

Assessment of integrating Disruptive Technology Tools on Accounting Education Curriculum among Public Universities in Northern Nigeria

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Abstract

The study was on Assessment of integrating Disruptive Technology tools on Accounting Education Curriculum among Public Universities in Northern Nigeria. Two (2) specific objectives, two (2) research questions and two (2) null hypotheses guided the study. The study hinged on unified Theory of Acceptance and use of Technology (UTAUT), it is a theory that explains how users adopt and use technology. It was developed by Venkatesh et al. (2003). The study employed descriptive survey research design. The population of the study was thirty (30) business education lecturers in Ahmadu Bello University, Zaria Nigeria and Abubakar Tafawa Balewa University, Bauchi. A four-rating structured questionnaire titled "Disruptive Technology in Accounting Education Curriculum Instrument (DTAECI) was the instrument used to gather data from the respondents for the study. The instrument was validated by two experts and the reliability of the instrument was determined using Cronbach Alpha method and 0.75 reliability co-efficient was obtained. The data collected from the administration of the questionnaire was coded into Statistical Package of Social Science (SPSS) version 25. The package was used to calculate mean and standard deviation to answer research questions and independent sample t-test was used to test the null hypothesis. Results from the findings among others revealed that Visual reality and augmented reality (VR/AR) simulations has not been integrated into accounting education curriculum in public universities in Northern Nigeria. It was concluded that disruptive technologies have not been integrated into accounting education curriculum among the public universities in Northern Nigeria. Based on the findings of the study, it was recommended among others that curriculum planners should regularly review and update the accounting education curriculum to integrate disruptive technologies such as AI and VR/AR into course structures, teaching and learning.

Keywords: Disruptive Technology, Accounting Education and Curriculum

Introduction

The advent of disruptive technologies has transformed the business landscape, necessitating a corresponding transformation in business education. The fourth revolution is changing the way we live, work and relate to one another. (Schwab, 2016), this revolution is characterized by the confluence of technological innovations, including artificial intelligence, block chain and cloud computing which are redefining the contours of business and commerce. According to a report by the Association to Advance Collegiate School of Business (AACSB, 2020), Business schools must be willing to innovate and experiment with new approaches to education. This includes integrating disruptive technology such as AI and block chain into the curriculum, as well as developing essential skills such as critical thinking, creativity and problem-solving.



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The relevance of disruptive technology on accounting education is multifaceted. It presents opportunities for innovation and growth, enabling new forms of learning and skill development. On the other hand, it poses significant challenges, including the need for continuous update of curriculum, balancing technical skills and soft skills development and addressing ethical implications. Manyika (2017) noted that the ability to learn and adapt will be increasingly important in a world where technological change is rapid and relentless. The rise of disruptive technologies has significantly reshaped various sectors, including education. Disruptive technologies as conceptualized by Christensen (2016), refers to innovations that fundamentally alter traditional systems and practices. In education, these technologies, such as artificial intelligence (AI), virtual reality (VR), augmented reality (AR), online learning platforms and gamification tools, offer new ways of delivering instruction and engaging learners. Accounting education is designed to equip students with knowledge and practical skills to pursue careers in financial reporting, auditing, taxation and advisory services. According to NPE, 2000 in Akpan, (2023), accounting education is an aspect of business education involving in addition to general education. It involves the study of acquisition of practical skills, knowledge, attitudes, understanding and competencies relating to professional occupations in some sectors of economic and social life and effectively participating in the world of work Accounting education, according to Isaac, Ibe Bassey and Evanson (2007) accounting education is a programme designed and aimed at developing skills, knowledge, and understanding that are necessary to facilitate financial information control and processing. It provides individuals opportunity for the acquisition of relevant skills, abilities and competences both mental and physical equipment for the individual to live in and contribute to the development of the nation. Accounting education incorporates a package of instructional programmes prepared to educate and enlighten “would be” accountants in the field of education, to make them versatile and adaptable to the numerous roles they may be required to play after graduation. It attempts to develop concepts, skills, rules, theories, procedures and general knowledge for solving accounting problems. It further emphasizes the ability to differentiate and integrate alternative problem-solving perspectives, the ability to identify accounting related information resources, the ability to proffer solutions to problems, develop communication skills and the ability to analyze, interpret problem situations and figure out lasting solutions (Otamiri and Ochi, 2023).

Curriculum refers to the organized set of courses and learning experiences designed to achieve specific educational goals. Accounting education curriculum serves as a framework that outlines the courses, content, materials and learning outcomes that guide students to acquire both the theoretical and practical skills required for the accounting profession. In respond to changing industry expectations, professional bodies such as Institute of Chartered Accountants of Nigeria (ICAN) and Association of Nigeria Accountant (ANAN) emphasize the need for graduates to possess advanced technology skills alongside traditional accounting competencies (Uche, 2002). In Nigeria, the incorporation of disruptive technologies offers an opportunity to bridge the gap between theoretical accounting education and practical professional skills. Technologies like online platforms enable access to learning materials beyond physical classrooms, while AI tools provide adaptive learning experiences tailored to individual student need (Anam, 2019). These shifts emphasize the need for curriculum reform to produce graduates who are well-prepare for modern accounting roles, where digital tools are critical. This study aims to explore the relevance of disruptive technologies on accounting education curriculum in universities in Nigeria

One of the aims of integrating new technologies is to improve the quality of education. The education sector is expected to be technologically driven and requires that technological resources are fully integrated. The integration of disruptive technology in education enables a transformative shift from traditional teaching methods to immersive, interactive and personalized learning experiences. Unfortunately, the accounting education curriculum in university in Nigerian are being challenged by the emergence of disruptive technologies such as artificial intelligence (AI), online learning platforms, virtual reality (VR) simulation and cloud-based tools. Traditional accounting education, which relies heavily on classroom instruction and outdated tools, struggles to remain relevant in preparing students for dynamic market demands. This misalignment between the curriculum and modern technologies threatens to reduce the effectiveness of accounting education in producing graduates equipped with skills that align with professional and industry needs. Despite the widespread adoption of technologies like online learning and AI in education globally, Nigerian universities have faced significant barriers in integrating these innovations effectively. Challenges such as limited digital infrastructure, undertrained educators and lack of curriculum reforms have hindered the full adoption of these disruptive tools in accounting programs (Anam, 2019; Uche, 2002). These gaps not only affect teaching practices but also compromise the ability of students and universities to meet international standards in accounting education. Moreover, professional bodies such as the institute of chartered accountants of Nigeria (ICAN) and the Association of National Accountants of Nigeria (ANAN) emphasize the need for accounting graduates to be proficient in the use of modern technological tools. However, the curriculum in many universities in Nigeria still lag behind

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these evolving demands, which limits the opportunities for students to gain hand-on experience with technologies that are reshaping the accounting profession globally (Osuji & Nwoke, 2019). Addressing this problem requires a strategic rethinking of the accounting education curriculum to incorporate disruptive technologies that foster adaptive learning, interactive tools and cloud-based accounting systems. This study thus seeks to explore the relevance of disruptive technologies into accounting education curriculum to enhance teaching and learning outcomes. By identifying the gaps and providing recommendations, the research aims to ensure that universities in Nigeria remain competitive and relevant in the global educational and professional landscape.

Research Objectives

The general objective of the study was to examine the relevance of disruptive technology on accounting education curriculum in universities in Nigerian. The specific objectives were to:

1. Evaluate the relevance of artificial intelligence (AI) adaptive learning systems on accounting education curriculum among public universities in Northern Nigeria.
2. Assess the relevance of visual reality and augmented reality (VR/AR) simulations on accounting education curriculum among public universities in Northern Nigeria.

Research Questions

1. What is the relevance of artificial intelligence (AI) adaptive learning systems on accounting education curriculum among public universities in Northern Nigeria.?
2. What is the relevance of visual reality and augmented reality (VR/AR) simulations in accounting education curriculum among public universities in Northern Nigeria.?

Research Hypotheses

1. Artificial intelligence (AI) adaptive learning systems has no relevance on accounting education curriculum among public universities in Northern Nigeria.
2. Visual reality and augmented reality (VR/AR) simulations has no relevance on accounting education curriculum among public universities in Northern Nigeria.

Theoretical Framework

The study is based on unified Theory of Acceptance and use of Technology (UTAUT), it is a theory that explains how users adopt and use technology. It was developed by Venkatesh et al. (2003). The theory posits that four key constructs influence an individual's intention to use technology:

1. Performance Expectancy: the degree to which an individual believes that using the technology will help them attain gains in job performance
2. Effort Expectancy: the degree to which an individual believes that using the technology will be effortless.
3. Social Influence: the degree to which an individual perceives that others believe they should use the technology.
4. Facilitating Conditions: the degree to which an individual believes that they have the resources and support needed to use the technology.

This theory provides a comprehensive framework for understanding the complex factors that influence technology adoption and use in educational setting. The implication of the theory on the study is that, it investigates how these factors influence educators' adoption and use of technology-enhanced learning tools in accounting education, and how they impact student learning outcomes.

Disruptive Technology (DT)

Disruptive technology is a technology that disrupts the way businesses, consumers, and industry's function. Often times these technologies are created in order to improve upon preexisting products and procedures. However, the objective of these innovations is now expanding past the mere improvement of existing items. Previously, disruption had been a secondary result of innovation. Currently, in today's dynamic technological landscape, the concept of disruption has become the primary goal of innovation, rather than a byproduct. This shift in thinking has led to new markets, new demands, and new problems that consumers and producers had previously been unaware of. Bunney (2018) defined disruptive technology as a technology that alters how markets, customers, and entire industries in a system operate. These technologies are frequently developed to enhance already-existing goods and practices but the overall goal of these breakthroughs goes beyond merely enhancing what already exists. The development of telecommunications, transportation, and internet infrastructure has led to an increase in the exchange of ideas, goods, services and other activities which is known as globalization. Deloitte (2017) defined disruptive technology as those innovations that help develop new markets to disrupt or damage current markets and eventually replaces the prior technology. Presently, there is a revolution in technology because it is changing how people

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communicate, live, and work together in a place when pre IT era and post IT era are considered (Rukmini, 2018). Disruptive technologies in education defined by Weise (2022), as the innovative use of digital tools, platforms and resource that fundamentally transform the way students learn, teachers teach and educational institution operate often by increasing accessibility, affordability and effectiveness.

Disruptive Technology in Education

Online learning: also known as e-learning, digital learning, or online education, refers to the process of acquiring knowledge, skills and information through electronic technologies such as internet, computers and mobile devices. According to Simonson et al (2015) online learning is an educational approach that utilizes electronic technologies to deliver instructional content, facilitate communication and interaction and support learning outcomes, often through online platforms courses or degree programs.

Chat-Based Collaboration: Chat-based Collaboration Platforms is another important disruptive technology in education. It involves web-based video chatting apps allow demonstrating presentations in real-time mode to audiences, which helps to make the learning process easier and more social. According to Kim et al (2020) chat-based learning refers to an educational approach that utilizes conversational interfaces, such as messaging platforms, chat bots and voice assistants to facilitate learning interactions, provide personalizes support and enhance students' engagement.

AI-guided learning: Artificial Intelligence is a field of computer science that focuses on creating intelligent machines capable of performing tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making and language translation (Dongre, Pandey, & Gupta, 2020). In the same light, Ezeribe, (2019) viewed Artificial Intelligence as a method of making a computer, a computer-controlled robot, or software think intelligently like the human mind. Artificial intelligence works by interpreting enormous amounts of data. The data is then analyzed and verified for accuracy. Once this data is analyzed, the software begins to learn how to handle different assigned tasks. These tasks then begin to be carried out automatically by the software. The software then continues to self-learn and engages in constant improvement to better its ability and efficiency in analyzing the data and completing its assigned tasks. AI- Power adaptive learning systems personalize learning experiences by tailoring content based on the pace and needs of students. In accounting education, this allows learners to gain a deeper understanding of core concepts at their own speed, ensuring better engagement with topics like financial reporting and auditing

Virtual Reality (VR) and Augmented Reality (AR): is a type of disruptive technology that is refers to the simulation of human-like intelligence in virtual environments, enabling machines to interact, learn and adapt in complex dynamic situations. VR/AR is a technology that overlays digital information, images or objects onto the real world using a device camera, display and sensors. VR/AR technologies simulate real-world accounting environments, giving students hand-on experience without the risks associated with real financial transaction. It can be used to create virtual auditing scenarios or simulated accounting processes improving students, practical skills.

Methodology

The study adopted a descriptive survey research design. The rationale behind this choice was that it explains how the disruptive technology is relevant to accounting education curriculum. The population of this study was thirty (30) business education lecturers in Ahmadu Bello University, Zaria Nigeria and Abubakar Tafawa Balewa University, Bauchi, and due to the small number of the respondents, the whole population was used meaning that purposive sampling techniques was adopted. A self-structured instrument tagged: "Disruptive Technology on Accounting Education Curriculum Instrument (DTAECI)" validated through face and content validity by three experts in the field of Business Education was used for the study. The instrument was designed on 4-point scale of Strongly Agree (SA) 4, Agree (A) 3, Disagree (D) 2 and Strongly Disagree (SD) 1. Cronbach Alpha reliability coefficient was used to determine the reliability index and the instrument yielded a reliability coefficient of 0.84 which was high enough for the instrument to be considered reliable. Mean and standard deviation was used to answer the research questions. Any item equal or above 2.50 was considered strongly agreed and agreed while any item below 2.50 was considered strongly disagreed and disagreed. Independent sample t-test analysis was used to test the null hypothesis at a significant level of 0.05.

Presentation of Results

Research Question 1: What is the relevance of artificial intelligence (AI) adaptive learning systems on accounting education curriculum among public universities in Northern Nigeria.?

Table 1: Mean and Standard Deviation on the relevance of AI Adaptive learning systems on accounting education curriculum among public university in Northern Nigeria



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S/N	ITEMS	MEAN	STANDARD DEVIATION	DECISION
1.	AI powered system provide relevant and up-to-date resources such as quizzes, videos, case studies for accounting education curriculum	2.12	0.81	D
2.	Personalized learning paths are provided based on individual learner data within the accounting education curriculum	2.12	0.81	D
3.	Students frequently interact with virtual tutors or Chabot's to solve accounting related queries	2.32	0.79	D
4.	The learning analytics dashboard provides useful insights into students' progress in accounting education curriculum	2.40	0.90	D
5.	The accounting curriculum incorporates feedback from AI adaptive learning to improve course content	2.41	0.91	D
6.	The AI adaptive learning system allows students to progress at their own pace through the accounting education curriculum.	2.33	0.78	D
7.	Lecturers find the AI adapting learning system easy to navigate and manage	2.40	0.90	D
	Weighted mean	2.31	0.84	D

Source: Research work, 2024

Result in table 1 showed the weighted mean score of 2.31 and standard deviation of 0.84 which is below the benchmark of 2.5, the result indicates a general disagreement regarding the relevance of AI adaptive learning systems on the accounting curriculum in universities in Nigeria. This implies that AI adaptive learning system is not relevant in accounting education curriculum in universities in Nigeria.

Research Question 2: What is the relevance of visual reality and augmented reality (VR/AR) simulations in accounting education curriculum among public universities in Northern Nigeria?

Table 2: Mean and Standard Deviation on the relevance of VR/AR simulations on accounting education curriculum among public university in Northern Nigeria

S/N	ITEMS	MEAN	STANDARD DEVIATION	DECISION
1.	VR/AR simulation hardware (e.g headsets or controllers) are incorporated into the accounting education curriculum	2.48	0.76	D
2.	The software platform provides a user-friendly interface for accessing VR/AR accounting modules.	2.12	0.81	D
3.	VR/AR simulation offers realistic scenarios relevant to real-world accounting tasks such as financial reporting, auditing.	2.40	0.73	D
4.	The VR/AR interface is intuitive and easy to navigate for both students and lecturers	2.21	0.81	D
5.	The integration of VR/AR simulations supports experiential learning within the accounting curriculum	2.39	0.73	D
6.	The VR/AR platform allows students to interact and collaborate within shared virtual spaces	2.12	0.81	D
7.	Students receive real-time feedback on their performance during VR/AR accounting simulation	2.40	0.73	D
	Weighted mean	2.30	0.77	D

Source: Research work, 2024.



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Result in table 2 showed a weighted mean score of 2.30 and standard deviation of 0.77, which is below the benchmark of 2.5, the result indicates a disagreement on the relevance of VR/AR simulations in accounting education. This implies that VR/AR simulations are not relevance in accounting education curriculum in university in Nigeria.

Test of Null Hypotheses

The results of the four null hypotheses which were tested as 0.05 level of significant are presented in table 3 and 4.

Null Hypothesis 1: Artificial intelligence (AI) adaptive learning systems has no relevance on accounting education curriculum among public universities in Northern Nigeria.

Table 3: independent sample t-test on relevance of AI Adaptive learning systems on accounting education curriculum among public university in Northern Nigeria

Variable	Mean	SD	Test value	t-test	P.value	Decision
AI adaptive learning system	2.31	0.84	2.5	-1.99	0.052	Retained

The result obtained in table 3 shows the mean score of 2.31, the t-test of -1.99 which is less than the test value of 2.5, with a p-value of 0.052 which is greater than 0.05 level of significant, the result is not statistically significant, the null hypothesis is therefore retained, which implies that Artificial intelligence (AI) adaptive learning systems has no relevance in accounting education curriculum among public universities in Northern Nigeria.

Null Hypothesis 2: Visual reality and augmented reality (VR/AR) simulations has no relevance on accounting education curriculum among public universities in Northern Nigeria.

Table 4: independent sample t-test on relevance of VR/AR simulations on accounting education curriculum among public university in Northern Nigeria

Variable	Mean	SD	Test value	t-test	P-value	Decision
VR/AR Simulation	2.30	0.77	2.5	-0.46	0.648	Retained

The test of hypothesis in table 4 shows the mean score of 2.30, the t-test of -0.46 which is less than the test value of 2.5, with a p-value of 0.648 which is greater than 0.05 level of significant, the result is not statistically significant, the null hypothesis is therefore retained, which implies that Visual reality and augmented reality (VR/AR) simulations has no relevance on accounting education curriculum among public universities in Northern Nigeria.

Discussion of Findings

The test of null hypothesis one as shown in table 3, revealed that Artificial intelligence (AI) adaptive learning systems has no relevance on accounting education curriculum in universities in Nigeria. The result agreed with that of Osuala and Ezenwafor (2012) who observed that most of the new technologies were not available in teaching and learning business education.

The test of null hypothesis two as shown in table 4, revealed that Visual reality and augmented reality (VR/AR) simulations has no relevance on accounting education curriculum in universities in Nigeria. The result agreed with that of Islam and Selim (2006) in their study in Bangladesh who concluded that e-learning has gained wide popularity in institutions in developed countries but unfortunately in developing countries, it was still a dream due to very high cost of ICT infrastructure and many other socio-economic factors.

Conclusion

Based on the findings of the study, it was concluded that disruptive technologies has not been integrated in accounting education curriculum among public universities in Northern Nigeria. However integration of disruption technologies into the accounting education curriculum in universities in Nigeria is critical for producing competent and industry-ready graduates. These technologies enhance the curriculum by promoting practical, flexible and engaging learning experiences.

Recommendations

1. Curriculum planners should regularly review and update the accounting education curriculum to integrate disruptive technologies such as AI and VR/AR into course structures, teaching and learning.
2. The government, university management and private organizations should invest in reliable internet access, uninterrupted power supply and digital infrastructure to facilitate the use of AI adaptive learning systems and VR/AR technologies.
3. University management should provide Training program for lectures to improve their skills in using the disruptive technologies.

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