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Note From the Editor-in-Chief

The outburst of information superhighway has sharpened the knowledge society, especially in the area of research, considering the critical role of research in the academic world. It has therefore become imperative for professionals in the academic world to adapt to the ICT bound environment with innovativeness in research, including the quality of research blue-print; its visibility and above all, the appropriateness of issues raised in addressing the problems in today's contemporary global society.

The International Journal of Vocational Education (IJOVED), an annual publication of the Department of Vocational Education publishes issue-based research in Technical and Vocational Education and Training (TVET) and general education. This edition is unique, its quality and content leave no one in doubt, and purposes to build in the minds of would-be readers across academic disciplines and organisations factual knowledge that would further develop the academic community. I strongly recommend this publication to academic libraries within and outside vocational education.

Assoc. Professor Isaac Okeme
Editor-in-Chief

Editor s Note

This edition of International Journal of Vocational Education (IJOVED), Volume 11, No. 1, November 2021 is unique, drawing contributions across institutions and across disciplines as well as across border. Of course, we are in an era where globalisation and digitalisation combine to ease research activities. Faculty members are therefore on advantage for collaborative research.

This Journal addresses concerns in Technical and Vocational Education and Training (TVET) and other related disciplines in line with the demands of the 21st Century, home-grown demands of Nigeria's economy, institutional goals and individual aspirations in an era of global competitiveness. It is pertinent to draw the attention of our esteemed authors that they take responsibility of all rules and considerations pertaining to publication of this magnitude. Creative Commons copyright licenses and tools apply, thereby creating a balance in the traditional 'all right reserved" that copyright law creates, which is why all authors completed and returned the Creative Common open access license form.

Your esteemed authorship is highly appreciated as you continue considering IJOVED for publishing your research outputs. Also, avail your colleagues the opportunity of publishing in this Journal.

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DIGITAL TECHNOLOGY DIFFUSION- INFUSION AND COLLABORATIVE BUSINESS EDUCATION IN UNIVERSITIES

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Abstract

This study determined the level of technology diffusion, technology infusion, digital diffusion, and digital infusion; how levels of technology and digital diffusion; and technology and digital infusion influence collaborative business education in universities. The study answered two research questions and tested two null hypotheses. The study adopted the descriptive survey design and was carried out in Nigeria. The survey used 50 respondents on which survey instrument were administered. Data were analysed using regression coefficients for answering the two research questions, and Multiple Regression Analysis for testing the two null hypotheses. Research question one indicates that both variables contribute 13.5%; research question two indicates that digital both variables contribute 38.7% to collaborative business education in Nigerian universities. Null hypothesis one signifies that technology and digital diffusion have significant influence on collaborative business education. Null hypothesis two reveals that technology and digital infusion have significant influence on collaborative business education. It is concluded that there is increasing realisation in diffusion and infusion of both technology and digitalisation. It is further concluded that the increasing realisation of enhanced investment in technology and digital diffusion and infusion will expand the frontiers for collaborative business education in diverse directions. Based on the findings of this study it is concluded that there is increasing realisation in diffusion and infusion of both technology and digitisation. It is further concluded that the increasing realisation of enhanced investment in technology and digital diffusion and infusion will expand the frontiers for collaborative business education in diverse directions. Recommendations are that: Business educators should seek for reasonable funding corporate stakeholders to improve technology and digital diffusion for collaborative business education in universities in Nigeria; Business educators should develop a workable framework that allows for technology and digital infusion for collaborative business education in

Keywords: Technology diffusion; technology infusion; collaborative business education; digitalisation

Introduction

Digital infusion, and of course, infusion of technology could be seen as a catalyst for business education, the delivery which has progressed from traditional to advanced pedagogical strategies, implying expansion beyond enclosed physical setting to personalised learning in global perspective. The impact of technology and digital infusion in business education can be easily understood through a comparison with traditional

methods of delivering business education. Until recently, countries all over the world paid more attention in the delivery of business education, and of course, other academic programmes through traditional methods. Wikramanayake (2005) noted that in Sri Lankan context, formal education was traditionally centred on schools and Pirivenas at village levels while informal education was centred on libraries at central places in the form of newspapers and books. Similarly, Chien (2012) noted that achieving effective learning via digital media continues to be a major concern in contemporary education. Sun and Metros (2011) in a study reported that proper use of technology by students increases their academic performance outcomes. Klaus and Changchit (2017) maintained that the increase in online course offerings and enrolment can be tied to necessity, therefore, higher education institutions have faced changes in their student demographics in recent years as more and more students no longer fit the traditional profile of a young, full-time, in-residence student. Henriksen, Mishra & Fisser (2016) averred that new technologies have altered teaching and learning rapidly, with innovations and affordances for creating and sharing ideas and content.

According to PanWorld Education (2017) digital learning is replacing traditional educational methods more and more each day. PanWorld remarked that digital learning could entail using sites, services, programmes, teaching tools, and technologies like study aids built for at-home use; and include social networks and communications platforms that can be used to create and manage digital assignments, empowers students by getting them to be more interested in learning and expanding their horizons; makes students smarter with the ability to develop effective self-directed learning skills, identify what they need to learn, find and use online resources, apply the information on the problem at hand, and evaluate resultant feedback, sharpen critical thinking skills and analytic reasoning.

Digital learning makes students self-motivated and more accountable; and involves educators and parents to a deeper extent. A study conducted by Torrisi (2014) reported that whilst academics have generally adopted the use of new technologies in their teaching, literature indicates that only a minority is exploiting technology to provide pedagogically rich learning experiences. Technology infusion provides parameters for measuring the extent technologies and their digitalisation encompass or permeates the business education process. Andrews, Nicolletti and Timiliotis (2018) in a study found strong support for the hypothesis that low managerial quality, lack of ICT skills and poor matching of workers to jobs curb digital technology adoption and hence, the rate of diffusion. Keengwe (2018) noted that the rapidly emerging developments in technologies and the digital nature of 21st Century learning environments have shaped and transformed the ways learners access, process, and interpret both the general pedagogical content knowledge and discipline-specific content in teaching and learning. Eugster, Jaumotte and Piazza (2019) in a study maintained that technology diffusion helps emerging markets share growth potential across countries and lift global living standards.

The driving power of technology and digital diffusion is the It is a gradual process and develop over time in stages that can be classified into era or what Katz (2018) describe as wave, noting that digitalization, the transformations triggered by the massive adoption of digital technologies that generate, process, share and transfer information is not a one-time event. It proceeds in waves driven by technological progress and diffusion of innovations.

Katz deciphered that the first wave of digitalization is associated with the introduction and adoption of what today are considered "mature" technologies, such as management information systems aimed at automating data processing and applied to monitoring and reporting of business performance, telecommunication technologies such as broadband (fixed and mobile) and voice telecommunications (fixed and mobile) which allow the remote access of information. The second wave of digitisation entails the diffusion of the Internet and its corresponding platforms (search engines, marketplaces), which enable the networking of enterprises to consumers and enterprises among themselves for purchasing of supplies, and distribution of output. The third wave of digitisation entails the adoption of a range of advanced technologies, such as big data/analytics, Internet of Things, robotics, sensors, and artificial intelligence, and is aimed at enhancing information processing and the quality of decision making, while further automating routine tasks within business enterprises and governments. Gulatee, Brown, and Combes, (2008) remarked that many universities have developed wholly online distance education programmes in an attempt to provide easier access to educational opportunities for students who are located remotely from the university, who are working or who have other constraints or commitments.

Statement of the problem

It is unclear the extent of technology and digital infusion and diffusion in universities offering business education that can drive the business education programme in the present and future eras considering emerging and future realities. Literature is scanty on how technology and digital diffusion and infusion influence collaboration in business education, an indication that the inroad is still far in terms of technology and digital diffusion and infusion in university in Nigeria.

Research questions

1. How do technology and digital diffusion influence collaborative business education in universities?
2. How do technology and digital infusion influence collaborative business education in universities?

Null hypotheses

1. Technology and digital diffusion have no significant influence on collaborative business education in universities
2. Technology and digital infusion have no significant influence on collaborative business education in universities

Research methods

The study adopted the descriptive survey design and was carried out in Nigeria. A population of 300 business educators drawn from federal universities was used. Convenience random sampling technique where a sample size of 50 lecturers who are professional business educators drawn from all federal universities offering business education was selected as respondents.

A structured questionnaire with twenty items on a four-point scale generated data for the study. The research questions were answered using item-by-item analysis and regression coefficients while Multiple Regression Analysis was used for testing the two null

hypotheses.

Results

Research question one

How do technology and digital diffusion influence collaborative business education in universities?

Beta weight (β) and Regression Co-efficient (R2) are used to answer research question five and summary data shown on Table 1.

Table 1: Beta (β), Regression Co-efficient (R2) and Standard Error (E) for influence of technology and digital diffusion on collaborative business education (N = 50).

Variable	β	SE	R	R_2
Technology diffusion	0.416	5.93319	0.367	0.135
Digital diffusion	0.175	5.93319		

The result presented on Table 1 indicates technology and digital diffusion on collaborative business education. The β of 0.416 and 0.175 for technology and digital diffusion indicates that technology diffusion influences collaborative business education more than digital diffusion; otherwise the β value could have been the same. The value of R2 of 0.135 indicates that both variables contribute 13.5% to collaborative business education in Nigerian universities.

Research question two

How do levels of technology and digital infusion influence collaborative business education in universities?

Beta weight (β) and Regression Co-efficient (R2) are used to answer research question six and summary data shown on Table 2.

Table 2: Beta (β), Regression Co-efficient (R2) and Standard Error (E) for influence of technology and digital infusion on collaborative business education (N = 50).

Variable	β	SE	R	R_2
Technology Infusion	0.083	4.41902	0.622	0.387
Digital Infusion	0.457	4.41902		

The result presented on Table 2 indicates technology and digital infusion on collaborative business education. The β of 0.083 and 0.457 for technology and digital infusion indicates that digital infusion influences collaborative business education more than technology

infusion; otherwise the β values could have been the same. The value of R2 of 0.387 indicates that both variables contribute 38.7% to collaborative business education in Nigerian universities.

Null hypothesis one

Technology and digital diffusion have no significant influence on collaborative business education in universities

Multiple linear regressions were used in testing this null hypothesis. Result of the analysis is presented in Table 3

Table 3: Result of Multiple regressions analysis of no significant influence of technology and digital diffusion on collaborative business education in Nigerian universities.

Variable	β	SE	R	R_2	t	Significant at .05
Technology diffusion	0.416	5.93319	0.367	0.135	5.851	.05
Digital diffusion	0.175	5.93319				

Model	Sum of Squares	df	Mean Square	F	Significant Level
Regression	257.650	2	128.825	3.66	
Residual	1654.530	47	35.203		
Total	1912.180	49			

The result presented in Table 3 reveals that the calculated F-ratio of 3.66 is slightly greater than the critical F-ratio of 3.02 at .05 level of significance with degrees of freedom being 2, 47. With this revelation, the null hypothesis that technology and digital diffusion have no significant influence on collaborative business education in universities in Nigeria is rejected, signifying that technology and digital diffusion have significant influence on collaborative business education in Nigerian universities. Further revelation was that the coefficient of determination of 0.135 indicates that technology and digital diffusion contribute 13.5% to collaborative business education in Nigerian universities. The significance of t indicates that both variables significantly contribute to regression.

Null hypothesis two

Tecnology and digital infusion have no significant influence on collaborative business education in universities

Multiple linear regressions were used in testing this null hypothesis. Result of the analysis is presented in Table 4

Table 4: Result of Multiple regressions analysis of no significant influence of technology and digital infusion on collaborative business education in Nigerian universities.

Variable	β	SE	R	R_2	t	Significant at .05
Technology Infusion	0.083	4.41902	0.622	0.387	2.451	
Digital Infusion	0.457	4.41902				

Model	Sum of Squares	df	Mean Square	F	Significant Level
~~Model~~	~~Sum of Squares~~	~~df~~	~~Mean Square~~	~~F~~	~~Significant Level~~
~~Regression~~	~~197.356~~	~~2~~	~~65.785~~	~~3.369~~	~~.05~~
Residual	312.444	47	19528		
Total	509.800	49			

The result presented in Table 4 reveals that the calculated F-ratio of 3.369 is slightly greater than the critical F-ratio of 3.02 at .05 level of significance with degrees of freedom being 2, 47. With this revelation, the null hypothesis that technology and digital infusion have no significant influence on collaborative business education in universities in Nigeria is rejected, signifying that technology and digital infusion have significant influence on collaborative business education in Nigerian universities. Further revelation was that the coefficient of determination of 0.387 indicates that technology and digital infusion contribute 38.7% to collaborative business education in Nigerian universities. The significance of t indicates that both variables significantly contribute to regression.

Discussion

The findings of this study conformed to empirical evidence in some areas and in other areas varied. Torrisi (2014) reported increased adoption in the use of new technologies in teaching. Chien (2012) emphasized on achieving effective learning via digital media. Sun and Metros (2011) called for proper use of technology by students. Klaus and Changchit (2017) proposed increase in online course offerings and enrolment.

According to PanWorld Education (2017) digital learning is replacing traditional educational methods more and more each day and show rapidly classrooms are changing and noted that it is best to forget the old methods in schools and start rethinking about newer teaching and learning techniques based on digital learning tools and technologies. Keengwe (2018) reported that the rapidly emerging developments in technologies and the digital nature of 21st Century learning environments have shaped and transformed the ways learners access, process, and interpret both the general pedagogical content knowledge and discipline-specific content in teaching and learning. Gulatee, Brown, &

Combes, (2008) remarked that many universities have developed wholly online distance education programmes in an attempt to provide easier access to educational opportunities for students who are located remotely from the university, who are working or who have other constraints or commitments.

Conclusion

Based on the findings of this study it is concluded that there is increasing realisation in diffusion and infusion of both technology and digitisation. It is further concluded that the increasing realisation of enhanced investment in technology and digital diffusion and infusion will expand the frontiers for collaborative business education in diverse directions.

Recommendations

Based on the conclusions drawn, it is recommended that:

1. Business educators should seek for reasonable funding corporate stakeholders to improve technology and digital diffusion for collaborative business education in universities in Nigeria;
2. Business educators should develop a workable framework that allows for technology and digital infusion for collaborative business education in universities in Nigeria.

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