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Digital Technology for Capacity Building in Teaching Arts and Social Science Education in Tertiary Institution in Delta State

Dr. Christiana. N. Nwadiokwu

Department Of Arts and Social Science Education

Faculty of Education,

University of Delta, Agbor, Delta State

Tel.: +2348037363347

nwadiokwuchristiana@gmail.com

christiana.nwadiokwu@unidel.edu.ng

Abstract

This study reviewed digital technology for capacity building in teaching Arts and Social Science education in tertiary institutions in Delta State. Lack of adequate information, communication and technology hinders growth and performances on the part of the teacher and students especially in tertiary institution. The design of the study was a descriptive survey research design. The population for the study comprises all lecturers in the University of Delta Agbor, Delta State University Abraka and College of Education Warri. Three (3) research purposes and Three (3) research questions guided the study. A sample size of one hundred and two (102) Lecturers were randomly selected through simple random sampling technique. Three (3) research questions guided the study. The instrument use for the study was the questionnaire titled “Digital Technology for Teaching Arts and Social Science Education in Tertiary Institutions in Delta State” (DTFTASEITIDS). The instruments were validated and the

reliability obtained was 0.87 using crombach Alpha coefficient. Data was collected and analyzed using chi-square analysis. The result obtained from the study shows that lecturers have no positive attitude towards digital technology in teaching. Based on the above finding, it was recommended that administrators/government should indicate more interest in the use of digital technology for effective teaching

Keywords: *Digital Technology, Capacity Building, Arts and Social Science Education, Tertiary Institutions, Delta State.*

Introduction

Modern digital technologies have created a global village in which people can communicate with others across the world as if they live together in the same room. Digital technology is the utilization and management of information with appropriate telecommunication tools and technologies such as the internet, wireless network, cellphones, computers, monitors, radio, television, hardware, software application and satellite systems.

According to *Ijeh (2016)* digital technology have provided society with a vast array of new communication capabilities to communicate in real time with others in different countries and locations using for instance, instant messaging, voice overIP (VOLP), video conferencing, social media networking, websites like facebook which allows users from all over the world to remain in contact and communicate on regular basis.

Digital technology virtually affect every aspect and field of human endeavors in education and other areas (Wong and Li 2018). It is the opinion of educational policy makers that instructional tools like digital technology would change the face of education thereby rendering the use of textbooks obsolete. Suffice it to saytherefore, that the use of digital technology is considered an important innovation in classroom teaching.

Digital technology is used to enhanced and facilitate teaching/learning in Arts and Social Science education. Lecturers need to be aware and trained on the ability to identify and use appropriate digital technology for practical demonstration. For

example live streaming, online library, online learning, E-learning, digitizing learning and so on (Ekarani, 2018). Digital learning technology process makes education more accessible to individuals all over the world. Oghounu 2021, opined that digital learning is useful for lecturers and students who are unavoidably absent or in open distance learning (ODL) where online teaching and streaming can become possible.

Types of Digital Technology used in Education

Digitalizing makes test and examinations to be handled or conducted online with much ease, wide reach and less cost. Lecturers in Arts and Social Science Education using computer-based test (CBT) which is among digital tools can mark, analyze and release results faster. According to Rogers 2013 tools in digital technology include: (a) Hardware (b) Software and (c) Digital classroom.

(a) Hardware: hardware in digital technology are; internet equipment, projectors, public address system, power sources ie solar, electricity, standby generators, batteries, servers, tele-printers, slides, podiums, computers, amplifiers, loud speakers, microphone, cameras, converters, pointer pens, flash drives and so on.

(b) Software: software packages are powerful digital tools used mostly for live streaming in classrooms platforms for creating online class platform for teaching, instructing and learning.

According to Wilbert 2021, software digital tools include: doicast, panopto, IBM cloud video, kaltura, live stream, muvi, hippo video, cincopta, Vplayed, Zype, Zoom meeting and video conference, Live stream, Edmodo, Project, Thinglink, Ted-Ed, CK-12, Class dojo, Edu clipper, Story bird, Animoto, Moodle, Cacao, Pixton, Voice thread, Socrative, Engrade, Top hat, Trello, Read write think, Scratch, Prezi, SelfCAD, Quizlet, Google classroom, Adobe spark video, Khan academy, Seesaw and so on.

(c) Digital Classroom: Digital classroom according to Martinovic and

Zhang (2012), digital classrooms include; digital halls, digital board which is also called smart white boards, electronic or interactive boards.

Challenges For Limited Digital Technology

Some challenges for limited digital technology adoption by lecturers in Arts and Social Science Education are enumerated below;

- lack of lecturers knowledge of digital technology;
- lack of provision of technological tools;
- lack of confidence on the part of the lecturers;
- limited lecturers experience on digital technology;
- limited in-service training, workshop, seminars for lecturers;
- power disruption and
- internet challenges.

Implementation of Digital Technology

The provision of in-service training, workshops and seminars will go a long way to create awareness/knowledge of the usage of digital instructional technology. (Rogers, 2013). The advancement of technology continue to permeate throughout our society (Jenny, Husman, and Husman, 2013). According to Semiz and Ince (2012), new technologies to the educational settings with the potential to change knowledge and skills are supposed to activate teaching/learning.

Research has suggested that knowledge of digital technology will influence teachers usage in teaching/learning. Tertiary institutions are accessible to their own technologies: such as smartphones, computers and the internet (Anderson and Jiang, 2018). Due to the shift of inclusion of technology in the classroom setting, teachers should be taught the pedagogical methods of using digital technologies.

The understanding of the new technological paradigm made the society a network connection where information is generated processed and shared (Comscore, 2011). Digital technologies allow the access, processing and production of information available text format, image, sound data, multimedia, and hypermedia documents,

constituting an essential language of communication in contemporary society (Levi, 2011).

International institutions like British Educational Communications and Technology Agency (BECTA, 2003), the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2008) and the World Bank (World Bank, 2005) have advised and promoted the use of information and communication technology for teaching and Germany, Asian and European Countries have implemented public policies aimed at increasing and improving the use of on-line tools in their educational systems (law, Lee and Chan 2020).

Lecturers' pedagogical practices and learners in relation to the use of internet and digital technology in teaching has been the subject of researchers. According to Godwin (2020) new technologies can be used to support and foster learning to create situations based on real problems brought to the classroom as well as to create opportunities for feedback and reflection, construction learning communities and expansion of learning opportunities for lecturers. **Purpose of the Study**

This study sought to:

- examine the level of awareness of the types of digital technology in teaching Arts and Social Science Education in tertiary institutions.
- ascertain the extent of utilizing digital technology by Arts and Social Science Education lecturers in tertiary institutions.
- examine the challenges in utilizing digital technologies by Arts and Social science Education lecturers in tertiary institutions.

Research Questions

The following research questions guided the study:

1. What is the extent of awareness of the types of digital technology by Arts and Social Science Education Lecturers in tertiary institutions?
2. What is the extent of utilizing digital technology by Arts and Social Science Education Lecturers in tertiary institutions?
3. What are the challenges of utilizing digital technologies and the

traditional method by Arts and Social Science Education Lecturers in tertiary institutions?

Methodology

The study adopted the descriptive survey design. The population of the study comprised all lecturers in University of Delta Agbor, Delta State University Abraka and College of Education Warri. Simple random sampling techniques was employed in the selection of one hundred and two (102) lecturers in Arts and Social science Education Department across the three (3) tertiary institutions. The instrument for data collection are the internet, checklist and the questionnaire tagged “Digital technology for teaching Arts and Social Science Education in tertiary institution in Delta State” (DTFTASEITIDS).

The questionnaire used the likert scale of four (4) options that weighed 4, 3, 2 and 1 respectively. Chi-square statistics was used to analyze the data.

$$X^2 = \sum \frac{(O - E)^2}{E}$$

Where X^2 = chi-square;

O = Observed responses

E = Expected responses and \sum = summation, this is done at 0.05.

The content of the checklist has already been validated by the internet. The validation of the questionnaire was carried out by specialist in curriculum, measurement and evaluation. The researcher requested the validators to carry out contents construct and face validity.

The reliability of the instrument was conducted on 20 teachers from 5 different state that were not part of the sample of the study and a reliability co-efficient of 0.86 cronbach Alpha was obtained which indicated that the instrument was reliable for usage. The research questions were analyzed using chi-square (x^2) test at 0.05 level of significance.

The researchers went round all the schools to administer the questionnaire with the assistance of the Heads of Social Science

Department and Science Department. There was immediate collection of the completed questionnaires. The data collected were analyzed using chi-square method at degree of 0.05 level of significant with a degree of freedom 12.

Presentation of Results and Discussions

Research question one: What is the level of awareness of the types of

Table 1. Chi-square analysis on the types of digital technology by Arts and Social Science education lecturers in tertiary institution

Statement	Observation (O)	Expected Frequency (E)	(O-E)	(O - E) ²	(O - E) ² / E
E-mails	26	20.5	6.5	42.5	2.06
Facebook	12	11.9	0.09	0.09	0.0008
Projectors	10	8.6	1.4	1.96	0.227
Public Address system	6	9.7	5.7	3.25	3.35
Power sources	2	3.3	3.3	1.69	0.5
Sever	8	9.1	1.1	2.14	4
Tele-printers	10	5.3	4.7	22.1	4.16
Slides	-	3.8	3.85	14.8	3.85
Podiums	6	4.3	1.7	2.89	0.67
Computers	-	1.5	1.4	1.95	0.68
Amplifiers	-	6.9	0.9	47.6	6.9
Kaltura	-	3.9	3.9	15.2	3.9
Cameras	6	2.88	3.12	9.7	3.38
Converters	8	3.24	4.76	22.65	6.99
Pointer pen	4	1.8	2.2	4.8	2.67
Flash drives	4	1.6	2.5	6.25	3.90
Live streams	-	0.9	0.9	3.09	0.9
Muvi	-	0.6	0.6	0.36	0.6
CK12	-	0.7	0.7	0.49	0.7
Class dojo	-	0.25	0.25	0.06	0.25
Top hat	102				49.69

digital technology by Arts and Social Science Education Lecturers in tertiary institutions?

Calculated chi-square (X^2) value 49.69

Table chi-square value == 21.03 at 12df;

Table 1 shows that the calculated chi-square value is 49.69 and the table value 21.03 at 0.05 significant level and at 12df following the chi-square decision rule, the calculated chi-square value is higher than the table value, hence lack of lecturers' awareness of types of digital technology in teaching has no impact in students learning. This is in line with Martinovic and Zhange (2012) who opined that several studies have reported the impact of digital technology in teaching while the challenge is focused on awareness

and knowledge on how teachers are coping with these tools in their practice.

Research Question two: What is the extent of utilizing digital technology by Arts and Social Science Education Lecturers in tertiary institutions?

Table 2: Chi-square analysis on utilization of digital technology by Arts and Social Science lecturers in tertiary institutions

Statement	Observation (O)	Expected Frequency (e)	(O – E)	(O – E) ²	(O – E) ² / E
E-mails	24	19.7	4.3	18.49	0.93
Facebook	10	9.4	0.6	0.36	0.03
Projectors	8	9.4	- 1.4	1.96	0.20
Public Address system	8	7.3	0.7	0.49	0.06
Power sources	2	6.2	- 4.2	17.64	2.84
Sever	12	9.9	2.1	4.41	0.44
Tele-printers	6	4.6	1.4	1.96	0.42
Slides	-	4.6	- 4.6	21.16	4.6
podiums	2	3.6	- 1.6	2.56	0.71
Computers	6	3.1	- 2.9	8.41	2.71
Amplifiers	2	3.8	- 1.8	3.24	0.85
Kaltura	-	1.8	- 1.8	3.24	1.18
Cameras	8	1.8	6.2	38.44	21.35
Converters	-	1.4	-1.4	1.96	1.4
Pointer pen	-	1.2	- 1.2	1.44	1.2
Flash drives	-	4.6	- 4.6	21.16	4.6
Live streams	2	2.2	-0.2	0.04	0.01
Muvi	2	2.2	- 0.2	0.04	0.01
CK12	4	1.7	2.3	5.29	3.11
Class dojo	4	1.4	-10	100	7.14
Top hat	102			Total	54.41

Calculated chi-square (X^2) value = 54.41

Table 2 show that the calculated chi-square value is 54.41 and the table value is 21.03 at 0.05 significant level and at 12 degree of freedom.

Following the chi-square decision rule, the calculated chi-square value is higher than the table value. Hence, there is no stimulation of lecturers' utilization of digital technology in teaching/learning. This finding agree with Rogers (2013) who reported that the provision of in-service training, workshops and seminars for teachers will go a long way to create awareness/knowledge of the usage of digital tools.

Research Question three: What are the challenges of utilizing digital technologies and the traditional method by Arts and Social Science Education Lecturers in tertiary institutions?

Table 3:Chi-square analysis of challenges of utilization of digital technology by Arts and Social Science Education lecturers in tertiary institutions.

Statement	Observation (O)	Expected Frequency (e)	(O – E)	(O – E) ²	(O – E) ² /E
E-mails	12	12.9	-0.9	0.18	0.062
Facebook	10	10.4	-0.4	0.16	0.039
Projectors	4	1.9	2.1	4.41	2.321
Public Address system	6	6.8	-0.8	0.64	0.094
Power sources	2	2.05	-0.05	0.003	0.0001
Sever	22	20.95	1.05	1.103	0.053
Tele-printers	4	6.7	-2.7	7.290	1.088
Slides	12	5.85	6.15	37.822	6.465
Podiums	8	8.4	-0.4	0.160	0.019
Computers	2	2.05	-0.05	0.003	0.001
Amplifiers	2	2.05	-0.05	0.003	0.001
Kaltura	-	1.9	-1.9	3.61	1.9
Cameras	-	1.68	-1.68	2.82	1.67
Converters	2	2.4	-0.4	0.160	0.066
Pointer pen	3	2.9	0.1	0.010	0.003
Flash drives	2	2.05	-0.05	0.003	0.001
Live streams	2	1.9	-0.1	0.010	0.005
Muvi	4	3.65	0.35	0.123	0.034
CK12	4	3.9	0.1	0.010	0.003
Class dojo	-	1.4	-1.4	1.96	1.4
Top hat	102			Total	15.23

Calculated chi-square X^2 value is 15.23.

Table 3 shows that the calculated chi-square is 15.23 and the table value is 21.03 at 0.05, at 12 degree of freedom. Following the chi-square decision rule, the calculated chi-square value is lower than the

table value. Hence there is no difference in the challenges of utilization of digital technology and the traditional educational method of teaching/learning. This is in line with Ning (2011) who opined that the result of master studies showed that despite the increase in technology usage in education the teachers seldom use the tools in teaching as they preferred the traditional method.

Conclusion

Arts and Social science lecturers are limited in their use of digital technology for educational purposes. They are concern with social interactions in the use of email search and download for information purposes. Teachers' awareness of mastery of digital technology for teaching has no effect in the present day education program tertiary institutions in Nigeria. The pedagogical use of digital technology should be embedded in teachers' program for effective learning. (Godwin 2010). Arts and Social Science lecturers should be given enough time to practice what they learn in order to be prepared for the challenges of activities in the future. Positive experiences of learning and teaching with digital technology will stimulate their future pedagogic use.

Recommendation

Based on the findings the following recommendations are made;

- i. Government should develop a model called “Technology Pedagogical content knowledge's (TPACK) approaches. This approach will integrate teachers training on utilization of digital technologies.
- ii. There should be articulation between policies at different levels to promote effective lecturers training in digital technology.
- iii. There should be massive investment on technology web-based education for lecturer's usage for teaching and learning in tertiary institution.
- iv. Government should organize workshops/seminars for lecturers on the awareness, knowledge utilization and challenges of digital technologies for effective teaching/learning.

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