

# INFLUENCE OF DIGITAL TECHNOLOGY ON BUSINESS EDUCATORS' INSTRUCTIONAL DELIVERY AND ACADEMIC RESEARCH IN TERTIARY INSTITUTIONS IN SOUTH WEST, NIGERIA

## Abstract

The study investigated the influence of digital technology on business educators' instructional delivery and academic research in tertiary institutions in South West, Nigeria. The study examined purposes, which are to determine the extent to which digital technology influences business educators' instructional delivery and academic research. Two research questions and hypotheses each were addressed. The study adopted an explanatory mixed-methods approach (QUAN+qual). A structured questionnaire titled 'Digital Technologies, Business Educators' Instruction Delivery and Academic Research Questionnaire (DTBEIDARQ)' with 4-point rating scale was administered to 248 business educators in 18 public tertiary institutions offering business education in the region using census sampling technique, while semi-structured interviews were conducted with 18 heads of department of business education in the same institutions. The instruments went through face and content validation by experts. The reliability of the instruments was determined using Cronbach Alpha which yielded a reliability coefficient of 0.81. The quantitative data were analyzed using mean and standard deviation while the hypotheses were tested using independent samples t-test and ANOVA at 0.05 level of significance. The qualitative data were transcribed, profiled, and thematically analyzed to complement the quantitative findings. The findings from research questions revealed that digital technology (mean = 3.03, SD = 0.70) highly influenced business educators' instructional delivery. Similarly, digital technology (mean = 3.29, SD = 0.64) had a high influence on business educators' academic research. Significant differences were found among business educators based on their years of experience regarding the influence of digital technology on instructional delivery ( $F_{3,244} = 8.36, P < 0.05$ ). Similarly, no significant differences were found on the influence of digital technology on business educators' academic research based on institution ownership ( $t_{246} = -1.854, P > 0.05$ ). Based on the findings of the study, it was concluded that digital technology highly influenced business educators' instruction delivery and academic research in tertiary institutions in Nigeria. One of the study's recommendations was that management of tertiary institutions should organize regular, hands-on workshops on digital content creation technology focused specifically on developing engaging lesson materials to refresh business educators' skill and apply new design techniques to enhance their instructional delivery.

**Keywords:** Academic research, Business educators, Digital technology, Instructional delivery, Tertiary institutions,

## Introduction

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The training of lecturers in different subject areas, as a discipline, involves various methods of approach and operations. The discipline, Business Education centers on systematic study of the principles and skills permanent to all aspect of operations, resources and administration. As new concepts of learning evolve, lecturers are expected to facilitate learning meaningfully to individual learner and make academic research activities more sophisticated and impactful. Digital technologies as described by Mary and Neena (2017), involve the use of digital equipment such as computer (laptop, tablet, MP3 player or console) to access digital tools such as learning platforms and virtual learning environments, and/or learning with digital tools technology resources to improve students' knowledge and skills. The innovation capacity of technology is very much conditioned by the level of digital skills of the population. Digital technologies include the use of personal computers, television, radio, mobile phones, robots, internet, etc. The term is used to describe the use of digital resources to effectively find, analyze, create, communicate, and use information in a digital context. This includes the use of web tools, digital media tools, programming tools and software applications (Timya, 2022).

It is instructive to note that the conceptualization of digital technologies are endless, and that is why Usman (2022), posited that the adoption of digital technology allows lecturers to connect their students not just in their own localities, their places of learning and to one another, but also to a huge and ever expanding diversity of social, cultural, political networks and therefore to multiple ways of being known and communicated. Digital technologies according to Carroll and Conboy (2020), have fundamentally changed the way individuals access information and elaborate knowledge. While raising the demand for new skills, they also create new opportunities for effective instructional delivery.

Effective instructional delivery means that the teacher or educator will build on existing knowledge, differentiate and incorporate technology into the lesson. The goal of instructional delivery is to ensure that educators have the skills and experiences necessary to provide students with effective instructions in a manner that allows content mastery (Azar, 2022). Lecturers' effectiveness includes professional, competitive, administrative and management imperativeness in teaching and learning activities been presented in the tertiary institutions outside the traditional teaching mode. The chalk-and-talk approach has become obsolete because it is insufficient for the demands of modern day classroom setting, hence the need for vibrant and dynamic approaches to instructional delivery. Meanwhile, modern educational practices encourage teachers to experiment by presenting harmonized learning concepts in variety of ways to reach out to all students.

Research is a logical and systematic process of finding out solutions to educational problems. It involves the identification of a problem needing solution, gathering or review/literature of such or related problem, determining the design or proposed pattern to come about the solution, collection of data, organization of data, analysis of data, interpretation of data, and conclusion with the solution to envisaged problem. Academic research, according to Adediran (2017), is a logical and systematic process of finding out solutions to educational problems. It involves the identification of a problem needing solution, gathering or review/literature of such or related problem, determining the design or proposed pattern to come about the solution, collection of data, organization of data, analysis of data, interpretation of data, and conclusion with the solution to envisaged problem. Egberi (2015) identified the following as the utilization patterns of digital technologies in academic research; sourcing and generating research topics, modifying research topics, sourcing for information for background to the study, sourcing for data for accurate fact presentation, modifying and advancing citations, searching for relevant theories, retrieving information from e-libraries, framing query to elicit the right information and writing research

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reports. A research report is a publication that reports on the findings of research project or alternatively scientific observations on or about a subject aimed at proffering solution to an identifiable problem by a researcher, most especially business educators.

Business educators in tertiary institutions within Nigeria are made up of males and females. It is expected that they adopt digital technologies irrespective of their gender for effective instructional delivery. It is noteworthy that experience is a vital tool in the adoption of digital technologies. In the context of this study, a ten year period is taken as the borderline for experience. Business educators with experience spanning 10 years and above are regarded as highly experienced while those with working experiences below 10 years are regarded as less experienced. In addition, ownership of tertiary institutions in Nigeria is based on trichotomy which entails federal government, state government and private ownership. Federal institutions are managed and funded by the federal government while state institutions are managed and funded by their respective state governments and private institutions are managed and funded by individual or corporate owners. However, the institutions are regulated by the same agencies such as National University Commission (NUC), National Board for Technical Education (NBTE) and National Commission for Colleges of Education. Therefore, it is based on this background that the study will focus on the influence of digital technologies on business educators' instructional delivery and academic research in tertiary institutions located in South-West, Nigeria.

#### **Statement of the Problem**

It is no gain saying that a lot of challenges are encountered in the adoption of digital technologies especially in tertiary institutions in Nigeria. Most lecturers in business education have not been making effective use of digital technologies in their instructional delivery as well as academic research (Usman, 2022). These hindrances and constraints are traceable to manpower wastage, shortage of technological facilities, inadequate knowledge and use of computer aided instructions. Added to this is the non-availability of digital facilities and where they exist, they are either non-functional or inadequate thereby preventing lecturers from the usage. Umoru (2015) reported that in Nigeria, many business education lecturers lack skills in digital technologies as a result of which they face their work with fear and trepidation. According to him, due to the dearth and shortfall in the adoption of digital technologies for instructional delivery and academic research purposes, lecturers of business education are confronted with serious issues in meeting the emerging demands of the twenty first century pedagogical practices. Functional business education is indispensable to the economic health of any country. Consequently, any problem that impedes effective instructional delivery and academic research in business education must be empirically addressed. If this is not done, the lofty objectives of business education may be inhibited to the detriment of national economic development, hence the need for this study.

#### **Purpose of the Study**

The general purpose of this study was to investigate the influence of digital technologies on business educators' instructional delivery in tertiary institutions in South West, Nigeria. Specifically, the study sought to:

1. determine the extent to which business educators adopt digital technologies for instructional delivery in tertiary institutions in South West, Nigeria.
2. examine the influence of digital technologies on business educators' academic research in tertiary institutions in Nigeria

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## Research Questions

1. To what extent do business educators adopt digital technologies for instructional delivery in tertiary institutions in South West, Nigeria?
2. How do digital technologies influence business educators' academic research in tertiary institutions in South West, Nigeria?

## Hypotheses

The following null hypothesis were tested at 0.05 level of significance

- H<sub>01</sub>: There is no significant difference between the mean ratings of business educators in tertiary institutions in South West, Nigeria regarding the extent to which digital technology influences instructional delivery based on the years of experience.
- H<sub>02</sub>: There is no significant difference between the mean ratings of business educators in federal and state owned tertiary institutions in South West, Nigeria regarding the extent to which digital technology influences academic research.

## Methodology

The study used an explanatory mixed method research approach; QUAN + qual mixed design (quantitative driven simultaneous design). The core component was the quantitative, while the supplemental component was qualitative. The quantitative portion of the study was conducted using a descriptive survey design while the qualitative approach was to consolidate the result of the quantitative analysis since the interview was conducted with the Heads of Department of Business Education in the various institutions. This allowed the interviewees the freedom to raise germane points that may not have been covered under the quantitative approach. The population of this study consisted of 248 business education lecturers across public tertiary institutions in South West, Nigeria. A census sampling technique was employed, allowing all business educators in each of the institution to take part in the study. This technique was adopted because the population was small and manageable. Two major instruments were used to collect data for this study, namely; questionnaire and interview. The questionnaire was the core component, while the interview was the supplementary component. The first instrument was a questionnaire with 20 items of the research questions and placed on a modified four-point Likert rating scale of Very High Extent (VHE-4 points) High Extent (HE- 3 points) Low Extent (LE- 2 points) and Very Low Extent (VLE – 1 point), respectively. The second instrument used for data collection was a semi-structured interview, administered to the Heads of Department of Business Education to obtain qualitative data. The interview guide consisted of two items, each directly aligned with the two specific objectives of the study. The instruments were validated by experts in Business Education after which, were pilot-tested to obtain a reliability coefficient of 0.81 using Cronbach Alpha reliability test to ascertain the instruments internal consistency. The research questions were answered using mean and standard deviation. Null hypothesis one was tested using ANOVA, while hypothesis two was tested using Independent Samples t-test at 0.05 level of significance. The results were presented in tables, and conclusions and recommendations were drawn based on the findings.

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**Commented [N12]:** Name the institutions covered in your study and the states that they are located in the South-West, Nigeria. Remember, South-West is a geopolitical zone with 6 states. So, if you are covering all the states, specify them, accordingly. Failure to do this will leave your readers in the dark about the institutions you have studied and will also create doubt in the reliability of your research findings.

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S/N	Items	Mean	SD	Remarks
1	Students engagement and interactivity are enhanced through google slides	2.70	0.80	High Extent
2	Instructional materials are better created with the adoption of simulation	2.91	0.66	High Extent
3	Teaching materials are easily accessible through google classroom	2.99	0.65	High Extent
4	Personalised learning is facilitated through artificial intelligence platforms	3.32	0.72	Very High Extent
5	Instruction that caters for diverse learning styles and needs of the students are better facilitated and designed using artificial intelligence platforms	2.91	0.85	High Extent
6	Adoption of cloud-based learning management system enhanced re-use of digital resource	3.20	0.68	High Extent
7	Adoption of modelling tools equip business educators with the modern skills needed for the modern workforce	3.14	0.54	High Extent
8	Interactive and immersive teaching and learning experiences are promoted using video creation tools	3.18	0.63	High Extent
9	Student learning outcome is enhanced through Exam Soft platform	2.88	0.71	High Extent
10	Lesson planning and delivery are promoted using open-source learning management system	3.10	0.71	High Extent
	<b>Weighted average</b>	<b>3.03</b>	<b>0.70</b>	<b>High Extent</b>

## Results

### Research Question 1: To what extent do business educators adopt digital technologies for instructional delivery in tertiary institutions in South West, Nigeria?

**Table 1: Digital Technologies and Instructional Delivery**

Analysis of data in Table 5 shows the mean and standard deviation of responses on the extent of the influence of digital technology on business educators' instructional delivery in tertiary institutions. The results indicate that digital technologies play significant role in enhancing business educators' instructional delivery. All the 10 constructed items have standard deviations ranging from 0.54 to 0.85, showing that the respondents' responses are close to their respective mean scores. The table has a weighted average mean and standard deviation score of 3.03 and 0.70, respectively. This implies that digital technology influences business educators' instructional delivery in tertiary institutions to a high extent (mean = 3.03, SD = 0.70).

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You can do that by using the number of completed and retrieved copies of the questionnaire or what you guided your analysis...

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**Research Question 2: How do digital technologies influence business educators' academic research in tertiary institutions in South West, Nigeria?**

**Table 2: Digital Technologies and Academic Research**

S/N	Items	Mean	SD	Remarks
11	Research outputs are accessible and feasible through the adoption of Google Docs	3.28	0.66	Very High Extent
12	Online journals expose researchers to global audience	3.65	0.53	Very High Extent
13	Findings of research are effectively communicated through academic publishing platforms such as ResearchGate	3.40	0.61	Very High Extent
14	Collaborative research practices are enhanced through zoom technology	3.06	0.62	High Extent
15	Interdisciplinary collaboration among researchers are facilitated with the adoption artificial intelligence tools	3.04	0.62	High Extent
16	Data collection and analysis are streamlined through adoption of google forms	3.21	0.78	High Extent
17	Accuracy and efficiency of research process is facilitated through the adoption of google forms	3.13	0.56	High Extent
18	Reliability of research instrument is ascertained through data analysis technique	3.40	0.64	Very High Extent
19	Artificial Intelligence applications increases the efficiency of conducting literature review	3.30	0.68	Very High Extent
20	Artificial intelligence enrich business education instruction delivery	3.44	0.68	Very High Extent
	<b>Weighted average</b>	<b>3.29</b>	<b>0.64</b>	<b>Very High Extent</b>

Analysis of data in Table 2 shows the mean and standard deviation of responses on the extent of the influence of digital technology on business educators' academic research in tertiary institutions. The results indicate that digital technologies have a very high influence on academic research practices. All the 10 constructed items have standard deviations ranging from 0.53 to 0.78, showing that the respondents' responses are close to their respective mean scores. The table has a weighted average mean and standard deviation score of 3.29 and 0.64 respectively. This implies that digital content creation technology significantly influence academic research of business educators' in tertiary institutions to a very high extent (mean = 3.29, SD = 0.64).

**H<sub>01</sub>: There is no significant difference between the mean ratings of business educators in tertiary institutions in South West, Nigeria regarding the extent to which digital technology influences instructional delivery based on the years of experience.**

**Table 3: ANOVA result of business educators on the extent to which digital technology influence instructional delivery in tertiary institutions in South West, Nigeria based on the years of experience**

Source	N	Mean	SD	Df	F	Sig.	Decision
Less than 5 years	63	3.14	0.35				
5-9 years	44	3.53	0.47				
10-15years	92	3.29	0.44	3, 244	8.36	.001	<b>H<sub>02</sub> Rejected</b>
16 years and above	49	3.28	0.26				
Total	248	3.29	0.41				

Analysis of the data in Table 3 reveals the summary of a one-way analysis of variance (ANOVA) conducted to examine whether there was a significant difference in the mean ratings of business educators regarding the extent to which digital technology influences instructional delivery, based on years of experience. The ANOVA result showed a statistically significant difference in the mean ratings of the different experience groups, with  $F(3, 244) = 8.36$  and  $p = 0.001$ . The p-value is less than the 0.05 level of significance, which means that there is a significant difference in the ratings based on years of experience.

**Table 4: Post Hoc Tests**

(I) Years of Experience	(J) Years of Experience	Mean Difference (I-J)	Sig.
Less than 5 years	5-9 years	-.38600	.000
	10-15 years	-.14569	.166
	16 years and above	-.13628	.349
5 -9 years	Less than 5 years	.38600	.000
	10-15 years	.24032	.012
	16 years	.24972	.027
10-15 years	Less than 5 years	.14569	.166
	5-9 years	-.24032	.012
	16 years and above	.00941	.999
16 years and above	Less than 5 years	.13628	.349
	5-9 years	-.24972	.027
	10-15 years	-.00941	.999

Table 4 reveals the results of post hoc tests conducted to examine whether there were significant differences in the mean ratings of business educators regarding the extent to which digital technology influences instructional delivery, based on years of experience. The analysis compared four experience groups: less than five years, five to nine years, ten to fifteen years, and sixteen years and above. The post hoc tests suggest that while there is no significant difference

between the less than five years and ten to fifteen years groups or between the less than five years and sixteen years and above groups, significant differences exist between the five to nine years and ten to fifteen years groups, as well as between the five to nine years and sixteen years and above groups. This implies that business educators with five to nine years of experience perceive the influence of digital technology on instructional delivery differently compared to those with fewer or more years of experience.

**H<sub>02</sub>: There is no significant difference between the mean ratings of business educators in federal and state owned tertiary institutions in South West, Nigeria regarding the extent to which digital technology influences academic research.**

**Table 5: Summary of independent samples t-test of business educators’ ratings of digital technology influence on academic research in tertiary institutions in South West, Nigeria**

Ownership	N	Mean	SD	t-cal	Df	P-value	Decision
Federal	124	3.08	0.45	-1.854	246	0.65	<b>H<sub>03</sub></b> <b>Retained</b>
State	124	2.98	0.38				

Table 5 presents the results of an independent samples t-test on the mean ratings of business educators in federal and state-owned tertiary institutions regarding the extent to which digital technology influences academic research. The analysis compares 124 respondents from federal institutions and 124 respondents from state-owned institutions. The mean ratings for federal respondents were 3.08 (SD = 0.45), while the mean ratings for state respondents were 2.98 (SD = 0.38). The relatively low standard deviations for both groups suggest that the responses within each group are consistent. The independent samples t-test result shows no statistically significant difference between the mean ratings of the two groups, with  $t(246) = -1.854$  and a p-value of 0.65. Since the p-value is greater than the 0.05 significance level, the null hypothesis ( $H_{03}$ ), which states that there is no significant difference between the mean ratings of business educators in federal and state-owned tertiary institutions regarding the influence of digital technology on academic research, was retained.

### Qualitative Analysis

The interview was used for qualitative analysis to understand the opinions of Heads of Departments (HODs) of Business Education on the influence of digital technologies on instructional delivery and academic research in tertiary institutions in South West, Nigeria. The study drew on the views of eighteen (18) Heads of Departments, comprising interviewees from Federal and State institutions across Oyo, Lagos, Ogun, Ondo, Osun, and Ekiti states. Among the respondents, 10 were males, and 8 were females, with all interviewees having fifteen years or more of experience in their respective institutions. Regarding educational backgrounds, all participants were highly qualified, with most of them holding higher degrees in Business Education, reflecting a strong academic foundation. The data were gathered through in-depth interviews, conducted face to face. Prior to the interview, the researcher provided detailed explanations of the study objectives and outlined the ethical considerations, such as informed consent, voluntary participation, and confidentiality. The interviews were audiotaped with the explicit permission of the participants to

ensure accuracy in data collection. The research was conducted in the South West region of Nigeria, encompassing a mix of urban and rural areas to capture the diversity of experiences across different institutional settings. The transcribed interviews were meticulously analyzed, with each statement coded according to the interview questions. The analysis focused on identifying thematic areas that would provide answers to the research questions, primarily exploring how digital technologies influence instructional delivery and research in Business Education. The coding process was aligned with the research questions to ensure that themes emerged directly from the respondents' responses. After completing the coding, the researcher reviewed the statements to ensure consistency and identify any discrepancies in responses. The identified themes were then aligned with the research questions to ensure the analysis provided meaningful insights into the role of digital technologies in business education within the South West, Nigeria context. The data were analyzed within the thematic framework, and the findings were presented to reflect how each interview question was answered.

### Discussion of Findings

The findings from the first research question reveals that digital technology significantly influence business educators' instructional delivery in tertiary institutions. Digital technology such as video editing software, interactive presentation platforms and multimedia production tools enhance students' engagement and interactivity. This aligns with the findings of Eze and Adu (2019), who noted that business educators who adopt digital technology tools produce high-quality instructional materials for teaching, promote collaborative learning and enhance students' engagement. The findings are also supported by Adeyemi (2017), who found that digital tools significantly enhance students' engagement, motivation and self-directed learning thereby affording teachers the opportunity of improved student-centered learning and assessment practices. This was also buttressed with findings from the qualitative data through the interview conducted on 18 heads of department, where it was revealed that digital technology enhances student engagement, resulting in more interactive and dynamic learning environments. Digital technology also support flexible learning environments and enables blended teaching models, allowing instructors to deliver content through a combination of in-person and online formats. The study also tested whether years of experience significantly influence business educators' perception of the influence of digital technologies on instructional delivery. The findings reveal a statistically significant difference, especially between business educators with five to nine years of experience and those with more than ten years of experience. This suggests that business educators in their early-to-mid career stages may be more digitally inclined and adaptive to integrating technology into research activities. This aligns with the position of Agina-Obu and Okwu (2023), who noted that business educators in this career phase are often more exposed to recent technological advancements and professional training in digital tools. No significant difference was observed between business educators with less than five years of experience and those with more than ten years. This is similar to findings by Fasola (2024), who proposed that while novice educators may be digital natives, their limited research experience may hinder the effective application of digital tools. Meanwhile, more senior educators, though experienced in research, may encounter difficulties in adapting to modern technologies due to digital resistance or lack of training.

The findings from the second research questions indicate that digital technologies have a very high influence on academic research practices. Business educators are more likely to perform better in their academic research activities because the adoption of digital technology broadens their reach and visibility of research outputs. This aligns with the findings of Smith (2023), who

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noted that digital technology enhances easy accessibility and visibility of research outputs where by researchers can leverage digital platforms such as online journals, institutional repositories and digital libraries to publish and disseminate their work to a global audience. In line with the findings of this study, Chukwuemeka (2020) disclosed that digital technology tools increase the efficiency and accuracy of research, as they enable the integration of various data sources and advanced analytical techniques thereby enhancing the validity and reliability of research outcomes. The findings from the qualitative data through the interview conducted on 18 heads of department also noted the significant of digital technology on business educators' academic research in tertiary institutions. It was revealed that digital technology plays crucial role in improving academic research of business educators. Digital technology facilitates data collection and research organization; and ensure ease of accessing relevant literature reviews. The study also reveals that, a small percentage of the respondents specifically mentioned that digital technology helps in promoting originality and impactful research output. However, this qualitative evidence complements the quantitative results and aligns with the argument by Enang (2024), who stated that digital literacy among educators enhances both the quality and speed of academic output. These insights affirm that digital tools are not only influencing research methodology but also enhancing the overall scholarly experience for business educators. The findings from hypothesis three which states that there were no significant difference between business educators in federal and state owned tertiary institutions regarding the extent to which digital technology influences academic research was retained. The independent samples t-test indicated no significant difference between federal tertiary institutions on the influence of digital technologies on business educators' academic research. This implies that business educators across both ownership types derive similar research benefits from platforms like Zoom, Google Meet, and Microsoft Teams. This uniformity aligns with UNESCO's (2021) observation that national digital learning policies in Nigeria have aimed to standardize e-learning infrastructure and training across all tertiary institutions, thereby minimizing disparities in technology access and use.

### **Conclusion**

Based on the findings of the study, it was ascertained that digital technology platforms exert a substantial and pervasive influence on both instructional delivery and academic research among business educators in Nigerian tertiary institutions. Digital tools were shown to enrich lesson design and foster greater engagement, facilitate seamless teamwork and knowledge sharing. On the other hand, the overall influence of these technologies was consistently high. The study therefore concluded that digital technologies have become integral to the pedagogical and scholarly practices of business educators, enabling more dynamic instruction and enhanced research productivity. The high extent of these influences across diverse demographic groups underscores the critical role of digital technology tools in advancing business education in the 21st century.

### **Recommendation**

Based on the findings and discussion of the study, the study recommended as follows:

1. Management of tertiary institutions should organize regular, hands-on workshops on digital technology focused specifically on developing engaging lesson materials.
2. Government through the Ministry of Education should support adoption of digital technology for academic research of business educators through sponsorship programmes such as TETFUND.

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