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EXTENT OF USE OF E-LEARNING INSTRUCTIONAL STRATEGIES FOR EFFECTIVE INSTRUCTIONAL DELIVERY AMONG LECTURERS IN PUBLIC TERTIARY INSTITUTIONS IN ANAMBRA STATE, NIGERIA

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ABSTRACT

This study examined the extent of the use of e-learning instructional strategies for effective instructional delivery among lecturers in public tertiary institutions in Anambra State, Nigeria. Two research questions guided the study and four hypotheses were tested at 0.05 level of significance. A descriptive survey research design was adopted. The population of the study was 1,510 Faculty of Education lecturers from Nnamdi Azikiwe University, Chukwuemeka Odumegu Ojukwu University, Federal College of Education (Technical), Umunze, and Nwafor Orizu College of Education, Nsugbe. The sample size was 756 lecturers obtained using stratified proportionate sampling approach. The instrument for data collection was a researcher-developed 20-item questionnaire organized into two clusters: synchronous e-learning, and asynchronous e-learning instructional strategies and titled "Extent of Use of E-learning Instructional Strategies for Effective Instructional Delivery Among Lecturers in Public Tertiary Institutions in Anambra State, Nigeria (EUELISEIDLPTI)". The instrument was validated by three experts and reliability of the instrument was established using Cronbach alpha, yielding an overall reliability value of 0.86. Data were analyzed using descriptive and inferential statistics. The findings indicated a low extent of usage of e-learning instructional strategies among lecturers in public tertiary institutions. The study concluded that these institutions are yet to fully embrace e-learning alternatives for effective instructional delivery. Recommendations were made for professional development, policy formulation, and infrastructure improvement to enhance e-learning utilization.

Keywords: E-learning, Instructional Strategies, Effective Instructional Delivery, Synchronous, Asynchronous

Introduction

The evolving landscape of education has seen significant transformations driven by advancements in Science, Technology, and Information and Communication Technology (ICT). These advancements have fundamentally altered traditional educational paradigms, fostering new methodologies that enhance teaching and learning experiences and shaping an environment conducive to academic excellence and innovation.

The integration of Science and Technology enables educators to leverage advanced tools and methodologies to create more interactive and engaging learning environments that promote deeper understanding. By enhancing teaching and learning, technology has had a significant impact on education and training. Information and communication technology (ICT) in particular has significantly changed how teachers and students acquire information and knowledge in the 21st century, which has had a profound impact on the educational process. The introduction of ICT into the delivery of education has sparked the development of a revolutionary form of education known as e-learning.

According to Pham, Williamson and Berry (2018), e-learning also known as electronic learning is a formal approach to learning where lecturers interact with students indirectly using internet-based infrastructure. This is due to the chances offered by numerous institutions and the rise in the usage of e-learning tools by students (OECD, 2005). E-learning, according to Huang, Liu, Tlili, Yang and Wang (2020) is defined as "learning experiences in synchronous or asynchronous environment using different devices such as mobile phones, laptops and others with internet access" It is also seen as an innovative approach in delivering education services through electronic platform to advance knowledge, skills and other learning outcomes. In these environments, Singh and Thurman (2019), averred that students can be anywhere (independent) to learn and interact with lecturers and other students. It is all about teaching and learning with the use of computers.

In this age, learning with the use of computer is simply online ways of acquiring knowledge through the internet or through the offline – CD-ROM. E-learning involves the use of Internet Explorer/Navigator. It may be in form of Audio, Visual and/or Audio/Visual. E-learning is also an instruction delivered on a digital device that is intended to support learning. According to Ogbonna, Ibezim and Obi (2019), e-learning connotes learning or knowledge one acquired or derived from using computer aided-gadgets. To Tamm (2023), e-learning is utilizing electronic technologies to access educational curriculum outside of traditional classroom. This means that e-learning is not classroom-based but rather, it is a programme mainly done online. It can be used by lecturers to deliver classroom teaching at the doorstep of learners (students) even in the remote part of the country.

With the growth of e-learning technology, institutions are currently observing a paradigm shift from teacher-centered to learner-centered learning. Its delivery hardware can be from desktop or laptop computers to tablets or smart phones but the instructional goal is to support individual learning. It is designed for self-study, available upon demand (asynchronous e-learning) as well as instructor led e-learning presented at a fixed time (synchronous e-learning). Adeoye, Adanikin and Adanikin (2020) opined that some e-learning platforms could be utilized in teaching in public tertiary institutions and these platforms include Zoom, Microsoft

teams, Google hangout (meet), Skype, Bamboo learning, Google classroom, Docebo, WIZIQ, Adobe captivate, Elucidat, Blackboard learn amongst others. Although there are different types of e-learning, this research focuses on synchronous learning, and asynchronous learning

Synchronous e-learning is related to structure and time bounded activities which are offered through web conferencing and chatting options. In view of McBrien, Cheng and Jones (2009), synchronous e-learning give opportunity for social communication. Such online platforms are required where (a) video conferencing with 40 to 50 students is possible (b) conversations with students should be done to keep classes natural (c) internet connections are good (d) lecturers are accessible in mobile phones also and not just laptops (e) possibility of watching already recorded lectures and (f) instant feedback from students can be achieved and assignments can be taken (Basilaia, Dgebuadze, Kantaria and Chokhonelidze, 2020).

On the other hand, Asynchronous e-learning are temporally and geographically independent and defined as more individually-based and self-paced as well as less instructor-dependent (Fadhilah, Satrisna, Muslimah and Ihsen, 2021; Udofia and Tommy, 2021; Ogbonna, Ibezim and Obi, 2019;). Asynchronous means that there is no set time for teaching or learning to be occurring. Learners can learn anywhere and can consume their time to gain knowledge of what they want to know and when they need to know. In consonance with Hartnett (2015), learning at home in asynchronous context requires more self-study skills to stay on track, including enough motivation and will to follow learning goals. Instant feedback and quick reaction are impractical under such an environment (Littlefield, 2018). One of the best features of asynchronous learning is that one can learn at his/her own pace, reading and reviewing materials (except for the fact that there is still a deadline) and this method of teaching is perfect for fast learners and those who love working in a self-guided environment.

The benefits gained from these new technologies depend on the extent to which they are used, in ways compatible with human cognitive learning processes and are based on research-based principles of instructional design. Li and Lalani (2020) argued that the advantages of e-learning over classroom learning are a result of students being able to study at their own pace, ability to go back to listen to recorded lectures, e-read materials amongst others. Its flexibility is what defines online education most in terms of time, schedule, and speed of learning (Keengwe and Kidd 2010). Because everything is accessible online, it is simple to view class resources, complete assignments and upload work. Secondly, not every online program is designed the same which means that lecturers can arrange a learning schedule to suit their individual needs and create a balance if necessary (Eze, 2020).

Despite this, Li and Lalani (2020) claimed that e-learning still presents several challenges such as lack of access to digital tools for digital learning and absence of, or, poor internet connectivity. Some scholars (Bansal, 2020; Goldstein, Popescu and Hannah, 2020; Lau, Yang, Dasgupta,

2020; Srivastava, 2020) also argue that e-learning does not achieve as much as classroom learning because of poor access to digital tools such as computers, internet connectivity, and the digital divide. Bouchrika, (2024) also noted that it is incumbent upon us to mention that there are also challenges to this new mode of learning which include low touch and delay in corrections. Hence, it is not necessary that technology guarantees efficient learning, as the misuse of technology can impede it.

Tertiary institutions are academic institutions established to offer quality educational training to citizens for their all-round development. They are educational institutions such as universities, colleges of education, polytechnics and others established primarily to champion human capacity development through quality teaching, research and community services (Owo and Aije, 2020). In Anambra state, there are two public universities; Nnamdi Azikiwe University, Awka (Unizik) and Chukwuemeka Odumegwu Ojukwu University, Uli (COOU) and two colleges of education; Federal College of Education (Technical), Umunze and Nwafor Orizu College of Education, Nsugbe. These tertiary institutions are federal and state owned that have thousands of designated academic staff ranging from the academic cadre 'graduate assistant' up to the highest educational level of 'professors'. Instruction in tertiary institutions are delivered to students by lecturers. These lecturers are assigned the responsibility of essentially facilitating teaching and learning.

Effective instructional delivery (EID) calls on the educators to build on existing knowledge, differentiate instruction and incorporate technology into lesson. The primary goal of EID is to ensure that educators have the skills and knowledge necessary to provide students with effective instruction. This, they accomplish by accessing students' background knowledge and drawing experience from real life and other subject areas which help students conceptualize new topics. Tertiary institutions in Anambra state with the e-learning get make their teaching highly accelerated (Obi, 2007). This is in-line with the desire to ensure high level of usage in public tertiary institutions especially in universities and colleges of education. Thus, the study is set out to determine the extent of use of e-learning instructional strategies for effective instructional delivery among lecturers in public tertiary institutions in Anambra State, Nigeria.

Statement of the Problem

In this present era, traditional classroom-based teaching is increasingly supplemented by technology-driven approaches. The shift from books to electronic educational materials has made knowledge accessible anytime and anywhere via the internet. The integral components of e-learning; computers and the internet, are gradually replacing conventional face-to-face teaching methods and accommodating large numbers of learners simultaneously or at different times and locations. This mode of education not only captures student attention effectively but also enhances knowledge retention.

Despite these advances, disparities exist in the technological proficiency and

access to e-learning tools among lecturers, both male and female, leading to unequal educational opportunities and outcomes. The digital divide is made worse by the fact that many lecturers lack the requisite technological know-how and skills. Understanding these technological gaps is essential for assessing the adoption and extent of use of e-learning in public tertiary institutions.

Secondly, pedagogical effectiveness is another critical consideration in e-learning. While it offers flexibility and accessibility, many lectures may not be adequately prepared to transition from traditional teaching to online methods potentially affecting the extent of use.

Lastly, the implementation of e-learning faces challenges related to infrastructure and technical support within educational institutions. Issues such as unreliable internet connectivity, inadequate hardware resources, and insufficient training for educators on e-learning tools are common barriers. Sequel to all these, it is therefore necessary to investigate the extent of use of e-learning instructional strategies for effective instructional delivery among lecturers in public tertiary institutions in Nigeria, especially in Anambra state. This constitutes the problem of the present study.

Purpose of the Study

The purpose of this study was to determine the extent of use of e-learning instructional strategies for effective instructional delivery among lecturers in public tertiary institutions in Anambra state, Nigeria. Specifically, this study determined the extent of the use of:

1. synchronous e-learning instructional strategy for effective instructional delivery among lecturers in public tertiary institutions in Anambra state, Nigeria.
2. asynchronous e-learning instructional strategy for effective instructional delivery among lecturers in public tertiary institutions in Anambra state, Nigeria.

Research Questions

The following research questions guided the study.

1. To what extent do lecturers in public tertiary institutions in Anambra state use synchronous instructional strategy for effective instructional delivery?
2. To what extent do lecturers in public tertiary institutions in Anambra state use asynchronous instructional strategy for effective instructional delivery?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

1. Lecturers in federal and state owned public tertiary institutions in Anambra state, Nigeria do not differ significantly on the extent of use of synchronous instructional strategy for effective instructional delivery.
2. Male and female lecturers in public tertiary institutions do not differ significantly on the extent of use of

synchronous instructional strategy for effective instructional delivery.

3. Lecturers in federal and state owned public tertiary institutions in Anambra state, Nigeria do not differ significantly on the extent of use of asynchronous instructional strategy for effective instructional delivery.
4. Male and female lecturers in public tertiary institutions do not differ significantly on the extent of use of asynchronous instructional strategy for effective instructional delivery.

Research Method

Descriptive survey research design was adopted for the study. The area of the study was Anambra State. Anambra State is one of the five states in the South-East geographical zones of the Federal Republic of Nigeria. The population of the study comprised 1,510 Faculty of Education lecturers from all public tertiary institutions in Anambra State, namely: Nnamdi Azikiwe University, Awka, Chukwuemeka Odumegu Ojukwu, Uli, Federal College of Education (Technical), Umunze and Nwafor Orizu College of Education, Nsugbe. The sample for this study was 756 lecturers drawn using stratified proportionate sampling procedure.

The instrument for data collection was a researcher-structured questionnaire titled **"**Extent of Use of E-learning Instructional Strategies for Effective Instructional Delivery Among Lecturers in Public Tertiary Institutions in Anambra State, Nigeria (EUELISEIDLPTI)". Data for the study were collected using a 4-point response format of Very High Extent (VHE) = 4, High Extent (HE) =3, Low Extent (LE) =2 and Very Low Extent (VLE) = 1 respectively containing 20 items. The instrument was validated by three experts; two from Faculty of Education and one from Computer Science.

The reliability of the instrument was established using a pilot study of 20 lecturers from University of Nigeria, Nsukka (UNN) which is outside the study area, but have similar features with the studied population. Data collected were coded into Statistical Package for Social Sciences (SPSS) software version 26 and analyzed using Cronbach Alpha because the instrument is polytomously scored (every response attracts a score). The reliability co-efficient for the clusters were: Cluster I = 0.89, and Cluster II = 0.80 respectively. Mean and standard deviation were used to analyze and answer research questions while t-test for independent sample was used to test the hypotheses at 0.05 level of significance. In judging the research questions, it was based on the cluster mean score relative to the real limits of numbers on a four-point scale.

In testing the hypothesis, where the p-value was greater than or equal to the significant value 0.05, the null hypothesis was not rejected, otherwise, where the p-value was less than or equal to the significant value, the null hypothesis was rejected. Data analysis was computed using the Statistical Package for Social Science Version 26.

Presentation of Results

Research Question 1: To what extent do lecturers in public tertiary institutions in Anambra state use synchronous instructional strategy for effective instructional delivery?

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Table 1: Mean Ratings on the Extent to Which Lecturers in Public Tertiary Institutions in Anambra State Use Synchronous Instructional Strategy for Effective Instructional Delivery N=713

S/N	Item Statements	$\bar{X}$	SD	Remark
1.	I use web based platforms such as wordpress or weebly for course delivery	1.96	.59	LE
2.	I use Zoom videoconferencing to facilitate communication with my students	2.06	.50	LE
3.	I use the screenshare feature to show slides and images while teaching virtually	2.01	.56	LE
4.	I send lecture materials to my students via Zoom cloud application	2.02	.58	LE
5.	I use Microsoft teams for course delivery	2.04	.56	LE
6.	I refer students to use the chat messaging for discussion and answering questions	2.06	.53	LE
7.	I record class session for students who are absent and share the link for future play back	1.99	.55	LE
8.	I use E-whiteboard to write and illustrate while teaching my students via videoconferencing	2.01	.56	LE
9.	80% of my lessons are delivered through synchronous environment	1.92	.52	LE
10.	I use the breakout rooms to group students for small group discussion	2.17	.50	LE
	Grand Mean	**2.02**	**.54**	**LE**

The result in Table 1 shows that lecturers in public tertiary institutions in Anambra State use synchronous e-learning instructional strategy for effective instructional delivery to a low extent. This is shown by the grand mean and standard deviation scores of 2.20 and .54 for lecturers in public tertiary institutions in Anambra state, Nigeria. The item by item analysis indicates that lecturers in public tertiary institutions rated all the 10 listed items on synchronous e-learning instructional strategy as being used to a low extent with their mean ranging from 1.92 to 2.17.

Research Question Two: To what extent do lecturers in public tertiary institutions in Anambra state use asynchronous instructional strategy for effective instructional delivery?

Table 2: Mean Ratings on the Extent to Which Lecturers in Public Tertiary Institutions in Anambra State Use Asynchronous Instructional Strategy for Effective Instructional Delivery N=713

S/N	Item Statements	$\bar{X}$	SD	Remark
1.	I use CD/DVD to record and save lectures for students to play and learn at their own places and pace	2.11	61	LE
2.	I refer students to YouTube for video download to argument physical lecture	2.17	56	LE
3.	I upload PowerPoint slides for students to download and study at their own convenience	2.12	54	LE
4.	80% of my lessons are delivered through asynchronous environment	2.24	62	LE
5.	I use email to give and receive students assignment and test	2.24	58	LE
6.	I pre-record using video camera so students can watch at their own pace	2.25	61	LE

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7.	I use campus radio to teach students	2.22	58	LE
8.	I use voice recorder to explain concept and send to students for better understanding	2.31	61	LE
9.	I refer students to educational/scholar websites to download reading materials	2.13	58	LE
10.	I upload lecture materials on the institution's website for students to download for personal studies	2.23	46	LE
	Cluster Mean	**2.20**	**57**	**LE**

The result in Table 2 shows that lecturers in public tertiary institutions in Anambra State make use of asynchronous instructional strategy for effective instructional delivery to a low extent. This is shown by the grand mean and standard deviation scores of 2.20 and .57 for lecturers in public tertiary institutions. The item by item analysis shows that lecturers in public tertiary institutions rated all the 10 listed items on asynchronous e-learning instructional strategy as being used to a low extent with mean ranging from 2.11 to 2.31.

Hypothesis 1: Lecturers in federal and state owned public tertiary institutions in Anambra state, Nigeria do not differ significantly on the extent of use of synchronous instructional strategy for effective instructional delivery.

Table 3: t-test Comparison of Mean Ratings of Lecturers in Federal and State Owned Tertiary Institutions on the Extent of Use of Synchronous Instructional Strategy for Effective Instructional Delivery

Source of variation	N	$\bar{X}$	SD	df	*P*-value	Remark
Federal	534	2.06	.23			
State	179	1.92	.25	711	.000	Sig

The results in Table 4 shows that the mean score for lecturers in federal owned tertiary institutions in Anambra State (*M*=2.06, *SD*=.23) was significantly greater than that of their State counterpart (*M=1.92, SD=.25*); *p*=.000. The null hypothesis of no significant difference between the two groups on the extent to which they use synchronous instructional strategy for effective instructional delivery was therefore rejected.

Hypothesis 2: Male and female lecturers in public tertiary institutions do not differ significantly on the extent of use of synchronous instructional strategy for effective instructional delivery.

Table 4: t-test Comparison of Mean Ratings of Male and Female Lecturers on the Extent of Use of Synchronous Instructional Strategy for Effective Instructional Delivery

Source of variation	N	$\bar{X}$	SD	df	*P*-value	Remark
Male	280	2.01	.25			
Female	433	2.03	.23	711	.31	Not-Sig

Table 6 shows that the mean score for male lecturers in universities in Anambra State (*M*=2.01, *SD*=.25) was not significantly less than that of their female

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(*M=2.03, SD=.23*); *p*=.31. The null hypothesis of no significant difference between the two groups on the extent to which they use synchronous instructional strategy for effective instructional delivery was therefore not rejected.

Hypothesis 3: Lecturers in federal and state owned public tertiary institutions in Anambra state, Nigeria do not differ significantly on the extent of use of asynchronous instructional strategy for effective instructional delivery.

Table 5: t-test Comparison of Mean Ratings of Lecturers in Federal and State Owned Tertiary Institutions on the Extent of Use of Asynchronous Instructional Strategy for Effective Instructional Delivery

Source of variation	N	$\bar{X}$	SD	df	*P*-value	Remark
Federal	534	2.25	.31			
State	179	2.05	.30	711	.00	Sig

The t-test analysis in Table 7 shows that the mean score for lecturers in federal universities in Anambra State (*M*=2.25, *SD*=.31) was significantly greater than that of their state counterpart (*M=2.05, SD=.30*); *p*=.00. The null hypothesis of no significant difference between the two groups on the extent to which they use asynchronous instructional strategy for effective instructional delivery was therefore rejected.

Hypothesis 4: Male and female lecturers in public tertiary institutions in Anambra State do not differ significantly on the extent of use of asynchronous instructional strategy for effective instructional delivery.

Table 6: t-test Comparison of Mean Ratings of Male and Female Lecturers on the Extent of Use of Asynchronous Instructional Strategy for Effective Instructional Delivery

Source of variation	N	$\bar{X}$	SD	df	*P*-value	Remark
Male	280	2.34	.35			
Female	433	2.11	.26	711	.00	Sig

The t-test analysis in Table 9 shows that the mean score for male lecturers in public tertiary institutions in Anambra State (*M*=2.34, *SD*=.35) was significantly greater than that of their female counterpart (*M=2.11, SD=.26*); *p*=.00. The null hypothesis of no significant difference between the two groups on the extent to which they use asynchronous instructional strategy for effective instructional delivery was therefore rejected.

Discussion of Findings

The study's findings revealed that lecturers in public tertiary institutions in Anambra State utilized synchronous instructional strategies for effective instructional delivery to a low extent. This aligns with the findings of Onyemekara and Danagogo (2022), indicating that business educators in Rivers State also used synchronous teaching and learning approaches to a low extent in tertiary

institutions. The agreement in these findings may be attributed to a mere one-year difference in the time span, suggesting that substantial changes in the use of synchronous instructional strategies did not occur.

In contrast, Anetu, Ugwoke, and Moghalu (2020) found that synchronous instructional strategies were utilized to a high extent in teaching in public universities. This discrepancy might be linked to differences in geographical location, time span, and participant demographics across the studies. The results indicated that lecturers in public tertiary institutions in Anambra State used web-based platforms, Zoom video conferencing, screen share features, Zoom Cloud application, Microsoft Teams, and E-whiteboard to a low extent for effective instructional delivery. The explanation for this finding may be the shortage of ICT facilities and insufficient skills among lecturers to employ synchronous instructional strategies effectively.

The study demonstrated that lecturers in public tertiary institutions in Anambra State did not significantly differ in the extent of using synchronous instructional strategies for effective instructional delivery. This supported Chukwu, Ezepue and Iremeka's (2019) findings, suggesting no significant difference between Federal and State University lecturers in the utilization of e-learning infrastructure in South-East States, Nigeria. The similarity in geographical location and available e-learning infrastructure may explain the agreement in these findings.

Further analysis revealed that lecturers in both universities and colleges of education in Anambra State used synchronous instructional strategies for effective instructional delivery to a low extent. This contradicted Alonta's (2019) findings, indicating a high extent of utilization of e-learning resources in universities and colleges of education. The disparity might be explained by differences in time and institutional policies guiding the use of synchronous instructional strategies. The low extent of utilization could also be attributed to irregular training of lecturers and the absence of institutional-based policies.

The study results revealed that lecturers in public tertiary institutions in Anambra State employ asynchronous instructional strategies to a limited extent for effective instructional delivery. This aligns with the findings of Esimone and Osuafor (2023), who observed a low utilization of e-learning strategies in teaching science education courses at NOUN distance learning study centers. The geographical proximity and concurrent time frames might explain the concurrence with this result. In contrast, Onyemekara and Danagogo (2022) found that business educators in Rivers State moderately use asynchronous teaching approaches. Contradicting the present study still, Tijani, Abdullahi, and Omosidi's (2022) reported a high e-learning facility utilization by distance learning Education staff in Kwara State. These disparities may stem from varied priorities in providing e-learning facilities across universities in different geographical locations.

The study indicates that lecturers in public tertiary institutions in Anambra State use CD/DVD for lecture recording, YouTube for video downloads, PowerPoint slides for student access, email for assignment exchange, video cameras for flexible viewing, campus radio for teaching, and voice recorders for effective instructional delivery to a limited extent. Successful deployment of these asynchronous instructional strategies necessitates adequate provision of computers, projectors, electricity, and high-speed internet connectivity, lacking in public tertiary institutions in Anambra State.

Furthermore, the results show that lecturers in both universities and colleges of education in Anambra State employ asynchronous instructional strategies to a low extent, likely due to underfunding leading to a shortage of e-learning facilities. Despite the requirement for physical presence in institutions, there is no significant difference in the extent of using asynchronous instructional strategies between universities and colleges of education in Anambra State.

The study also notes that male and female lecturers in public tertiary institutions in Anambra State predominantly use asynchronous instructional strategies to a low extent. Although male lecturers rated using voice recorders to explain concepts as high, this contradicts Al-Shamry and Al-Shafei's (2022) finding of a moderate extent of lecturers' use of asynchronous instructional strategies. The differences may be attributed to variations in geographical location and institutional contexts. Notably, male and female lecturers undergo similar training and have access to similar e-learning facilities, resulting in their comparable low extent of using asynchronous instructional strategies.

Conclusion

Based on the findings, it was concluded that the use of e-learning instructional strategies for effective instructional delivery was to a low extent in public tertiary institutions in Anambra State. Public tertiary institutions are yet to fully embrace e-learning instructional strategies to bring students from different places through online platform to receive instruction at the same time. Thus, lecturers predominantly deliver lecture and interact with their students within the limits of conventional four corners of the lecture halls without much use of electronic devices in universities and colleges of education in Anambra state, Nigeria.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Management of public tertiary institutions should organize annual professional development programme for lecturers on the use of e-learning instructional strategies especially synchronous, asynchronous and computer-assisted to improve their skills and knowledge of creating and utilizing digital contents for effective instructional delivery.
2. Management of public tertiary institutions should develop policy that provides incentive for lecturers to use e-learning instructional strategies in

instructional delivery to eliminate the barrier of time, place and minimize cost incurred by students to attend lecturers in public tertiary institutions.

3. National Universities Commission and National Commission for Colleges of Education should integrate the use of e-learning instructional strategies as course into educational curriculum of public tertiary institutions to enable prospective teachers to be acquainted with skills and knowledge for effective utilization of the strategy.
4. Lecturers should use CD/DVD to records lectures and uploads on the institution's website for students to download, play and study at their own pace and time.
5. Academic Staff Union of Universities and Colleges of Education Academic Staff Union should canvas, sensitize and create awareness to the members on the need to integrate e-learning for effective instructional delivery in public tertiary institutions.
6. Management of public tertiary institutions should improve electricity supply, procure ICT facilities and make them available to lecturers to utilize in fostering the application of e- learning instructional strategies for effective instructional delivery to students at different locations.

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