Instructional Preference for Technological Devices in Coping with the Realities of Curriculum Delivery in the Health Distress Economy by Academic Staff in South East States Universities in Nigeria

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ABSTRACT

The study seeks to determine the instructional preference for technological devices in coping with the realities of curriculum delivery in the health distress economy by academic staff in south east states universities in Nigeria. Three research questions were asked, and three corresponding null hypotheses were formulated to guide the study. The descriptive survey research design was adopted for the study. The stratified random sampling technique was used to select a sample of fifty-five (55) respondents from 5 south eastern universities with one university representing each state of the region. The instrument for data collection was a researcher made questionnaire titled "Staff Preference for Technological Instructional Devices (SPTID) which was developed after extensive review on related. The reliability coefficient of 0.75 was determined using Alpha Cronbach. Primary data were obtained after an informed consent from the participants. The null hypotheses were all tested at the .05 alpha level using the Analysis of Variance (ANOVA), Multivariate Analysis of Variance (MANOVA) and Multiple Regression statistical techniques. Findings revealed that there is no significant difference in preference of technological instructional devices in curriculum delivery by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy. Also, there is no significant difference in the extent of utilization of technological instructional devices in curriculum delivery by academic staff in South Eastern States Universities in Nigeria. Additionally, there is no significant effect of technological instructional devices on curriculum delivery in South Eastern state universities in Nigeria, especially in a health-distress economy. Based on these findings key theoretical, practical and research implications were discussed. It was recommended, among other things, Universities should invest in smart classrooms, multimedia equipment, and internet access to support technology-driven curriculum delivery. Faculties should organize continuous professional development programs on instructional technology for academic staff. This integration will provide students with personalized learning experiences that support their understanding of subject content as well as exposed universities with low levels of technology adoption to share best practices with others through inter-institutional workshops or partnership.

Keyword: Instructional preference, Technological devices, curriculum delivery, health distress economy, Academic staff, South East, Universities in Nigeria

INTRODUCTION

Instruction is an integral arrangement of experiences leading to learners acquiring qualitative capacities, varying from simple recall of knowledge to higher cognitive strategies, allowing learners to finding environmental learning challenges in a phenomenal change in a global heath distress economy, capable of halting academic activities (Wandond, 2020).

Instructional technology is a theory and practice of using technology for education, encompassing the design, development, use, management and evaluation of technological education.

It can take many forms, ranging from electronic, white boards to virtual realities classroom. The application and benefits of instructional technology widely vary from sharing One-name purpose to creating and engaging, an

effective learning experience (Stevenson, 2019). Some experts agreed that instructional technology provides many educational benefits most importantly in health distress era (Zulkeflic, 2020, Ogbonna & Oya, 2023).

Today, instructional technology provides better access to information, more opportunities for collaboration and better capacities for meeting diverse learners needs. Recent studies conducted by Mid America Nazarere University reports that students complete less than 42% of their work both in and out of the classroom using paper and pencil and 73% teachers accepted students' usage of tablets or laptops in their daily learnings.

The increasing prevalent of technology in the classroom reflects a broader cultural shift in academics. As world becomes more technological advanced, its literacy becomes increasingly important that teachers prepare students for success via the use of the technological devices to support meaningful learning in global health educational distress economy where mediums are created, skills and information shared in smart ways all the time in any topic, supporting any possible learning styles or preference.

Kharbach, (2021) shared the opinion that the use of technological instructional devices provides better capacities for providing feedback in comparism with traditional methods. Teachers use a variety of technological devices to gauge the student content learning standards and areas of focus during the next lesson through conducting an online survey of students' cognitive level in a topic or opt to using technological instructional software to provide immediate feedback and divide their time between teaching, engaging with the students and administrative task.

Reports from UNESCO, UNICEF and WORLD BANK (2020) indicated that teachers by sharing guidelines, stressing the importance of providing feedback to students, maintain constant communication and reporting to the academic unit to keep track of learning. As teachers continue to make use of technological communication guidelines and recommendations, they found out balancing education providing feedback to students remotely, filling administrative reports and family cares, government early recognition of this and establishing a well-intentional teachers support which later end up generating burn-out.

The pertinent issue is to determine the prefer technological devices for curriculum delivery in health distress global educational process. Based on the afore-goings, teachers select the best electronic devices/media to enhance curriculum content delivery for adequate realization of educational out-comes for sustainable student health security. Teachers build lesson that includes simulations, experiments, case studies and curriculum materials for instruction delivery. The interactive approach intertwines curriculum and practical experiences that immense students learning, teachers ensuring that curriculum elements are considered, laying emphasis on intended out-come, what is taught and manner of implementation.

Curriculum delivery, therefore, is a strategy that involve; teaching, learning support, advise, guidance, interaction, mentorship, participating and collaborative learning that cumulate in ultimate realization of students learning goals. Artificial intelligence (AI), video conferencing, google classroom and zoom are array of technological instructional devices used in curriculum delivery. Google classroom is all in one place for teaching and learning and easy-to-use and secure tool, helping educators manage, measure and enrich learning. Google classroom makes for easy connection between the instructors and students in and outside the school as it saves paper and easy to create.

Videoconferencing is also one of electronic/technology instructional device medium, its usage encompasses meetings and voting but used in personalized learning experiences and educators make perfect use of it to bring world of lesson delivery, helping to create, inspire, inter-created learning experiences with global online collaborations. It is predicated that the most significant trends in educational technology today is video conferencing. Okafor (2021) opined that there is an increasing focus with electronic instructional tools used to support interaction around curricular objectives, promoting inter-cultural understanding. Moreso, Include the use of Artificial Intelligence (AI) in curriculum delivery during global health emergencies making use of machines to think like students and students also think like machines to learn to code their learnings.

Artificial Intelligence (AI) and machine learning are used to automate key activities such as grading of subjects and providing feed backs on areas needing improvement, to enhance personalized learning among learners with special needs. Pedagogical adaptation has become pivotal in health distress economy as traditional lecturing in

– person models do not translate to a remote learning environment, the type of channel used (Radio, TV, mobile online platforms), teachers need to adapt practices and be creative to keep students engaged as learning as every household has become a classroom more often than not without an environment that supports learning.

Effects of Covid-19 is an eye opener, teachers need to be proactive to such conditions emerge hence the need to determine the scale of preference of technological instructional devices in a health distress economy by the academic staff of faculties of education in south eastern states universities in Nigeria.

Statement of problem

Every year academic staff reports low students' achievement in courses. Most of the lecturers attributes this poor performance of students to lack of conceptual understanding among the students. Many reasons can be postulated to explain why students lack conceptual understanding. Some researchers have identified the use of teacher-centered approaches in teaching, lack of practical modeling activities, teachers' and students' negative attitudes towards school programmes, high teacher-student ratio, teachers' absenteeism, among other factors (Esuong, Owan, Edoho, & Eni, 2023; Esuong, Udo, & Uwem, 2019; Ofonime, 2016; Ekwueme, 2013; Edoho, 2018).

However, the 21st century education is predicated on equipping the students with skills, knowledge, information, practices to cope with and safely succeed in health distress period using electronic instructional delivery where measures are created, skills, ideas, information are shared in smart ways in anytime or topic supporting any possible technological instructional device.

Researchers have severally studied on ways and means to improve curriculum content delivery especially on the use of electronic instructional devices in teaching and learning. (Onuoha, 2021) on usage of ICT tools in curriculum delivery by science teachers in public secondary schools in Aba, educational zone and Ugbogu, (2019) on e-teaching and learning, both are of the same opinion and supported adequacy and effective use of technological instructional device in curriculum delivery but the later found out "low extent" utilization.

From the afore-goings, the researcher observe that no works has been done on the preference ranking of usage of technological devices with the unpalatable effects of Covid-19 on curriculum delivery and the need for teachers proactiveness in such health distress conditions. Therefore, the research now seeks to investigate the instructional preference for innovative technological devices in coping with the realities of curriculum delivery in the health distress economy by academic staff of faculty of education in south east states universities in Nigeria

Purpose of the study

This research is on the preference use of technological instructional devices by academic staff of faculties of education of South Eastern state Universities in Nigeria. Specifically, the study seeks to;

- Identify the preference for technological instructional devices used by academic staff of faculties of education in South Eastern states Universities in Nigeria especially in a health distress economy.
- Determine the extent of usage of technological instructional devices for curriculum delivery by academic staff in South Eastern States Universities in Nigeria.
- Assess the influence of certain technological instructional devices in curriculum delivery in South Eastern states Universities in Nigeria especially in a health distress economy.

Research Questions

1. What is the preference of technological devices by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy
2. What is the extent of usage of technological instructional devices for curriculum delivery by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy

3. How does technological instructional devices affect curriculum delivery in south eastern states universities in Nigeria especially in a health distress economy

Research Hypothesis

1. There is no significant difference in preference of technological instructional devices in curriculum delivery by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy

2. There is no significant difference in the extent of utilization of instructional technological devices in curriculum delivery by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy

3. There is no significant effect of technological instructional devices on curriculum delivery in south eastern states universities in Nigeria especially in a health distress economy

LITERATURE REVIEW

The review of related literature for the purposes of this research work is organized in the following segments: -

- ❖ Innovation imperative in education.
- ❖ Why technology in education matters
- ❖ Digitalization in education

Innovation Imperatives in Education:

Education is sometimes perceived as a sector which is resistant to change, while at the same time it faces crises of productivity and efficiency. According to OECD 2016 in a survey on innovating education and educating for innovation; the power of digital technologies and skills asserted that innovation improve the quality of education and provided more "bang for the back" in times of budget pressure and rising demand. Data generated from international survey showed that education is more innovative in some ways than other sectors and there has been innovation across all countries particularly in teaching methods and further wondered whether schools and universities are helping students and teachers develop those skills. Innovation in education in recent times has been increasingly regarded as a crucial factor in maintaining competitiveness in a global health distress economy breathing new life into adapting to changing environment. How can technology add value in the case of education, it can improve learning outcomes and quality of education provisions. For examples changes in educational system or in teaching methods can help customized the educational process, (zulkefli et al, 2020). Much more recently, policy interest has extended this, technology/innovation, imperative from private organizations to the provision of public services. Although public services including education tend neither to operate within competitive markets nor has the same incentives to innovate as business do but (Kharbach, 2021) pushed argument for technology or innovation in education to maximize the value of public investment to include provision of public educational services, he added that higher public expectation and ever-tither physical constraints means that public sector needs technology or innovative solution to enhance productivity, content cost and boost public education satisfaction.

Innovation/Technology in education could be a major driver for significant education welfare gain. In Nigeria today, budget review on education is 1.54 trillion, representing 6.39% of the total budget which is below 15% recommended by UNESCO. Universities, Polytechnics, Colleges of education got 1.9 billion naira, 1.1 billion naira and 1.3 billion naira respectively. This shows the need for government increase in tertiary education budgetary practices for improved effectiveness and efficiency in curriculum delivery at all times for important educational benefits.

Why Technology in Education Matters:

How can innovation or technology add value in educational matters. Educational technology improves learning

out-comes and quality of education provision, for instance changes in educational system in methodologies helping to customize educational process (Mafa, 2018). New trends in personalized learning rely heavily on new ways of curriculum delivery, school organization and use of ICT (Mayer et al 2021). PURDUE University (2018). According to Wandond (2022), Stevenson 2019. Instructional technology is a theory and practice of using electronics/ technology for education encompassing the design, development, use, management and evaluation of technology education, they affirmed that it varies from electronic white board to online courses or even virtual realities classroom be considered instructional technology.

The application and benefits of instructional technology (IT) vary widely, all sharing one-name purpose for creating and engaging an effective learning experience. Experts agreed that instructional technology provide many educational benefits, most importantly in health distress era; (Ugbogu, 2019). Today instructional technology provides better access to information more opportunities for collaboration, better capacities for meeting diverse learner's needs.

Recent studies by UNESCO indicated that teachers divide time between teaching engaging with the students and administrative task. The study reported that teachers by sharing guidelines stressing the importance of feed back to students, maintaining constant communication guidelines and recommendation found out balancing education providing feed back to students remotely, feeling administrative reports and taking adequate family care, government recognizing that generated a well-intentional teachers support system which generated burnt-out.

Fulber & Beier (2021), indicated that educational environment such as electronic teaching and learning context is full of experiences, anxiety, fun, and anger, satisfaction ands distraction and pride as negative experience of mental health problems like frustration can be compounded in an online teaching and learning as it devoids physical connection between the teachers and peers, worsen inaccessibility of mental health support system, though e-teaching can alleviate mental health issues through awareness development and prompt personalized support. Developing digital self-efficacy and technological proficiency can also minimize fear and anxiety while individuals engage in a self-regulated learning process. Onuoha, (2021) is of the view that the use of electronic instructional tools in teaching made a significant improvement; positing the adequacy of the tool in curriculum delivery, though Onuoha further discovered low extent of utilization. Other scholars include Ogbonna and Uya (2023) in their studies on their virtual leaning tools in classroom and undergraduate students acquisition of 21st century skills in Nigeria. They shared the same opinion of adequacy and effectiveness.

Moreso Ogbonna, (2024). Posited electronic teaching having a very high extent influence on students management of anxiety and stress and had more positive impacts on females than males in the study of perceived "impact of electronic teaching on mental health and well being of students in tertiary institutions in south eastern state universities in Nigeria. In the same vein Ndom & Ndom (2021) posited that creativity and technology can be applied around the strategies or methods to be used to ensure functionality in technical and vocationally education by the managers or leaders.

In furtherance, Akubugwo and Zaharaddeen, (2021). opined that technologies like social media and internet which are electronic in nature and cost effective have changed the process of communication and enhance teaching and learning

Digitalization in Education:

Education is a priority for national development, the advent of modern technological tools have created a new era in curriculum delivery and considering the distress nature of the economy where there is a need for a smarter ways of impacting knowledge within the shortest possible time. Digitalization has the potential to make education more inclusive by providing access to students in remote or underserved areas. It also supports learners with disabilities through assistive technologies like screen readers and voice recognition software. However, according to young (2012) the creation of artificial intelligence by group of openAI team have expert have brought a new phase entirely into teaching and learning process. ChatGPT a form of artificial intelligence have provided a similar human to human liked interaction between learners while responding to a variety of users queries with the best responses.

Digitalization of education refers to the integration of digital technologies into the educational process, transforming how education is delivered, accessed, and managed. This shift encompasses a wide range of tools and practices, from online learning platforms and digital textbooks to data analytics and virtual classrooms (Dede 2009). The COVID-19 pandemic has accelerated the adoption of digital education, highlighting its importance and potential. As digital technologies continue to evolve, they will likely play an even more significant role in shaping the future of education, making it more flexible, personalized, and accessible (Siemens & Long, 2011). Here's an in-depth look at the key aspects and implications of this transformation:

Online Learning Platforms:

Online learning platforms like Coursera, edX, and Khan Academy offer courses across a variety of subjects, providing access to quality education regardless of geographical barriers. These platforms often include interactive elements such as quizzes, forums, and peer reviews, enhancing the learning experience.

Digital Textbooks and Resources:

Traditional textbooks are increasingly being replaced or supplemented by digital versions, which can be updated more easily and include multimedia elements such as videos, interactive simulations, and hyperlinks to additional resources. This makes learning more engaging and accessible.

Virtual and Augmented Reality (VR/AR):

VR and AR technologies are used to create immersive learning experiences. For example, medical students can perform virtual surgeries, and history students can take virtual tours of ancient civilizations. These technologies make complex concepts easier to understand and remember.

Data Analytics and Personalized Learning:

Educational institutions are leveraging data analytics to track student performance and tailor educational content to individual learning needs. This personalized approach helps identify areas where students struggle and provide targeted interventions, thereby improving learning outcomes.

Digitalization of education is reshaping the landscape of learning and teaching, offering numerous benefits while also posing new challenges. By embracing these changes and addressing the associated challenges, educators and policymakers can harness the power of digital technologies to create a more inclusive, efficient, and effective educational system.

Research Method

The study adopted the descriptive survey study design which seeks to find out the preference for technological instructional devices for curriculum delivery among universities faculty of education academic staff in south east states in a health distress economy. The population for the study will comprises of all academic staff of faculties of education in all Universities in south eastern state of Nigeria. The study adopted the stratified random sampling technique to select the 55 respondents from 5 south eastern universities with one university representing each state of the region. The instrument for data collection was a researcher made questionnaire titled "Staff Preference for Technological Instructional Devices (SPTID) which was developed after extensive review on related literature. The instrument was structured in four sections; Section A contained demographic information of each academic staff such as university, academic rank, experience etc. Section B; contained a modified 4-point likert scale of how much academic staff preferred certain technological devices in curriculum delivery. Section C; contains also a modified 4-point likert scale of how often certain technological devices are utilized by academic staff. Finally, Section D; contains likert scale questions on the impact of the technological devices on curriculum delivery in a health distress economy. The questionnaire (SPTID) was subjected to scrutiny for face and content validation by three experts, one from curriculum and teacher education, educational technology and measurement and evaluation. The reliability co-efficient of 0.75 was obtained using Alpha Cronbach after a pilot study was conducted to ascertain the clarity of the instrument. The data collected will be

analyzed using mean, standard deviation, ANOVA, MANOVA, Friedman test, Multiple regression for the research question and hypothesis.

Result

The result for this study shall be presented in each research question analysis and hypothesis by hypothesis

Research Question 1: What is the preference of technological devices by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy

Table 1: shows the mean and standard deviation of preference for technological devices by academic staff of faculties of education in south eastern state universities in Nigeria.

S/N	State	Universities	N	Mean preference score	SD
1	Enugu	University of Nigeria Nsukka	10	2.85	0.87
2	Ebonyi	Alex Ekwueme Federal University Ndufu Alike (AL-FUNAI)	14	2.73	0.85
3	Imo	Alvan Ikoku Federal University of Education (AIFUE)	11	2.16	0.72
4	Abia	Abia State University Uturu (ABSU)	10	2.09	0.79
5	Anambra	Nnamdi Azikiwe University Akwa (UNIZIK)	10	2.55	0.83
	Total		55		

The result presented in Table 1 showed the mean and standard deviation of the preference for technological devices by academic staff in south east universities. As shown in the Table, University of Nigeria Nsukka had the highest mean response (2.85) preference with Abia State University having the lowest (2.09). This shows that there is an outstanding difference that exist in the preference of tech devices amongst lecturers in south east state universities.

Hypothesis one

There is no significant difference in preference of technological instructional devices in curriculum delivery by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy. The independent variable in this hypothesis was the universities faculty of education academic staff, and the dependent variable was preference for technological instructional devices. A one-way analysis of variance (ANOVA) was performed to test this hypothesis at the .05 alpha level. The result of the analysis is reported in Table 2

Table 2: ANOVA summary of academic staff difference in preference of technological instructional devices in curriculum delivery.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	112.114	3	16.057	12.217	.000
Within Groups	146.436	338	12.732		
Total	258.550	340			

The summary of data in table 2 showed the observed f-value as 12.217. this value was compared with its significant value of .000 at 0.05 alpha level and at 337 df. Since the significant value of .000 is less than the

alpha level of 0.05. the null hypothesis which stated is no significant difference in preference of technological instructional devices in curriculum delivery by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy is rejected. Thus, the responses showed that there is a significant difference in preference of technological instructional devices in curriculum delivery by academics' staff of faculties of education in south eastern states. Hence the need for a Friedman test to check the mean ranks to identify the most preferred device and a post hoc test to determine where the significant level lies.

Table 3: Friedman test (Nonparametric Anova for repeated measure) was used identify the most preferred devices

	Mean Rank
Use of Projector	2.79
Use of PowerPoint	2.59
Use of Smartboard	2.24
Use of Instructional video	2.38

Table 3 showed the most preferred technological device by academic staff of south east universities to be the use of Projector with a mean rank of 2.79 and the least preferred technological device by academic staff as the use of Smartboard with a mean rank of 2.24 when it comes to curriculum delivery.

Table 4: Post Hoc Tests

Dependent Variable	**University of respondent**	**Mean**	**Std. Error**	**95% Confidence Interval**	
				Lower Bound	**Upper Bound**
Use of Projector	UNN	3.800	.259	3.281	4.319
	AL-FUNAI	3.143	.218	2.704	3.582
	AIFUE	3.000	.246	2.505	3.495
	ABSU	3.500	.259	2.981	4.019
	UNIZIK	3.200	.259	2.681	3.719
Use of PowerPoint	UNN	3.500	.222	3.054	3.946
	AL-FUNAI	2.929	.188	2.552	3.306
	AIFUE	2.545	.212	2.120	2.971
	ABSU	3.500	.222	3.054	3.946
	UNIZIK	3.000	.222	2.554	3.446
Use of Smartboard	UNN	3.600	.271	3.056	4.144
	AL-FUNAI	3.071	.229	2.612	3.531
	AIFUE	2.182	.258	1.663	2.700
	ABSU	2.800	.271	2.256	3.344
	UNIZIK	2.300	.271	1.756	2.844
Use of Instru. Video	UNN	3.400	.308	2.782	4.018
	AL-FUNAI	3.071	.260	2.549	3.594
	AIFUE	2.545	.293	1.956	3.135

	ABSU	2.400	.308	1.782	3.018
	UNIZIK	3.100	.308	2.482	3.718

The mean difference is significant at 0.05 levels

From the result in Table 4, it is observed that the significant difference lies in academic staff with UNN, AL-FUNAI and AIFUE preferences at 0.05 alpha levels. Thus, a significant mean difference of 3.636 (UNN), 2.500 (AL-FUNAI), and 1.667 (AIFUE).

Research Question 2: What is the extent of usage of technological instructional devices for curriculum delivery by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy

Table 5: Descriptive Statistics of the extent of utilization of technological instructional devices by academic staff in southeast universities

	University of respondent	Mean	Std. Deviation	N
Use of Projector	UNN	3.8000	.42164	10
	AL-FUNAI	3.1429	.66299	14
	AIFUE	3.0000	1.09545	11
	ABSU	3.5000	.52705	10
	UNIZIK	3.2000	1.13529	10
	Total	3.3091	.83606	55
Use of PowerPoint	UNN	3.5000	.70711	10
	AL-FUNAI	2.9286	.61573	14
	AIFUE	2.5455	.68755	11
	ABSU	3.5000	.70711	10
	UNIZIK	3.0000	.81650	10
	Total	3.0727	.76629	55
Use of Smartboard	UNN	3.6000	.69921	10
	AL-FUNAI	3.0714	.82874	14
	AIFUE	2.1818	.87386	11
	ABSU	2.8000	.78881	10
	UNIZIK	2.3000	1.05935	10
	Total	2.8000	.96992	55
Use of Instru. Video	UNN	3.4000	.84327	10
	AL-FUNAI	3.0714	.82874	14
	AIFUE	2.5455	.82020	11
	ABSU	2.4000	1.26491	10
	UNIZIK	3.1000	1.10050	10
	Total	2.9091	1.00504	55

The table 5 shows the extent of utilization of technological instructional devices by different universities academic staff of faculty of education in south east states

Hypothesis 2: There is no significant difference in the extent of utilization of instructional technological devices in curriculum delivery by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy. The independent variable in this hypothesis was the Universities faculty of education academic staff, and the dependent variable was utilization of each technological instructional devices. A multivariate analysis of variance (MANOVA) was performed to test this hypothesis at the .05 alpha level. The result of the analysis is reported in Table 6

Table 6: Shows MANOVA analysis of difference in the extent of utilization of instructional devices in curriculum delivery Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.987	862.136[b]	4.000	47.000	.000	.987
	Wilks' Lambda	.013	862.136[b]	4.000	47.000	.000	.987
	Hotelling's Trace	73.373	862.136[b]	4.000	47.000	.000	.987
	Roy's Largest Root	73.373	862.136[b]	4.000	47.000	.000	.987
Universities	Pillai's Trace	.695	2.629	16.000	200.000	.001	.174
	Wilks' Lambda	.426	2.902	16.000	144.225	.000	.192
	Hotelling's Trace	1.075	3.057	16.000	182.000	.000	.212
	Roy's Largest Root	.758	9.477[c]	4.000	50.000	.000	.431

a. Design: Intercept + Universities

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

A multivariate analysis of variance (MANOVA) was conducted to examine whether there was significant difference in usage of instructional technological devices across Southeast states universities in Nigeria. The result indicated statistically significant multivariate effect of university on technology usage, Wilks' lambda = 0.426, F(4, 50) = 2.90, P= .000, partial eta squared = .192. Since the MANOVA result showed significant differences in at least two of the dependent variables, the null hypothesis is rejected. In conclusion there is a significant difference in the extent of utilization of instructional technological devices in curriculum delivery by academic staff across universities in south eastern Nigeria.

Table 7 shows the Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	use of projector	4.331[a]	4	1.083	1.620	.184	.115
	use of powerpoint	7.053[b]	4	1.763	3.576	.012	.222
	use of smartboard	14.135[c]	4	3.534	4.819	.002	.278
	use of instru video	7.190[d]	4	1.797	1.898	.125	.132
Intercept	use of projector	599.096	1	599.096	896.467	.000	.947
	use of powerpoint	517.902	1	517.902	1050.262	.000	.955
	use of smartboard	421.106	1	421.106	574.262	.000	.920
	use of instru video	455.814	1	455.814	481.265	.000	.906

Universities	use of projector	4.331	4	1.083	1.620	.184	.115
	use of powerpoint	7.053	4	1.763	3.576	.012	.222
	use of smartboard	14.135	4	3.534	4.819	.002	.278
	use of instru video	7.190	4	1.797	1.898	.125	.132
Error	use of projector	33.414	50	.668			
	use of powerpoint	24.656	50	.493			
	use of smartboard	36.665	50	.733			
	use of instru video	47.356	50	.947			
Total	use of projector	640.000	55				
	use of powerpoint	551.000	55				
	use of smartboard	482.000	55				
	use of instru video	520.000	55				
Corrected Total	use of projector	37.745	54				
	use of powerpoint	31.709	54				
	use of smartboard	50.800	54				
	use of instru video	54.545	54				
a. R Squared = .115 (Adjusted R Squared = .044)							
b. R Squared = .222 (Adjusted R Squared = .160)							
c. R Squared = .278 (Adjusted R Squared = .221)							
d. R Squared = .132 (Adjusted R Squared = .062)							

The univariate analyses showed no significant differences in usage of projectors (F = 1.620, p= .18), powerpoint (F = 3.57, p= .12) and instructional video (F = 1.898, p= .125), but significant difference in usage of smartboard (F = 4.81, p= .002).

Hypothesis 3

Table 8 Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.252[a]	.64	-.011	1.48723
a. Predictors: (Constant), use of instru video, use of projector, use of powerpoint, use of smartboard				

There is no significant effect of technological instructional devices on curriculum delivery in south eastern states universities in Nigeria especially in a health distress economy. The independent variable in this hypothesis was the utilization scores for technological devices used by universities faculty of education academic staff, and the dependent variable was the curriculum delivery scores. A multiple linear regression analysis was performed to test this hypothesis at the .05 alpha level

Table 9: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.517	4	1.879	85.120	.000[b]
	Residual	110.592	50	2.212		

	Total	118.109	54			
a. Dependent Variable: Curriculum Delivery						
b. Predictors: (Constant), use of instru video, use of projector, use of powerpoint, use of smartboard						

Table 10: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	10.733	1.353		7.930	.000	8.015	13.451		
	use of projector	.296	.253	.267	1.170	.000	-.212	.805	.914	1.094
	use of PP	.444	.286	.230	1.555	.001	-.130	1.018	.855	1.169
	use of smartboard	-.059	.226	.139	-.262	.001	-.512	.394	.855	1.170
	use instru video	-.082	.204	.156	-.404	.000	-.492	.327	.974	1.027
a. Dependent Variable: Curriculum Deliery										

A multiple linear regression was conducted to examine whether device preference significantly predict effective curriculum delivery in south eastern states universities in Nigeria especially in a health distress economy. The model was statistically significant, F (4, 50) = 85.120, p< .001 and 64% (R^2 = 064) of the variance in curriculum delivery is explained by technological usage. All four technological devices i.e. use of projector (β = 0.267, p = 001), use of PowerPoint (β = 0.230, p = 001), use of smartboard (β = 0.139, p = 001) and use of instructional video (β = 0.156, p = 000) were significant predictors, suggesting that greater preference in technological devices are associated with improved curriculum delivery. However, the use of projector and PowerPoint had the strongest effect on curriculum instructional delivery in south east universities in Nigeria.

SUMMARY OF THE FINDINGS

1. As shown in table 1 showed University of Nigeria Nsukka had the highest mean response (2.85) preference with Abia State University having the lowest (2.09). This shows that there is an outstanding difference that exist in the preference of tech devices amongst lecturers in south east state universities.
2. The analysis in table 2 showed that there is a significant difference in preference of technological instructional devices in curriculum delivery by academics' staff of faculties of education in south eastern states.
3. The analysis in table 3 showed the most preferred technological device by academic staff of south east universities to be the use of Projector with a mean rank of 2.79 and the least preferred technological device by academic staff as the use of Smartboard with a mean rank of 2.24 when it comes to curriculum delivery.
4. The analysis in table 6 indicated statistically significant multivariate effect of university on technology usage, Wilks' lambda = 0.426, F(4, 50) = 2.90, P= .000, partial eta squared = .192. Since the MANOVA result showed significant differences in at least two of the dependent variables, the null hypothesis is rejected. In conclusion there is a significant difference in the extent of utilization of instructional technological devices in curriculum delivery by academic staff across universities in south eastern Nigeria.
5. The table 8, 9 and 10 showed the regression model was statistically significant, F (4, 50) = 85.120, p< .001 and 64% (R^2 = 064) of the variance in curriculum delivery is explained by technological usage. All

four technological devices i.e. use of projector (β = 0.267, p = 001), use of PowerPoint (β = 0.230, p = 001), use of smartboard (β = 0.139, p = 001) and use of instructional video (β = 0.156, p = 000) were significant predictors, suggesting that greater preference in technological devices are associated with improved curriculum delivery. However, the use of projector and PowerPoint had the strongest effect on curriculum instructional delivery in south east universities in Nigeria

DISCUSSION OF FINDINGS

This study explored the preference, extent of utilization, and effect of technological instructional devices on curriculum delivery among academic staff in Faculties of Education in South Eastern Nigerian universities, particularly within the constraints of a health-distress economy. The findings are discussed in relation to each research hypothesis and situated within the broader literature.

Hypothesis 1: Preference of Technological Devices

There is no significant difference in preference of technological instructional devices in curriculum delivery by academics' staff of faculties of education in south eastern states universities in Nigeria especially in a health distress economy.

Analysis of responses revealed a s significant difference in preference of technological instructional devices in curriculum delivery by academics' staff of faculties of education in south eastern states. Projectors, PowerPoint presentations, smartboard and instructional videos teaching tools were the most preferred across universities. However, the most preferred technological device by academic staff of southeast universities was the use of Projector with a mean rank of 2.79 and the least preferred technological device by academic staff as the use of Smartboard with a mean rank of 2.24 when it comes to curriculum delivery.

This finding suggests that academic staff tend to favor devices that are accessible, easy to operate, and compatible with limited infrastructure which is an important consideration in a health-distress economy where institutional resources may be strained. The result aligns with the findings of Mayer (2021), who noted that preference often correlates with exposure, training, and perceived ease of use. The COVID-19 pandemic, for instance, accelerated adoption of certain tools like Zoom and WhatsApp, but preference still leaned toward simpler, semi-digital tools over more complex LMS platforms. These findings contradict studies that report blanket resistance to technology among Nigerian lecturers (e.g., Ibe & Agbo, 2018), suggesting that faculty are not averse to technology per se, but their preference is influenced by functionality under prevailing conditions.

Hypothesis 2: Extent of Utilization

There is no significant difference in the extent of utilization of technological instructional devices in curriculum delivery by academic staff in South Eastern States Universities in Nigeria

This study investigated the extent to which academic staff in Faculties of Education across South Eastern Nigerian universities utilize instructional technological devices for curriculum delivery. The hypothesis tested whether significant differences exist in the utilization of these devices across the universities. The results from the MANOVA and follow-up ANOVA analyses revealed a statistically significant difference in the extent of utilization of instructional devices among the universities. For instance, UNN reported higher usage of projectors and instructional videos compared to other institutions, while PowerPoint usage showed no significant difference. These findings point to institutional disparities in infrastructure, administrative support, and professional development. They support the conclusions of Eze and Onah (2020), who emphasized that unequal access to technological tools across Nigerian universities perpetuates a "digital divide" in teaching delivery. Notably, usage did not always align with preference—staff might prefer tools they are not able to access or use regularly due to logistical constraints. In a health-distress economy, factors such as unreliable power supply, funding cuts, and reduced face-to-face contact further impact utilization. These findings are in line with prior studies (e.g., Okonkwo, 2020; Edeh & Uzoho, 2019), which noted uneven adoption of educational technology across Nigerian tertiary institutions due to factors such as infrastructural disparities, funding limitations, and staff ICT competency.

Hypothesis 3: Effect on Curriculum Delivery

There is no significant effect of technological instructional devices on curriculum delivery in South Eastern state universities in Nigeria, especially in a health-distress economy.

Regression analysis results showed that technological instructional devices had a statistically significant effect on curriculum delivery. Tools like projectors, smartboards, and educational videos were found to enhance teaching clarity, engagement, and learning outcomes when effectively deployed. This supports the work of Aghaulor & Nwachukwu (2019), who reported a positive correlation between ICT integration and instructional quality. It also aligns with the principles of the Technology Acceptance Model (TAM), which argues that perceived usefulness is a key driver of successful technology adoption and outcomes. However, qualitative comments from respondents also pointed to obstacles such as lack of training, maintenance issues, and erratic internet connectivity. Thus, while the effect is positive, it is conditional on institutional readiness and sustainability.

General Implications in a Health-Distress Economy

Across the three hypotheses, the study consistently shows that while academic staff are open to and positively influenced by technological instructional devices, the broader economic and health-related context shapes what is possible. A health-distress economy marked by strained health infrastructure, budget reallocations, and increased uncertainty has not only revealed gaps in instructional technology deployment but also underscored its importance in ensuring continuity of education.

CONCLUSION

Based on the analysis, the study concludes that:

There is a significant variation in the extent of instructional technology use across different universities. Some institutions are better positioned in terms of infrastructure, training, or policy support for integrating these technologies into teaching. To achieve equitable and effective curriculum delivery, it is crucial to address the disparities in technology usage.

RECOMMENDATIONS

Based on the findings, the following recommendations are made:

Investment in Technological Infrastructure: Universities should invest in smart classrooms, multimedia equipment, and internet access to support technology-driven curriculum delivery.

Capacity Building: Faculties should organize continuous professional development programs on instructional technology for academic staff.

Monitoring and Evaluation: There should be routine evaluation of how instructional technologies are being used and the barriers faced, so that interventions can be targeted and effective.

Cross-Institution Collaboration: Universities with high levels of technology adoption should share best practices with others through inter-institutional workshops or partnerships.

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