DISRUPTIVE TECHNOLOGY AND ACCOUNTING EDUCATION IN NIGERIA FEDERAL UNIVERSITIES: ISSUES, CHALLENGES, AND WAY FORWARD

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Abstract

This study aims to examine the effect of Disruptive Technology on accounting education in Nigeria federal universities. The dimension of Disruptive Technology is Electronic Learning (e-Learning) while the measures of accounting education are quality accounting education and reduction in loss of academic time in teaching and learning of accounting. The study explored the perceptions of Accounting Students and Lecturers on Disruptive Technology and accounting education amidst issues and challenges of paucity of funds, incessant shutdown of academic activities caused by industrial actions by staff unions and lockdowns caused by pandemics such as COVID-19. It used Expansive Learning theory as its theoretical underpinning and adopted quasi-experimental research design. Data were collected through Online Survey questionnaire which was distributed and collated in April, 2022. Descriptive Statistics was used in data analysis. The results show that accounting students and lecturers are favorably disposed to the adoption of e-Learning in teaching and learning of accounting. The findings also support that e-Learning will improve the quality of accounting education and help reduce teaching and learning losses during periods of industrial actions and lockdowns when adopted. The study concludes that e-Learning has a positive influence on accounting education in Nigeria federal Universities. Therefore, recommends that Nigeria Universities Commission (NUC) should as a matter of urgency adopt Hybrid Teaching Mode which incorporates disruptive technology such as e-Learning to the traditional mode of teaching and learning to help recover learning losses from pandemic-related and strike-related university closures and for improved quality of education. The Federal Government should provide adequate funds for federal Universities to avert incessant strikes.

Keywords: Disruptive Technology, e-Learning, Accounting Education and Nigeria Federal Universities.

1. Introduction

Over time, accounting education has been very pivotal in determining the quality of accounting profession. Zhang, Dai and Vasarhelyi (2018) argued that the rate of change in technology continually disrupts traditional processes in every area of life. Therefore, accounting education will not be an exception in this Fourth Industrial Revolution (4IR) age. Consequently, it is very imperative for all stakeholders in accounting education to devise novel and innovative processes and methods for effective teaching and learning of accounting in the universities in general and federal universities in Nigeria in this Disruptive Technology (DT) era. Zhang, Dai and Vasarhelyi (2018) revealed that students who graduate from the traditional accounting programmes do not possess the skills and knowledge required by businesses particularly in

enterprises that require high-level automation and Artificial Intelligence (AI), therefore creating a mismatch. Afolabi (2014) contended that though accounting graduates are computer literates, they possessed inadequate skills in accounting principles, procedures and initiatives.

DT is presently taking the world by storm. Gould (2017) asserted that accounting profession is radically changing, driven by DT and changing practices. According to Ibrahim, Sallha & Rashid, (2020), DT arose as a result of the progress of Big Data, AI and Cloud. DT examples include: Online News Sites and Platforms, e-Learning, AI, Internet of Things (IoT), Blockchain, Robotic Process Automations (RPA), e-Commerce, Advanced Analytics, Ride-Sharing Apps, GPS Systems (Corporate Finance Institute (CFI), 2022; Housley, 2015; Christensen, Raynor & McDonald, 2015).

The DT of focus in this paper is DTs in education. Dikusar 2018 asserted that DTs in education include: o-Learning; Chat-Based Collaboration Platforms. Sale (2002) cited by Ogedegbe and Oyaniyi (2010) defined e-Learning as the utilization of electronic technology to convey education and training applications, monitor the performance of learners and report their progress. Ajegbomogun, Okunlaya and Alawiye (2017) opined that easy delivering of educational content is boosted by e-Learning. SHIFTeLearning (2018) stated that due to the necessity to effectively and efficiently disseminate education, limiting learning into the confine of four walls of classrooms was no longer possible. Ogedegbe and Oyaniyi (2010) then concluded that e-Learning is the larger umbrella covering Online Learning (o-Learning), Digital Learning (d-Online) and Mobile Learning (m-Learning).

The traditional mode of teaching students of all disciplines, accounting students inclusive over these years in majority of Nigeria federal universities has remained majorly in-person teaching method, also referred to as face-to-face studies or on-campus teaching or campus-based teaching or one-on-one teaching, this mode requires students to be physically present in the four walls of the universities for their academic activities. This traditional mode of teaching is susceptible to lots of problems.

This study was motivated by firstly, the issue of poor funding which leads to lack of key infrastructure in the federal universities generally (Ogunode & Abubakar, 2020) and accounting departments specifically; lack of cutting-edge technological facilities for teaching and learning like internet facilities, smart boards and other Information and Communication Technologies (ICT). Secondly, Coronavirus (COVID-19) pandemic brought about the issue of lockdown of several institutions globally in a bid to forestall further spread of the virus (NCDC, 2022). No one knows the next pandemic, the virus or the severity that will come with it.

Finally, there is the problem of incessant strike actions in the public university system (Ogunode & Abubakar, 2020) making the workers withdraw their services. In 2022 in Nigeria, there are currently strike actions by the four (4) staff unions in the federal universities. Academic Staff

Union of Universities (ASUU) started theirs on February 14, 2022, National Association of Academic Technologists (NAAT) started on March 21, 2022, Senior Staff Union of Nigerian Universities (SSANU) and Non-Academic Staff Union of Educational and Associated Institutions (NASU) joined on March 28, 2022 (Agbakwuru & Nwabughiogu, 2022; Lawal, 2022).

Consequently, from February 14, 2022 there has been complete shutdown of all academic activities in the federal universities in Nigeria up till the time of completing this study in April, 2022. These breaks in academic activities result in loss of academic time for the students and lectures with several negative consequences for the students, lecturers and the society at large. These delays cause the extension of students' graduation time; the delay in admission of millions of secondary school-leavers; increase in youth restiveness and other social vices due to idleness; loss of zeal for education by the students, among many more others.

Every trade union is entitled to industrial actions according to labour laws, so also are students entitled to learning based on the contractual agreement of paying school fees and being entitled to the education they paid for as at when due.

The aim of this study is to examine the effect of DT on accounting education in federal universities in Nigeria. The specific objectives are: to determine the effect of e-learning on quality accounting education and to ascertain the influence of e-learning on reduction of loss of teaching and learning time (academic time) occasioned by frequent academic shutdowns and lockdowns. Hence, the key research question that arises in this study is: can federal universities in Nigeria leverage on DT in accounting education? Other sub-research questions include: does e-learning have an effect on quality accounting education? Can e-learning be effectively deployed to reduce loss of academic time occasioned by frequent academic shutdowns and lockdowns?

The scope of the study covers accounting students and lecturers in the federal universities excluding National Open University of Nigeria (NOUN) and Open and Distant education programmes in some federal universities. It is delimited to issues pertaining to DT and Accounting Education. It focused on the proxy of the exogenous variable DT, e-learning and the measures of the endogenous variable accounting education: quality accounting education and reduction of loss of academic time. The researchers went further to proffer simple and innovative ways forward to achieving quality and sustainable accounting education for accounting students and ease of delivering quality accounting contents by accounting lecturers seamlessly in this DT era witnessed in the present 4IR.

Several researchers have studied e-learning and education like Osuji and Nwoke (2019), Olutola and Olatoye (2018), Ajegbomogun, et al. (2017), Islam and Selim (2006) but there is a gap in knowledge on studies on DTs such as e-learning and accounting education amidst issues and challenges of paucity of funds, incessant shutdown of academic activities caused by industrial actions by various staff unions and lockdowns caused by pandemics such as COVID-19

pandemic. There is also a period gap in the time these other researches were carried out as some of them do not reflect current realities.

This study is significant to governments, students, lecturers, parents, guardians, policy-makers in the education sector and the general public. It is timely and solution-driven in its approach as it brings transformational change in teaching and learning of accounting in federal universities in Nigeria.

This section is the introductory part of the study. The second and third sections comprise of literature review and methodology respectively. The fourth section is findings and discussion. Finally, the fifth section contains issues, challenges and ways forward alongside conclusions and contributions to knowledge.

2. Literature Review

2.1 Conceptual Review

2.1.1 Disruptive Technology (DT)

DT creates an entirely new industry or product by displacing conventional technology (Anam, 2019). According to Dawsey (2022), five (5) DTs in education are Online learning (o-Learning), Artificial Intelligence (AI) Guided learning, Chat-Based collaboration, Virtual and Augmented Reality (VR and AR). E-learning is disrupting conventional classroom learning (U-EENI, 2022). Hence, DT is conceptualized in this study as that technological innovation that majorly changes the processes, procedures or methods enterprises, institutions, industries operate their affairs. Bower and Christensen (1995) asserted that managers should be mindful of overlooking new technologies.

2.1.2 E-Learning

According to Hedge and Hayward (2004) cited in Gunga (2010) e-learning is an innovative methodology for conveying electronically facilitated, learner-centered, well-designed, and interactive learning environment to anybody at any time and at any place through the utilization of the internet and digital technology. Osuji and Nwoke (2019) defined e-learning as the method of accessing online teaching, learning and research materials with the application of ICT facilities.

Some authors erroneously use distance learning and e-Learning interchangeably, though in some cases the two do overlap but they are by no means the same (Guri-Rosenblit, 2005). Distance education philosophy is basically to make education/learning reach adiverse people from different and remote locations globally while e-learning enhances learning electronically even with the students and teachers being in the same building.

Ogedegbe and Oyaniyi (2010) opined that m-Learning is under the umbrella of e-Learning. Therefore, m-Learning is theorized in this study as a part of e-Learning whose tools comprises of hand-held mobile devices and palmtops that are not just electronic and digital but also mobile as

it is usable on the go. Consequently, digital learning (d-Learning), mobile learning (m-Learning) and online learning (o-Learning) are to be conceptualized in this study as components of electronic learning (e-Learning). The focus of this study is on e-Learning and not Open and Distance Learning.

2.1.3 Federal Universities and Regulatory Frameworks in Accounting Education in Nigeria

As at March 2022, there are forty-nine (49) federal universities in Nigeria including National Open University of Nigeria (NOUN) (NUC, 2022). For this study, NOUN is excluded because they run an exclusive Open and Distant Education. Federal Universities of Agriculture, Health Sciences and Technology that do not offer accounting are excluded in this study as well.

National Universities Commission (NUC) is the government agency under the Federal Ministry of Education that oversees management and development of quality university education in Nigeria. One of their functions is to initiate and encourage expertise in ICT usage for delivering services both in the commission and the university system in Nigeria (NUC, 2022).

There are two Professional Accounting Bodies enacted by the Act of the Parliament saddled with the responsibility of ensuring the professional and educational development of Accountants, they are Institute of Chartered Accountants of Nigeria (ICAN) and Association of National Accountants of Nigeria (ANAN) (Uche, 2002 cited in Akhidime & Eriabie, 2013).

Departments of Accounting in various Universities have their core mandate in providing accounting education to both Undergraduate and Post-graduate programmes in order to award Accounting degrees such as Bachelor of Science (B.Sc.) for Undergraduate students; Post-Graduate Diploma (PGD), Master of Science (M.Sc.), Master of Business Administration (MBA), Doctor of Philosophy (Ph.D) for Graduate students with options of Full-Time or Part-Time Study Programmes (Department of Accounting Brochure University of Port Harcourt, 2018).

2.1.4 Accounting Education

Accounting is defined as the art and science of collecting, recording, measuring, classifying, analyzing, summarizing, presenting and interpreting financial and non-financial information to users for decision making (Association of Accountancy Bodies in West Africa (ABWA), 2009; Rankin et al., 2012; AICPA 1941 cited in Hamm, 2002; Pyle 1977 cited in Ama, 2000). The scope of Accounting covers Financial Accounting, Auditing, Management Accounting, Performance Management, Financial Management, Taxation, Forensic Accounting, Auditing, Public Sector Accounting, Social and Environmental Accounting (ABWA, 2009). Accounting education is the transfer of knowledge of standards and principles of accounting to individuals (Okolie, 2013). For this study, accounting education is conceptualized as the process of teaching and learning accounting in the Universities.

2.1.5 Quality Accounting Education

The word quality has been defined from different dimensions by different authors. Munasinghe and Bandara 2014 proposed six (6) quality dimensions for accounting education to be: Tangibles such as satisfactory campus facilities, handiness of modern equipment and computer laboratories; Curriculum which comprises of transferable and flexibility of knowledge and skills, relevance to future jobs; Competence which includes adequate academic staff with requisite academic and professional qualifications and research skills, utilization of emerging technologies as a tool in teaching and learning. Others are Assessments and Monitoring; Corporate Collaboration and finally Counseling. Hence, quality accounting education is conceptualized in this study as the excellence in the teaching and learning of accounting in the Universities.

2.1.6 Loss of Academic Time in Teaching and Learning of Accounting in Federal Universities

Loss of academic time in teaching and learning arises when the time for studies are lost by circumstances beyond the control of both the students and the lecturers. The losses could be strike-related or pandemic-related university closures.

2.2 Theoretical Framework

This study is anchored on Expansive learning theory formulated by Engestrom in 1987. This theory is an extension of Activity Theory that was framed from Vygostsky's model of human activity of 1978 (Flavin, 2012; Engestrom & Sannino, 2009). Activity theory posits that actions by humans do not arise as a direct transmission between object and subject but through the intervention of tools. Expansive learning model added social elements to the activity model by infusing three social elements which are: rules, community and division of labour. Rules signify the regulations and conventions guiding the activity; community denotes those the activity impact on and division of labour embodies how the work in the activity is shared to different persons and the hierarchy (Flavin, 2012).

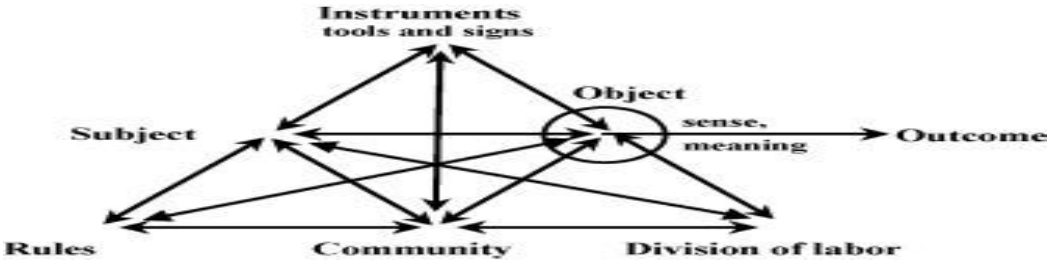

Fig. 1.1 Expansive learning Model
Source: Engestrom & Sannino, 2009

This theory is considered germane due to the urgent need to explore disruptive technology tool like e-Learning to getting high-quality and uninterrupted teaching and learning outcome amidst the social elements or factors affecting accounting education in Nigeria federal universities. Rules could be likened to NUC guidelines for accreditation of accounting education in the universities and laws on the adoption of e-Learning as an add-on to the traditional mode of

teaching. Community could be likened to students, lecturers, management, staff unions, the university community and the society at large. Division of labour could be equated to how the duties in the university are shared between different persons in hierarchical order like the Vice Chancellor, Deans, and Heads of Departments.

2.3. Empirical Review

Several related empirical works have been carried out by researchers. In Nigeria, Osuji and Nwoke (2019) in their study discovered that Pre-Service teachers had positive perceptions on the importance of e-learning in science education and that e-learning positively impacts on the training of these teachers in higher institutions. Similarly in Poland, Grabinski, Kedzior and Krasodomska (2015) results showed a positive perception of students to blended learning. They found that the major setbacks of e-classes are the students' inability to ask questions regularly and teachers cannot be contacted directly as it was in the traditional mode of teaching.

Islam and Selim (2006) in their study in Bangladesh 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. In Nigeria, which is a developing country, Ogedegbe and Oyaniyi (2010) found that emphasis needs to be made in the application of e-Learning and m-Learning to all levels of education consisting of primary, secondary and tertiary levels. They concluded that ICT plays a very key role in the educational system and recommended that government should have agreement with major ICT firms like CISCO, Microsoft and other stakeholders to extend the knowledge and the use of ICT.

Olutola and Olatoye (2018) studied the Assessment of E-Learning Resources Utilization by Students of Tertiary Institutions in Katsina State, Nigeria while Ajegbomogun, et al. (2017) studied Analytical Study of E-learning Resources in National Open University of Nigeria (NOUN) using Abeokuta study center, Ogun State as a case study. Olutola and Olatoye (2018) found no significant gender based and age based differences in utilization of e-learning by students in these institutions in Katsina state but there is significant difference as regards to institutions and class levels. However, most of the respondents in Ajegbomogun, et al. (2017) affirmed the availability and accessibility of the e-learning resources in the Abeokuta Study Center of NOUN, but they experienced irregular power supply and frequent breakdown of the server.

Bupo and Ndinechi (2015) in their study in Anambra State, they found that students in the tertiary institutions in the State usually go online to check for their results and other educating material and often read e-books and e-journals and other e-learning applications. They recommended that e-learning platforms should be introduced as a learning management system for tertiary institutions.

Akhidime and Eriabie (2013) in their study Educational Development and Production of Accountants in Nigeria: Challenges and Way Forward, identified that the late take-off of accounting education in Nigeria; the inherent limitations in the tertiary institutions and the poor handling of the production of professional accountants by ICAN and ANAN were the hindrances on accounting education development and the production of the desired quality of accounting professionals in Nigeria.

Berechet and Istrimschi (2011) studied Becoming a Modern University, from Real Approaches to Virtual Challenges. They found that new ICT in educational and research field such as virtual classroom, e-Learning, videoconferences, digital television can help to increase the interest people have in acquiring knowledge and break the distance barrier in communication. They concluded that for universities to reach its desired goal of being modern and efficient in service delivery, they should combine traditional methods of teaching with the modern ways brought about by ICT innovations. They described digitization and virtualization of education and research as a must-have for all institutions now.

Overall, this study recognized a gap in knowledge of previous studies above as many of the previous studies failed to emphasize the association between DT and accounting education in Nigeria federal universities. The measures of the dependent variable: quality accounting education and reduction of loss of academic time caused by frequent strike actions and lockdowns; and the proxy of the independent variable e-learning were scarcely linked as well. The currency of the previous studies is also a gap as this study used current data and information to present current realities. Hence, adding new knowledge to the body of knowledge.

3. Methodology

The study adopted quasi-experimental research design and data were collected through Online Survey questionnaire. Literal facts were obtained from journals, on-line publications and other secondary sources. The online questionnaire was distributed and collated in April, 2022. Descriptive Statistics was used in data analysis as tables and percentages were presented using excel spreadsheet for easy understanding of the degree of agreements of the respondents on a particular survey question. The population of this study is students and lecturers that partake in teaching and learning of accounting in federal universities in Nigeria. The target population is accounting students and lecturers in Department of Accounting, University of Port Harcourt, Rivers State, Nigeria. The accessible population is Accounting Students and Lecturers in online WhatsApp Groups of Department of Accounting lecturers and Full-Time undergraduate students in 200, 300 and 400 (Final) Levels in University Port Harcourt. 100 Level (Year-1) students were exempted in this study because they have not started studying core accounting courses (Department of Accounting Brochure University of Port Harcourt, 2018).

Online survey was utilized due to the absence of students and lecturers in university premises due the strike actions. Online Surveys and the use of WhatsApp Groups are part of DTs in use in

research (Chen, Wang and Tang, 2021; Jailobaev, Jailobaeva, Baialieva & Baialieva, 2021). Consequently, the distribution of the survey questionnaire was done through the different Class WhatsApp Groups of the students and lecturers. The Class Representatives assisted in sharing the survey in these WhatsApp Groups for the participation of the students. Census sampling was used as all the members of the WhatsApp Groups that make up the accessible population were given the opportunity to respond to the questionnaire.

The researchers used 5-Point Likert scale and the responses were subjected to ratings of 0-4 below:

SA = Strongly Agree	4
A = Agree	3
U = Undecided	2
D = Disagree	1
SD = Strongly Disagree	0

4. Results and Discussion

Table 1 Analysis of respondents in the WhatsApp Groups as at April, 2022

S/N	Class of Respondents	Population of Respondents
1	Accounting Lecturers	17
2	400 Level Students	232
3	300 Level Students	194
4	200 Level Students	243
	Total	**686**

Out of the 686 respondents that make up the sample size, the overall responses were 214 representing 31.20% of the total respondents. This response rate is favourable when compared with previous studies (Okwuosa, 2021).

Table 2 Summary of Responses (Expressed in percentages).

S/N	QUESTIONS	SA	A	U	D	SD
1	Disruptive Technology such as Electronic Learning (e-Learning) should be adopted in teaching and learning of accounting in federal universities in Nigeria.	**25%**	**59%**	**9%**	**6%**	**1%**
2	Hybrid-Teaching method which is the combination of e-Learning and Traditional face-to-face teaching should be adopted in teaching and learning of accounting in Nigeria federal universities.	**72%**	**20%**	**6%**	**1%**	**1%**
3	E-Learning will improve the quality of teaching and learning of accounting in federal universities in Nigeria.	**53%**	**32%**	**7%**	**5%**	**3%**
4	E-Learning will help to reduce the loss of academic time in teaching and learning of accounting during periods of strike actions by different staff unions in the federal	**69%**	**26%**	**4%**	**1%**	**0%**

	universities in Nigeria and lockdown caused by pandemics such as COVID-19.					

Generally, from the responses, there is a positive disposition of accounting students and lecturers on DT and its effect on accounting education as 25% and 59% supports the use of e-Learning in teaching and learning of accounting, making it a total of 84% of respondents who responded positively. 9% were undecided, whereas 6% and 1% disagreed and strongly disagreed respectively. A total of 92% of the respondents were favourably disposed to the adoption of Hybrid-Teaching Method which is the combination of e-Learning and Traditional face-to-face teaching in line with the study of Grabinski, Kedzior and Krasodomska (2015). The findings also support that e-Learning will improve the quality of accounting education with a total of 85% favourable responses concurring with the findings of Berechet and Istrimschi (2011). 95% of the respondents have the perception that e-learning will help reduce loss of academic time in teaching and learning of accounting during periods of industrial actions and lockdowns.

5. Summary and Conclusion

5.1 Summary of Issues, Challenges and Ways Forward

In this section, issues, challenges and ways forward in accounting education using DT are summarized as a follow up to the perceptions of respondents.

5.1.1 Issues

There are critical issues that ensure effective deployment of DT such as e-Learning in accounting education in Nigeria federal universities. They are discussed below.

The Structure of Courses in Accounting Discipline

Gunga (2010) opined that the internal structure of a discipline and the technical language are major determinants in the instructional method to be deployed during teacher-learner interchange and adoption of e-learning. Where the assimilation of accounting education by students during the one-on-one teachings is difficult in ordinary pedagogy, implementing e-learning might be more difficult. Therefore, deploying an effective e-Learning requires devising an interesting innovative approach that would ignite a renewed interest of the students to understand the courses in accounting and a new zeal for the lecturers to lecture well.

The Issue of which e-Learning Tool to Use.

Deciding on which e-learning tool to use in each of the federal universities should be based on some factors such as financial capabilities of the institutions, the location and the stage of their development. The issue of the best tools that can effectively track the progress of learning and the contents accessed by the users should be considered critically.

5.2.3 Regulations, Standardization and Monitoring of e-Learning

The issue of standard regulations, guidelines and monitoring on the use of e-learning in federal universities should be critically investigated by NUC and the professional bodies in Accounting else, different universities will use any standard it pleases, therefore affecting the standard of quality service delivery of accounting education.

5.2.4 Security and Privacy of the University Database

This is a major issue of discussion in e-learning environments. Discussions should be on exploring the best e-learning tools that will safeguard the database of staff, students and course materials. Every ICT environment possesses a risk for its users including accessibility and privacy, hence measures of reducing these risks should be considered in the usage of e-learning.

Physical security of e-learning tools and infrastructure should be well-thought-out. The issue of loss of the gadgets or accidental damage of fragile equipment by staff or students is a crucial matter to be considered as well.

Natural Resistance to Change

The natural resistance to change is a natural human factor. Both lecturers and students might initially resist the usage of DT. This is in line with the theory of Disruption by Christensen as new processes are usually challenged by incumbents (Christensen, Raynor & McDonald, 2015). It is until they are made to understand the benefits and objectives of its usage that they will key into it wholeheartedly.

Skill Development

E-learning encourages self-directed learning therefore, its effective usage requires skills such as time management, goal setting, problem solving and self-reflection and developing. These skills take practice and time to build by users.

5.1.2 Challenges

The several challenges in the adoption of e-learning as a mode of teaching and learning accounting in the federal universities include:

Funding

Many authors have widely written on the funding problems faced by university education in Nigeria and this has been a perennial issue caused by poor budgetary allocation to education generally in Nigeria compared to the population of the students (Okolie, 2013).

Infrastructural Challenges

There are several infrastructural challenges in the University, however the challenge in focus here is ICT equipment and e-learning enabling gadgets such as laptops, computers, accounting software for training the students; internet subscriptions, power supply; problem of

inaccessibility of telecom services in some areas where federal universities are located; poor or no intra-connectivity of the faculties and departments with the university central ICT facilities. Students and lecturers also suffer some personal infrastructural challenges that can hinder effective e-learning usage such as: high cost of data to use the internet; high cost of hand-held mobile devises such as smart phones (Android phone), palmtops and their accessories; security of their personal e-learning gadgets, among others.

Frequent Strike Actions by Staff Unions

With all the industrial actions by the different staff unions in the federal universities in Nigeria, completing the course work by the lecturers becomes nearly difficult and this results in rushing of academic activities whenever the strikes are called off. Students also tend to forget most of what they have learnt before the strikes and also loose the zeal to read.

5.1.3 Ways Forward

Following the Expansive learning theory which this study is hinged on and positive perceptions from respondents, the researchers suggest the ways forward for an effective utilization of DT such as e-Learning tool that would be convenient, seamless and promote uninterrupted teaching and learning that would ultimately give the desired outcome of quality accounting graduates with robust consideration of all the social elements.

Adoption of Hybrid Teaching Mode

This study recommends that integrating e-Learning as an add-on to the traditional mode of teaching and learning is a way forward to bridging the gaps created in academic activities caused by lockdowns and frequent industrial actions. Hybrid-Teaching mode is the method of adopting both physical and virtual means of learning as a generally acceptable mode of teaching. Adopting this mode and using it effectively will enable in giving the students adequate, uninterrupted and sustainable accounting education.

Choice of e-learning Systems

E-learning systems recommended are: Web-Based Course Management Systems (WBCMS) and m-Learning-Based Systems (mLBS) or a combination of both in accounting education in the federal universities.

1 Web-Based Course Management Systems (WBCMS)

Web-Based Course Management System (WBCMS) is a system with a database back-end that aids teaching and learning and manages course activities and tasks (Aljawarneh, et al., 2010). Their advantages include good security and privacy that: control student access, guest access, protects lecturer's intellectual property and students' privacy; prevents hackers and crackers from copyrighted materials; update and release course materials selectively and logging of assignments submitted. WBCMS encourages paperless learning; it is convenient, comfortable and makes teaching and learning easier. Examples of available WBCMS e-learning systems are WebCT, MOODLE, WebBoard and Blackboard (Aljawarneh, et al., 2010).

2 M-learning-Based System (mLBS)

M-learning is the transmission of education content via social and content interactions which can be conveniently accessed from anywhere using personal electronic mobile devices. mLBS uses hand-held devices and portable technologies such as mobile phones and tablets, handheld computers, mp3 players, notebooks. They are also simple and easy-to-use-tech-tools.

Fombona, Pascual-Sevillano and Gonzalez-Videgaray (2017) stated that m-Learning gives quite different, greater and easy accessibility to information and sometimes comes along with unequalled innovations like playful activities, informal and friendly interactions, iconic virtual, membership of specific groups and networks and much more interesting innovations.

The researchers put forward four (4) simple and innovative m-Learning solutions that can be used to teach accounting students. They are:

a E-Lecture Notes: These are lecture notes converted into electronic forms which the students can freely download through their emails, WhatsApp, Facebook, Telegram etc. These e-Lecture notes can contain any or a combination of texts, symbols, formula and images. Simple mobile applications (Apps) such as WPS and Canva can be easily used to produce e-lecture notes for students.

b Master Classes: This is the ability to conduct classes using on-line-real-time Webinar Apps such as Zoom, Google Classroom, Google Meet, GoToWebinar, Conference Calls, Facebook, WhatsApp, You-Tube etc., most of which can be recorded and the videos watched later by the students who miss the live broadcast.

c Online Video Courses: This is a way of creating videos that the students can gain access to and learn at their own pace.

d Audio Programmes: Here, the lecturer converts his or her classes to Audio files that the students will listen to.

For an effective usage of e-learning tools, resources such as trackers, alarms, planners can help students manage their learning. These give students more responsibility and help them build the necessary skills as they learn to manage learning by themselves. In the period of physical schooling/in-person schooling, students rely on their lecturers to set learning goals, planning and time management for them. Sometimes the Course-Representatives (Course-Reps) are the ones reminding the course-mates time for lectures, but in e-learning, learning time and goals are set by the students themselves as the materials are online for them to learn at their convenience anytime anywhere. There are also opportunities for one-on-one coaching and question and answer sessions through video calls or zoom sessions. The lecturers can make e-Learning interesting for the students by using short videos, adaptive learning games and using collaborative hands-on projects and activities.

Regulations on the Use of e-Learning and Seamless NUC Accreditation Process

NUC should come up with guidelines that will be in line with international best practices on e-Learning that will cover issues of philosophy; objectives; curriculum and pedagogy. There should be a minimum benchmark that any university that wishes to use e-Learning should attain before it can be accredited. The process of accreditation should be seamless and not fraught with bureaucratic bottlenecks inherent in the public sector administration in Nigeria. Quality Assurance and Quality Control (QA/QC) Units of these universities should be empowered internally to monitor compliance to standards in e-Learning.

Enlightenment Campaigns, Trainings and Re-training of Staff

There is need for adequate enlightenment and education of all stakeholders in the University system on the need to incorporate e-Learning as an add-on to the one-on-one classroom teaching. This will encourage its easy acceptance. In addition, lecturers, students, administrative and technical staff in the Universities need to undergo trainings and re-training for an effective utilization of e-learning.

Adequate Funding of Federal Universities and Compliance to Agreements

The bottom-line of most labour union struggles in the universities is hinged on poor funding. Where enough funds are provided for infrastructure and staff welfare, cases of industrial strikes will be very minimal. Federal government should provide more funds to the federal universities to boost the infrastructural requirements needed for e-learning such as power supply, internet facilities, laptops, smart-boards, smart-phones, Web-Based Course Management Systems (WBCMS), Course Material Developments, improved staff remuneration and staff welfare. Strike can even be averted before it starts with a proper interface between the Federal government and the labour unions and compliance with agreements.

Adequate Interconnectivity of ICT in the Universities

Considering the cost of having internet facilities separately in each of the various departments, faculties, schools, colleges and units in each university, a central Information, Communication and Telecommunication Centre (ICTC) should be made functional and have effective interconnectivity with all departments, faculties, schools, colleges and units for better efficiency.

Provision of Subsidized Internet Access for Lecturers and Students

The Federal government, corporate bodies and philanthropists should assist in providing Internet access for lecturers and students by way of subsidizing their data subscriptions and other personal m-learning tools through grants.

The study concludes that e-Learning has a positive influence on accounting education in Nigeria federal universities. It further concludes that e-Learning has a positive effect on quality accounting education. Furthermore, e-Learning when deployed and effectively utilized, reduces loss of academic time occasioned by frequent academic shutdowns and lockdowns because the students can learn from home during these periods.

E-learning benefits include technological skills development and exposure, simplicity, convenience, portability and mobile learning. E-learning also helps students to develop skills like

time-management, goal-setting and problem-solving skills required in self-directed learning which is very important in their development even after graduation.

Away from what other researchers have done, this study primarily differs as it is one of the early attempts to examine the effect of DT on accounting education in Nigeria federal universities and the proxies used are distinct, therefore, adds to the growing body of knowledge with its solution-driven approach.

This study further contributes to knowledge with current data and information presenting current realities that integrating e-Learning with traditional mode of teaching and learning of accounting in the federal universities in Nigeria aids in producing quality accounting graduates. These graduates would possess cutting-edge technological and broad-based analytical skills required in the ever-dynamic business world whether as employees, captains of industry, business managers or entrepreneurs that drive economic growth and sustainable development.

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