

# DEVELOPING ALTERNATIVE TEACHING CONTINUITY PLANS TO MOVE CLASSROOMS ONLINE AT COVID-19 ERA IN NIGERIA

## CHAPTER FIFTEEN

### EFFECT OF e-LEARNING TECHNOLOGY ON TEACHING AND LEARNING PROCESS DURING COVID-19 PANDEMIC AMONG STUDENTS IN TERTIARY INSTITUTIONS IN ONDO STATE, NIGERIA

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#### **Abstract**

This study examined the effect of e-learning technology on teaching and learning process during COVID-19 pandemic among students in tertiary institutions in Ondo State. The study adopted quasi- experimental pretest- posttest non-randomized control group design. The population of the study comprised of all students in tertiary institutions in Ondo State. 100 students were randomly selected using the purposive sampling technique. One instrument was designed by the researcher to gather data for the study. Test re- test method was used to ascertain the reliability of the instrument. Reliability coefficient of 0.75 was obtained. The data generated was analyzed using t-test and ANOVA to test the hypotheses. Based on the findings the result revealed that there was significant difference in the performance scores of experimental and control groups of students' when taught health education with goggle, class Dojo and Moodle technology and those taught with non e-learning. Based on these findings; it was recommended that the government must further create enabling environment and ICT centers for staffs and students to achieve excellence in teaching and learning process using technological tools. The educational system must be restructured as to accommodate e-learning technology, update the teachers and bridge the learning gap during an outbreak of disease.

**Keywords:** E-learning, technology, COVID-19, ILT, pandemic, corona, virus.

#### **Introduction**

Epidemics of emerging and re-emerging infectious diseases are on the increase, with devastating health, social and economic consequences, especially in the developing countries. The Novel coronavirus outbreak has been declared by the World Health Organization as the sixth public health emergency of international concern (WHO, 2020). COVID-19 is an acute respiratory pneumonia, it is a severe acute respiratory syndrome caused by coronavirus. This COVID-19 pandemic began in December 2019 at Wuhan China. More than (4,170,424) cases have been reported in more than (212) countries or

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regions, resulting in more than (289,399) death worldwide, confirmed cases in Nigeria stands at (4,971) with (164) death as at 13<sup>th</sup> May, 2020 (NCDC, 2020). Now, there is a fear of the unknown, science is yet to provide a definite answer to the cause(s) of the disease or exactly how it spreads, public health measures have been imposed: victims are quarantined, Movie theaters, Schools, Markets, Churches and other Public meeting places are closed down for the time being (WHO, 2019).

The lockdown measures to curtail the spread of COVID-19 have brought major challenges to the educational system in Nigeria. It is therefore imperative that our Educational system move with the pace at which education moves globally technologically, which calls for an urgent step to swing towards E-learning technology. To remain relevant and maintain the preferred University Education status in the globe, the mission should focus on enhancing the quality of teaching and learning and continuously updating the methods and skills of knowledge providers by equipping them with modern technology services delivered by skilled and motivated members of staff to meet the contemporary and future needs of Nigerian students with the capability to compete with global technology

E-learning is commonly referred to as the international use of networked information and communication technology in teaching and learning which includes, virtual learning, distributed learning, network and web-based learning (Goyal, 2012). Lemo (2018) posited that the emergence of e-learning technology has made the world into a global village and has transformed teaching and learning processes. Technology integration outside the classroom instruction has gained much ground in developed countries. The concept of E-learning technology integration is now viewed as a fundamental part of successful teaching and learning which has gained the interest of many researchers who investigated and explored effective ways of integrating technology into the teaching and learning processes (Anderson & Ashfield, 2008). Smith (2007) noted that students in this generation are proficient and more comfortable with using technology than other generations; therefore, teachers need to prepare students to be proficient in its use so as to increase their performance and to avoid learning gap which may occur during disease outbreak.

With the progress of information and communication technology development, E-learning is emerging as the paradigm of modern education. E-learning technology is an innovative way to motivate students to learn without congregating in the classroom, allowing them to partake in their learning experiences perhaps with the aid of Zooming, Skype, Streaming and other distant learning devices. Labbo and Place (2010) revealed that technology allows students to learn in new ways. Gonzalez (2010) posited that integrating technology in or

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outside the classroom allows students a greater opportunity to learn and also allows students to develop critical-thinking skills.

Google technology, is an American multinational technology company that specializes in internet- related services and products, which include online advertising technological, a service engine, cloud computing, software, and hardware examples includes; Instagram, Twitter, LinkedIn, YouTube, Facebook, Gmail and Yahoo. Class Dojo is another beautiful communication application for teachers, parents and students which is used to build an amazing classroom community (Mc Leod 2006). With Class Dojo, not only can you open communication on both sides, but educators will also have new tools to regulate the behaviour of their students.

Moodle application, like goggle and Class Dojo, with it, you can learn whenever you are, whenever you want you can easily access course contents and courses, even when offline. You can as well connect with course participants, keep up to dated receive instant notification of messages and other events, such as taking and submission of assignments. Students can as well track his progress, view their grade, check completion progress in courses and access library.

### **Statement of the Problem**

The Novel coronavirus outbreak has been declared by the World Health Organization as the sixth public health emergency of international concern (WHO, 2020). The lockdown measures to curtail the spread of COVID-19 crises have brought major challenges to the educational system in Nigeria, students did not have opportunities to learn what they supposed to learn resulting to learning gaps. It is therefore imperative that our Educational system move with the pace at which education moves globally technologically, which calls for an urgent step to swing towards E-learning technologies. To remain relevant and maintain the preferred University Education status in the globe, the mission should focus on enhancing the quality of teaching and learning process. To continuously updating the methods and skills of knowledge providers by equipping them with modern e-learning technology services delivered by skilled and motivated members of staff. To meet the contemporary and future needs of Nigerian students with the capability to compete globally, particularly in this era of COVID-19 pandemic challenges. It is against this background this study investigates the effect of e-learning technologies such as goggle, class dojo and moodle application on teaching and learning outcomes among students in Ondo State.

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### **Objective of the Study**

The objectives of the study are to;

1. Determine the performance scores of experimental and control groups of students when taught health education with goggle technology and those taught with non-e-learning platform.
2. Determine the performance scores of experimental and control groups of students when taught health education with class Dojo technology and those taught with non E-learning technology.
3. Determines the performance scores of experimental and control groups of students when taught health education with moodle technology and those taught with non E-learning technology.

### **Research Questions**

The following research questions were formulated to guide the study:

1. What are the performance scores of experimental and control groups of students when taught health education with goggle technology and those taught with non-E-learning technology?
2. What are the performance scores of experimental and control groups of students when taught health education with class Dojo technology and those taught with non-E-learning technology?
3. What are the performance scores of experimental and control groups of students when taught health education with moodle technology and those taught with non-E-learning technology?

### **Null Hypotheses**

The following research hypotheses were formulated and tested at 0.05 level of significance.

1. There is no significant difference in the performance scores of experimental and control groups of students when taught health education with class goggle technology and those taught with non-E-learning technology.
2. There is no significant difference in the performance scores of experimental and control groups of students when taught with health education with class Dojo technology and those taught with non-E-learning technology.
3. There is no significant difference in the performance scores of experimental and control groups of students when taught health education with Moodle technology and those taught with non-E-learning technology.

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### Methodology

The study used the pre-test, post-test non-randomized control group quasi-experimental design. The population for the study consisted of all students in tertiary institutions in Ondo state, Nigeria. The sample for the study consisted of 100 students which were purposively selected from two (2) tertiary institutions in Ondo state, Nigeria. The study made use of one instrument: The instrument was validated by experts in the field. The reliability of the instrument was established by administering it on 40 students in tertiary institution outside the sample space using test- retest method. The scores from the first and second administrations was analyzed using Pearson' Product Moment Correlations Analysis. Completed copies of the questionnaire were collected and analyzed using inferential statistics of T-test, Analysis of Variance (ANOVA), were used to test all hypotheses formulated. All hypothesis generated in this study was tested at 0.05 level of significance.<sup>2</sup>

### Hypothesis Testing

**Table 1:** Analysis of Variance (ANOVA) on performance scores of experimental and control groups of students when taught health education with goggle technology and those taught with non e-learning

Source of variation	Type III Sum of Squares	Df	Mean square	F	Sig. (P)
Corrected Model	5.843	1	6.484	<b>4.537</b>	.000
Intercept	8.447	1	10.447	6.878	.000
Before* After (Treatment)	5,537	1	21.884	6.798	.000
Error	5.007	96	3.109		
Total	24.000	100			
Corrected Total	10.850	98			

R Squared = .665 (Adjusted R Square = .523) \*P<0.05

The results in Table 1 showed that F –calculated (6.798) was greater than F-table (3.180.) df=(1,96) and P<0.05. This means that there was a significant difference in the performance scores of experimental and control groups of students when taught health education with goggle technology and those taught with non e-learning.

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**Table 2:** Analysis of Variance (ANOVA) of performance scores of experimental and control groups of students when taught health education with Class Dojo technology and those taught with non e-learning.

Source of variation	Type III Sum of Squares	Df	Mean square	F	Sig. (P)
Corrected Model	37.459	1	7.509	<b>3.537</b>	.004
covariate	807.709	1	807.709	78.217	.000
Before* After (Treatment)	17.755	1	8.877	6.157	.017
Error	600.095	96	2.136		
Total	1782.000	100			
Corrected Total	637.554	98			

*R Squared = .654 (Adjusted R Square = .540) \*P<0.05*

The results in Table 2 showed that F –calculated (6.157) was greater than F-table (3.180).  $df = (1,96)$  at 0.05 level of significance. This means that there was a significant difference in the performance scores of experimental and control groups of students when taught health education with class Dojo technology and those taught with non e-learning

**Table 3:** Analysis of Variance (ANOVA) of performance scores of experimental and control groups of students when taught health education with Moodle technology and those taught with non e-learning

Source of Variation	Type III Sum of Squares	Df	Mean square	F	Sig. (P)
Corrected Model	65.843	1	7.484	<b>38.537</b>	.000
covariate	8.447	1	5.447	25.878	.000
Before* After (Treatment)	3.537	1	.884	4.798	.000
Error	25.007	96	.109		
Total	856.000	100			
Corrected Total	99.850	98			

*R Squared = .654 (Adjusted R Square = .540) \*P<0.05*

The results in Table 3 showed that F –calculated (4.798) was greater than F-table (3.180).  $df = (1,96)$  at 0.05 level of significance. This means that there was significant difference in the performance scores of experimental and control groups of students when taught health education with moodle technology and those taught with non e-learning.

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### Discussion of Findings

The impact of technology in today's classroom is enormous; hence there is the need to ensure its integration into teaching and learning processes to enhance sustainable development. In research question 1, the findings as presented in the table revealed there was a significant difference in the performance scores of experimental and control groups of students when taught health education with goggle technology and those taught with non e-learning. The findings were supported by Labbo and Place (2010) who revealed that e-learning technologies allow students to learn in a new way. Gonzolez (2010) posited that integrating technology in outside classroom allows students a greater opportunity to learn and to allow students to develop critical thinking skills.

Also in research question 2, the findings as presented in table 2, showed that there was significant difference in the performance scores of experimental and control groups of students when taught health education with Class Dojo technology and those taught with non e-learning. The findings were corroborated by Gonzalez (2010) which posited that integrating technology in the classroom allows students a greater opportunity to learn and also allows students to develop critical-thinking skills and is important for educators to understand that students learn more effectively with e-learning technology. The finding was also in line with Bello (2014) who posited that the emergence of e-learning technology has made the world into a global village and has transformed teaching and learning process. The research question 3 results as presented in table 3 showed that there was significant difference in the performance scores of experimental and control groups of students when taught health education with Moodle technology and those taught with non e-learning. Piotr (2012) and Goyal (2012) respectively noted that e-learning technology is very useful when teaching student without gathering together in a lecture room. This eliminates cross-infection during an outbreak of a disease; there will be continuity in the teaching and learning process without learning gaps even if schools are closed down due to pandemic disease outbreak.

### Conclusion

The study revealed that e-learning technology has improved teaching and learning process during the outbreak of an epidemic. This was evident in the use of e-learning technology and technological tools to teach and evaluate students to achieve quality teaching and learning outcome without necessarily coming together in a classroom setting.

### Recommendations

Based on the study the following recommendations were made:

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1. The Government must further create enabling environment for staffs and students to achieve excellence in teaching and learning process using e-learning technological tools.
2. The country's educational system must be restructured as to accommodate e-learning technology, update the teachers and bridge the learning gap during an outbreak of disease.

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