



HARNESSING TECHNOLOGY AND DIGITALIZATION TO TRANSFORM TEACHING AND LEARNING OF BUSINESS EDUCATION PROGRAMME IN TERTIARY INSTITUTIONS IN NIGERIA

Enang, Christiana Etong, PhD

*Learning and Development Department
Office of the Head of Civil Service of the Federation
Federal Secretariat, Phase II, Abuja – Nigeria
christianaenang@yahoo.co.uk
christianaenang@gmail.com*

Abstract

Business education is a programme of study that prepares students to acquire practical skills, attitudes, understanding and knowledge relating to occupations, employability and decent work in various sectors of the economy. Teaching and learning of business education is impacted by technological advances and digitalization at the tertiary education level. This study adopted a model of digitalization that distinguishes three progressive stages in the implementation of digital strategies which can be applied to business education programme. Stage one provides the initial process to establish digital learning resources which can be accessed through shared hard drives using a Content Management System (CMS). Stage two provides online registration for school leaver applications for admission into business education programme that involves processing times, communication options and resource planning. Stage three provides a means of implementing digitalization strategy for the entire business education programme. The paper concluded that teaching and learning of business education programme, when fully digitalized would provide students with technological supports and resources to enhance their learning in the digital world. Teachers will also be enabled to use digital technologies and resources in order to enhance student learning. It was recommended, among others, that tertiary institutions offering business education programme should establish a clear vision, policies, strategies, and plans to support digital transformation. They should also collaborate with each other and education sector practitioner in order to build digital capacity for teaching and learning of business education in tertiary institutions.

Keywords: *Technology, digitalization transformation and business education programme*

Introduction

Globally, the teaching and learning process is impacted by technological advances, especially at the tertiary education level. This innovation in teaching and learning is accelerated by digitalization. Business education programme as a course of study in the tertiary institution that provides access to relevant skills training leading to employability and decent work is not left out in this scenario. ILO (2020) stated that digitalization and technological development is changing the nature of occupations and the skills required in different jobs across all economic activities. Digital transformation means that many of the existing work and tasks within traditional jobs will be modified and that some jobs may disappear. This implies that new skills will be demanded with a combination of digital skills, core employability skills as well as hard and soft skills. Harnessing technology and digitalization to transform the teaching and learning of business education programme in tertiary institutions of Nigeria is crucial. This paper highlights stages of implementing digital transformation in teaching and learning and its benefits to business education programme.

Teaching and learning in tertiary education depends on technologies especially in the new normal brought about by COVID 19 pandemic. Education generally and business education programme in particular is perceived in most countries as a means of preparing students to acquire practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of the economy and social life. According to ILO, UNESCO and World Bank Group, (2020), emphases are now on future skills and deskilling particularly learning-to-learn skills. This would allow people to adapt to future changes in the labour market through continued and lifelong learning and improving the responsiveness of educational systems to emerging trends. It also requires close cooperation between education, research and industry to allow institutions of higher learning to provide skills training in emerging areas. Furthermore, there is need



for a strong emphasis on technologies in teaching and learning to facilitate adaptation to workplaces where manual tasks are being taken over by digital tasks.

Some of the emerging technologies that can be harnessed for the teaching and learning of business education programme according to Enang (2022) include Ubiquitous Computing (UC) which enables computing power anytime, anywhere; Collaboration Technologies (CT) that facilitates the ability to collaborate with anyone in real time; Extended Reality (ER) that drives the ability to digitally simulate reality and to integrate digital and physical worlds into teaching and learning; Artificial Intelligence (AI) that enables machines to learn on their own, and interact in a human-like manner in the teaching and learning environment and BlockChain (BC) that use computers with guarantees as to privacy and security. Grech and Camilleri (2017) explained that the use of technology in every facet of life is also being advanced as an emerging means of teaching and learning especially in the new normal. Therefore, Harnessing technology and digitalization to transform teaching and learning of business education programme in tertiary institutions is fundamental.

Digitization is a conceptual term across the globe that creates a digital version of analog things and converting physical matter into digital format. For example paper documents, microfilm images, photographs into bits and bytes that define them. It is the simple process of re-representing non-digital data in a digital format that can then be used by the computing system in a variety of ways and for different functions. Thus, in this whole process, nothing of the original document is lost. While in many cases the original item is destroyed to clear up space, but in any case, it lives on in digital forms. Examples of digitization of processes includes scanning bills, documents, and files, transferring minutes of meeting and notes from paper into word document, among others. According to Marta and Agnieszka (2021), the digitization of the education process in any society or economy calls for a dynamic change, which provides great opportunities for the teacher. It is the main driver of change and innovation in the education process which is expected to be embraced by facilitators in the education process.

Digitalization of education is a powerful trend in terms of reformation and modernization of global education environment (Olga, 2017). Digitalization means transformation of all information types (texts, sounds, visuals, video and other data from various sources) into the digital language. Digitalization is also seen as the middle step between Digitization and Digital transformation towards the creation of digital revenue streams. Example is moving PDFs and word documents into a shared cloud, making personal resources with relevant data available online for seamless process of teaching and learning.

Digital Transformation of the teaching and learning processes

In the teaching and learning process, digital transformation tools and technologies such as Artificial Intelligence (AI), Internet of Things (IoT), big data, block chain, social analytics, and cloud services can enhance and change educational system and practices. Xiao (2019) stated that students are constantly interacting with technology in all aspects of their everyday lives and digital transformation offers opportunities for student engagement that are not available in the traditional classroom. Digital transformation can change education of the future through smart content, differentiated and personalized learning, global and remote learning, and administrative efficiencies (Adam, Maytha, Reem, Abedallah & Yacine R., 2020).

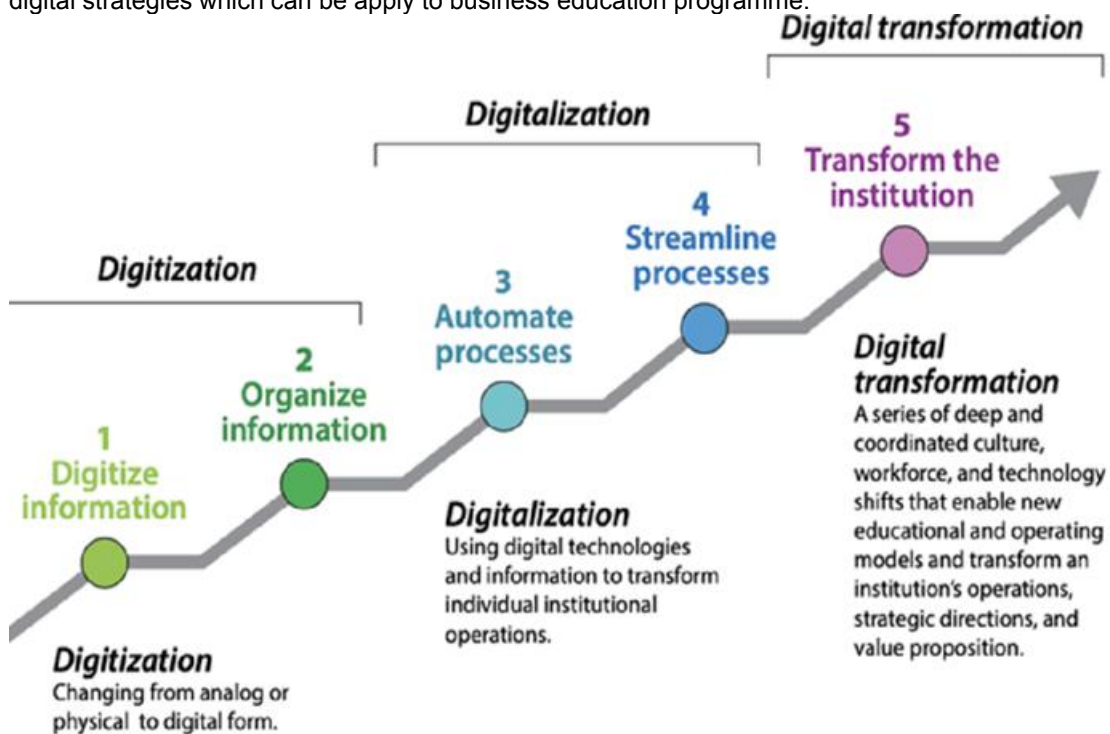
In the area of "Smart Content", teaching and learning processes using e-books, new learning platforms, virtual content such as video lectures and conferences, electronic curricula, distributed educative information across devices can be facilitated by digital transformation. Similarly, in the area of "Differentiated and Personalized Learning", digital transformation can be attained through personalized electronic tutoring customized to the learning styles and particular needs of the student. AI can be used to provide testing and feedback to students to give them challenges they are ready for, identify gaps in knowledge and re-direct new topics when appropriate. In the area of "Global and Remote Learning", digital transformation can facilitate learning from anywhere and at any time. Furthermore, it can be used to support students with homework and examination preparation remotely with advanced tutoring and study programmes. In the area of "Administrative Efficiencies", digital transformation can support higher education to shift from wondering about the future into predicting, forecasting, and shaping the future; making proactive and informed decisions and taking action based on information provided.

Digital transformation can support universities in using conventional and unconventional (unstructured), internal and external data to discover hidden patterns underlying performance in different areas, track admissions, optimize enrolment, manage grants, enhance academic advising etc. Digital transformation can help higher education institutions to know what is happening (descriptive analytics), what is likely to happen in the future (predictive analytics) and to examine trends, causes and likely



forecasts and use that information to make decisions (prescriptive analytics) that can help in the teaching and learning process and educational administration.

In the teaching and learning process, Brooks and McCormack (2020) presented a model of digitalization in education settings that distinguishes three progressive stages in the implementation of digital strategies which can be apply to business education programme.



Source: Brooks & McCormack (2020)

The model by Brooks and McCormack (2020) provides a distinction between the conversion of information to digital forms (digitization), which is the technical stage, and using the information to automate and streamline processes (digitalization), which can involve significant change in the education process that leads to digital transformation. The model can be adopted to the digital transformation of the current stage of digital development in business education programme at the tertiary education level as presented below:

Stage one provides the initial process to establish a library of digital learning resources which can be accessed internally through shared hard drives using a Content Management System (CMS). Stage two, which is digitalization, provides online registration for school leaver applications for admission into business education programme which is a more advanced digitalization of a key process, that involves a range of factors, such as processing times, communication options and resource planning. Stage three, digital transformation stage, provides a means of implementing a whole-of-system of digitalization strategy for the entire business education programme. Many institution of higher learning across the globe including Nigeria have websites with course information and provide downloadable application forms which have to be submitted manually. Some institutions are moving into online course application which can be completed without travelling to the institution. This means the process of digitization provides a seamless and easy way of teaching, learning and administration of the education processes especially at the tertiary institution of learning.

Benefits of digital transformation to Business Education Programme

The workplace is changing all over the world as a result of computerization, automation, mechanization and digitization of which Nigeria is not an exception. Okute, Enang and Etoma (2022) stated that business education programme at the tertiary education level needs to inculcate the acquisition of new sets of skills which are referred to as digital skills if graduates of the programme are to be relevant in the labour market. This is supported by the studies carried out by Helsper and Reisdorf, (2016) that public and



private organizations worldwide are embarking on digitalization of their services which is becoming a risk on the general public becoming digitally excluded. The danger of becoming digitally excluded poses a threat to all individuals who do not have the necessary skills to handle the digitization of the various services of life domains. Also, research carried out by experts in the field of digital skills like van Deursen and van Dijk (2014) and Helsper and Eynon (2013) stressed that digital skills and competences, and the ability to make use of digital media in an autonomous and strategic way, are of increasing importance to ensure full participation in the digital work environment by users.

Furthermore, the emergence of COVID-19 pandemic and the new normal provide opportunities for change in all aspects of lives including the teaching and learning process. The pandemic provide the reason to digitalize education systems to support remote learning, virtual learning and online learning. The need to sustain online delivery according to ILO (2020) remains crucial for digitalization of all aspects of education including business education programme. Tertiary institutions have a key role in the digital transformation of our societies, particularly in addressing the need for adequate skills. Lordache, Mariën, and Baelden, (2017) stated that people should be equipped with the right skills to make use of the new possibilities in their work. This is because labour markets are changing due to digitalization because digital technologies have the potential to change the way we work and interact, which is likely to create new opportunities.

Digitalization of Business Education programme provide benefits to students. Baeva and Grigorev, (2020) stated that there are positive impact of digital education on students' skills development which allows students to widely use the possibilities of individualization, interactivity, visualization, gamification of studying and it creates great opportunities for education management based on artificial intelligence and big data concerning learning outcomes and its problems. It can open up new opportunities for learning and provide creative potential for the design of educational materials and experiences. The teaching and learning process, when fully digitalized would provide students access to a range of technological supports and resources to enhance their learning in a manner that enables them to become lifelong learners in the digital world. Teachers also will be fully enabled to use digital technologies and resources where appropriate, in order to enhance student learning within their disciplines. Institutions can collaborate with each other and education sectors in order to build digital capacity for teaching and learning, with students as key partners in the process.

Readiness to harness Technology and digitalization to transform teaching and learning of business education programme

Technologies are capable of influencing the process and outcome of teaching and learning process especially business education programme if properly deployed and applied. This assertion is in line with the work of Oliveira et al., (2019), that technologies have increasingly shaped students' experiences as well as influenced their relationships with natural and physical world. It is also in tandem with the assertion of Corinne (2018) that emerging technologies have spawned the exponential development of software and AI-aided, cloud based technology that aim to adapt learning methods and customize curricula to fit each student's ability to move forward at his or her own pace.

The readiness to harness technology and digitalization to transform teaching and learning of business education programme is still far from it despite the importance of technology in teaching and learning. There are several challenges that impede the successful integration of technologies and digitalization in the teaching and learning process. Some of the major challenges identified are epileptic power supply, insufficient skills or expertise, availability and accessibility issues, funding, poor professional development, resistance to change, poor internet connections, and affordability issues. However, these challenges can be surmountable through combination of efforts by actors and stakeholders in education including educators, policy makers, curriculum planners, and students just to mention but a few. This conforms to the finding of Spector (2013), that the challenges of emerging educational technologies are interrelated, and it is not possible to address just one without taking into consideration the others.

The provision of appropriate infrastructures and facilities, trainings, funding, enabling environment, and attitudinal change are significant towards the smooth integration of emerging technologies in the teaching and learning process. Also there is need for educators to make deliberate effort towards the acquisition of digital media literacy to enhance their ability and skills to develop, and integrate relevant emerging technologies across content areas, and to fit into the modern and emerging classrooms of the 21st century, which are highly driven by technology and digitalization. According to Teachthought (2016), countless educators are making move towards the assimilation of emerging educational technologies.



Many educators and students are enthusiastic to integrate emerging technologies in the teaching and learning process despite the obvious limitations if given the enabling environment.

Technology and digital transformation in education cannot be viewed in isolation. There is need for tertiary institutions offering business education to establish a clear vision, policies, strategies, and plans to support mature digital transformation. Adam, et al. (2020) stated that institutions of higher learning should communicate such policies, strategies, and vision, and receive feedback from internal and external stakeholders to facilitate easy implementation. Institutions should hire digital transformation experts in order to align the business strategy with digital transformation. Digital transformation should not be just another task handed down to Information Technology personnel, or segmented among data owners. The difference between automation and digital transformation should be communicated, and training and awareness should be provided. There should be management support to combat resistance to change and resistance to technology and digital transformation. Digital transformation should be extended beyond the enabling processes to teaching and learning, governance, and research to course, programme, student assessment and evaluation.

Conclusion

Teaching and learning of business education is impacted by technological advances and digitalization at the tertiary education level. This study adopted a model of digitalization that distinguishes three progressive stages in the implementation of digital strategies which can be applied to business education programme. Stage one provides the initial process to establish digital learning resources which can be accessed through shared hard drives using a Content Management System (CMS). Stage two provides online registration for school leaver applications for admission into business education programme that involves processing times, communication options and resource planning. Stage three, provides a means of implementing digitalization strategy for the entire business education programme. There are positive impact of digital education on students' skills development which allows students to widely use the possibilities of individualization, interactivity, visualization, gamification of studying and it creates great opportunities for education management based on artificial intelligence and big data concerning learning outcomes and its problems. It can open up new opportunities for learning and provide creative potential for the design of educational materials and experiences. The teaching and learning process, when fully digitalized would provide students access to a range of technological supports and resources to enhance their learning in a manner that enables them to become lifelong learners in the digital world.

Recommendations

The following recommendations were drawn from the study.

1. There is need for tertiary institutions offering business education programme to establish a clear vision, policies, strategies, and plans to support digital transformation in the teaching and learning of business education programme
2. There should be change management support to combat resistance to change and resistance to technology and digital transformation by teachers and facilitators of business education programme
3. Tertiary institutions should provide avenues for professional development of business educators in the emerging technologies and digitalization process used in teaching and learning of business education programme.
4. There is need for tertiary institutions in Nigeria to update and integrate emerging technologies and digitalization into the curriculum of business education programme.
5. Adequate funding of business education programme at the tertiary education institution is recommended to ensure technology and digitalization of teaching and learning process.
6. Government should provide the enabling environment for emerging technology that supports the digitalization of business education programme in all tertiary institutions in Nigeria.

References

- Adam M. , Maytha A. , Reem A. , Abedallah Z. A. , Yacine R. (2020). Digital transformation in higher education: A framework for maturity assessment. *International Journal of Advanced Computer Science and Applications, Vol. 11, No. 12, 504-513*
- Baeva, L. & Grigorev, A.(2020).Safety of Digitalization of Educational and Social Space. *Pakistan Journal of Distance and Online Learning, 6(1).* 231-246
- Brooks, D.C. and McCormack, M. (2020). *Driving Digital Transformation in Higher Education* (ECAR research report). ECAR. Retrieved from <https://www.educause.edu/ecar/research-publ>



- Corinne, M. (2018). *Emerging Technologies in Higher Education and the Workplace: An Assessment*. Published by International Federation of Catholic Universities Higher Education Foresight Unit. Retrieved from Online via www.nap.edu
- Douse M., Uys P. (2019) TVET Teaching in the Time of Digitisation. In: McGrath S., Mulder M., Papier J., Stuart R. (eds) *Handbook of Vocational Education and Training*. Springer, Cham
- Enang C. E. & Okute, A. L. (2019). Leveraging on new technologies for skills acquisition of business educators in tertiary institutions in Nigeria for the e-world. *Nigerian Journal of Business Education*, 6(1), 331-330. Retrieved from www.nigjbed.com.ng
- Enang, C. E. (2022). Emerging technologies in teaching and learning of business education programme in the new normal in tertiary institution in Nigeria. *Nigerian Journal of Business Education (NIGJBED)* Vol. 9(2) 64 – 71.
- Grech, A. and Camilleri, A. F. (2017). *Blockchain in Education*. <https://ec.europa.eu/jrc/en/publication/eurscientific-and-technical-research-reports/blockchain-education>
- Helsper, E. J., & Eynon, R. (2013). Pathways to digital literacy and engagement. *European Journal of Communication*, 28(6)
- Helsper, E. J., & Reisdorf, B. C. (2016). The emergence of a “digital underclass” in Great Britain and Sweden: Changing reasons for digital exclusion. *New Media & Society*
- ILO (2020). *The Digitization of TVET and Skills Systems*. Geneva: ILO.
- ILO, UNESCO and the World Bank Group (2020). *Joint Survey on Technical and Vocational Education and Training (TVET) and Skills Development during the time of COVID-19*. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/genericdocument/wcms_742817.pdf.
- Lordache, C., Mariën, I., & Baelden, D. (2017). *Developing Digital Skills and Competences: A Quick*
- Marta C. and Agnieszka P. (2021). *The importance of digitalization in the education process*. *E3S Web Conf.* Vol 307 (e3s-conferences.org). Retrieved from https://www.e3s-conferences.org/articles/e3sconf/pdf/2021/83/e3sconf_dsdm2021_06002.pdf
- Okute, A. L., Enang, C. E., & Etoma, M. G. (2022). Framework for digital skills acquisition for global competitiveness by business education students of tertiary institutions in Nigeria. *Nigerian Journal of Business Education (NIGJBED)* Vol. 9(2) 172 – 182.
- Olga N. M. (2017). Digitalization of education as a trend of its modernization and reforming. Retrieved from: <https://www.revistaespacios.com/a17v38n40p26.pdf> (revistaespacios.com)
- Oliveira, A; Behnagh, R. F; Ni, L; Mohsinah, A.A; Burgess, K.J; and Guo, L. (2019). Emerging technologies as pedagogical tools for teaching and learning science: A literature review. *Human Behaviour & Emerging Technology*, (1) 149–160.
- Scan Analysis of 13 Digital Literacy Models. *Italian Journal of Sociology of Education*, 9(1), 6-30. doi: 10.14658/pupjijse-2017-1-2
- Spector, J. M. (2013). Emerging Educational Technologies and Research Directions. *Educational Technology & Society*, 16 (2) 21–30.
- Teachthought (2016). Specific examples of emerging Educational technologies. Retrieved from Online via www.teachthought.com.
- VanDeursen, A., & Van Dijk, J. (2014). The digital divide shifts to differences in usage. *New Media & Society*, 16(3), 507–526.
- Xiao, J. (2019). Digital transformation in higher education: critiquing the five year development plans (2016-2020) of 75 Chinese universities”, *Distance Education*, Vol. 40(4), 515-533, DOI: 10.1080/01587919.