professional development, as well as a commitment to staying up-to-date with the latest developments in emerging technologies. Institutions must also provide the necessary resources and support for entrepreneurship education programme, including access to emerging technologies, mentorship, and networking opportunities. By creating a supportive ecosystem, institutions can foster a culture of innovation and entrepreneurship, enabling students to develop the skills and confidence required to succeed in digital ventures.

**Conclusion**

The integration of emerging technologies into entrepreneurship education presents both challenges and opportunities. By leveraging these technologies, instructors can create more engaging, interactive, and effective learning experiences that better prepare students for the demands of digital ventures. However, this requires a holistic approach that combines technical skills, entrepreneurial skills, business acumen, and soft skills, enabling students to develop a comprehensive understanding of digital entrepreneurship.

**Suggestions**

1. Entrepreneurship education instructors should incorporate hands-on, project-based learning experiences that utilize emerging technologies in the teaching learning process to develop practical skills

2. There should equal access to digital resources, tools and infrastructure to bridge the digital divide and promote inclusivity
3. Institutions of learning should encourage a culture of experimentation and risk-taking approach which enable students to test and iterate their ideas in a supportive environment.
4. Institutions of learning should be able to carry out regular evaluation and assessment of the effectiveness of emerging technology integration in entrepreneurship education, making adjustments as needed to stay current and relevant
5. Institutions should develop and integrate digital literacy into entrepreneurship education to equip students with the skills to navigate emerging technologies

**References**

Ajayi, A. (2015). A critical analysis of the role of entrepreneurship education in Nigeria https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.839.4134&rep=rep1&type=pdf

Chan, J., Peko, G., Sundaram, D. & Sadovykh V. (2025). Application and adoption of emerging technologies: from AI to metaverse. *Journal of Information System Front* **27**, 405–408. https://doi.org/10.1007/s10796-025-10600-7

Etong, E.,C. (2022) Emerging technologies in teaching and learning of business education programmes in the new normal in tertiary institution in Nigeria. *Nigerian Journal of Business Education*, 9(2), 64-71

Grigg, R. (2021). EntreCompEdu, a professional development framework for entrepreneurial education. Education + Training, 63(7/8), 1058–1072. DOI: 10.1108/ ET-06-2020-0166

Montoro, A., Colon, A., M., Moreno, J., R., & Steffens K. (2019). Emerging technologies: analysis and current perspectives. Digital Education Review, 35, 186-210 http://greav.ub.edu/der/

Nwankwo, C., A., Kanyangale, M., E., Eze, S., U., & Ifejiofor, A., P. (2022). Teaching Methods and its Effect on Entrepreneurship Development of Millennials in Nigeria Universities. *International Journal of Educational Sciences*, 38, (1-3); 70-79

Ogodogun, C., E., Otuedon, M., & Akpomudjere, O. (2022). Entrepreneurship education and its skills: a panacea to economic recovery and national security. *Journal of Vocational and Technical Education*, 5, (1); 81-90

Olubiyo, P., O., & Olubiyo, J., T. (2022), Entrepreneurship Education as Tool for Economic Growth: The Roles of Information Centres in Nigeria. https://www.researchgate.net/publication/365443856

Uchendu, C., C., Osim, R. O. & Odigwe, F. N. (2015). Managing Entrepreneurship Education for Economic Security at university Level in Cross River State.

Wahab, F., K., & Akintade, E. (2025) Integration of Digital Technologies in Entrepreneurship Education in Nigeriahttps://www.DOI: 10.4018/979-8-3693-7863-2.ch010

Xionghui, X. & Hui, F. (2023) Digital venture growth: A literature review and prospects. Foreign Economics and Management, 45, (6), 118 - 136 DOI:10.16538/j.cnki.fem.20221027.401