

Availability and Utilization of Virtual Teaching Resources in Colleges of Education in Southern Nigeria

Adams Omokaro Ekwevugbe^{1,2*} Folashade Oludolapo Atare¹

1. School of Education, Delta State College Of Education Mosogar, PMB 4088 Sapele, Delta State Nigeria.

2. Faculty of Education, Delta State University PMB 1 Abraka, Delta State, Nigeria.

* Email of corresponding Author: ekwevugbephd@gmail.com

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Abstract

The outbreak of the Corona virus epidemic had an adverse effect of schooling worldwide, students and indeed everyone had their movement restricted to avoid the spread of the deadly virus, social distances were maintained while face to face method of transmitting knowledge became difficult to actualize. It was based on the above that the virtual teaching method of knowledge dissemination became not only necessary but the way to go. However the successes recorded in many tertiary educational institutions in Africa and Nigeria in particular was said to be below average as many schools closed without an alternative because several virtual teaching materials were not in place. This paper analyses the availability and extent of utilization of virtual teaching resources in colleges of education in southern Nigeria. Three research questions were raised to guide the study while the research design employed for this study was ex-post facto design. The population of the study include all Colleges of Education (Federal, State & Private) in Southern Nigeria.. A sample size of twelve (12) public and private Colleges of Education across the South-South geopolitical zone of Nigeria was used. The instruments for the study included a checklist adapted from National Commission for Colleges of Education (NCCE) as well as a questionnaire titled Questionnaire on Utilization and Prospect of Virtual Resource Colleges of Education in Nigeria (QUPVRCEN). The findings of the study revealed Whatsapp and Zoom are virtual teaching resources available in Colleges of Education in Nigeria while on the average virtual teaching resource in private and public Colleges of Education in Nigeria are underutilized. The paper recommended among others that More virtual teaching resources should be employed by institutions of higher learning in Nigeria and provision of infrastructure to support technology driven educational systems should be provided and put in good working condition.

Keywords: availability, utilization, virtual resources, teaching, colleges of education.

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1.Introduction

The outbreak of the Corona Virus Pandemic (COVID-19) Worldwide has disrupted social, cultural, business and educational activities. The educational delivery in the Colleges of Education in Nigeria was brought to a total halt. This brings to the fore the need to change from the face to face method of knowledge delivery to a virtual system that will defy boundaries, location, and is contact free.(Martin & Parker, 2014)

The education system could use virtual teaching resources to overcome the challenges of prolonged lock-downs and other disruptive tendencies that usually slow down the completion of classes and lectures. The use of virtual resources has been acknowledged as a means of promoting better assimilation of concepts at times such as this (Bozkurt & Sharma, 2020).The need to determine the competency level of lectures in the utilization of the virtual teaching resources will go a long way in achieving the desire for a reduction or elimination of possible disruptions emanating from natural disasters such as Covid-19.

Many of the civilized and developed economies were seen conducting major events such as lecture deliveries, matriculation and convocation through the use of virtual to continue with educating their children. The developed world simply moved in the direction of virtual teaching resources and the education of their children moved without any significant breaks by adopting virtual teaching resources (Moorhouse,2020). This is in contrast to the schools in developing nations like Nigeria where 99% of schools were locked without further teaching and learning events. The countries simply switched from the regular face to face to the digital form of knowledge dissemination, the level of availability of the virtual teaching resources made the switch easy and seamless but same cannot be said of the colleges of Education in Nigeria.

Education in Nigeria is among the sectors affected by the devastating impact of COVID-19 pandemic especially because of the traditional face-to-face approach to teaching and learning in use. Lecturers and students were helpless about how to continue learning and knowledge dissemination in the face of the pandemic (Eze, Sefotho, Onyishi, & Eseadi, 2021)

Following the COVID-19 pandemic, all schools in Nigeria were closed from March 27th 2020 as a measure to limit the spread of the disease. In response different states through the Ministries of Education released modalities for radio, television and internet based learning for students in public primary and secondary schools. Though these approaches to teaching and learning were effective in developed nations, but ineffective in the education system in developing and low income nations like Nigeria because virtual teaching and learning resources were hitherto not in place (Obiako & Adeniran, 2020).

It was estimated that more than 1,576,021,858 students which constituted about 91.3% of all learners across the globe were affected by the closure of educational institutions (UNESCO, 2020). This closure occasioned by the outbreak of Covid-19 is likely to widen the gap in education quality and socioeconomic equality because during the closure lesser percentage of learners who are the urban areas and also likely to hail from higher income families, stand more chances of accessing education through technology leaving behind the majority of learners from poor homes and under-served rural and sub-urban areas of the country (Zhong, 2020; Ekwevugbe & Atare, 2022).

2 Statement of the Problem

The Covid -19 Pandemic has greatly impacted teaching in the Nigerian Educational System. The need for virtual system of knowledge delivery in the Colleges of Education has thrown up the issue of availability, adequacy and competencies in the utilization of virtual learning materials in these tertiary education systems. The long period of lock down without lectures for trainee teachers who are themselves trainers of pupils and student in the lower basic level of education is of great concern. Virtual teaching appears to be the way to go if the challenges posed are to be resolved both now and in the future. The nature of the ownership of the colleges of education is equally seen by stakeholders as what will likely influence the availability and extent of utilization of virtual teaching resources in the colleges of education in Nigeria. This study attempts to ascertain the availability and extent of utilization of virtual teaching resources in the Colleges of Education in southern Nigeria. Could the low level of integration of the Virtual teaching resources, be as a result of none availability and perceived poor utilization of the resources in the Colleges of Education in Southern Nigeria?

3. Purpose of the Study

The major goal of this study is to determine the availability and utilization of virtual teaching resources in College of Education in Southern Nigeria. To achieve this goal the study attempted to;

1. Identify the available virtual teaching resources in colleges of education in southern Nigeria
2. Determine the difference in the availability of virtual teaching resources in public and privately owned Colleges of Education in Southern Nigeria;
3. Find out the difference in the extent of utilization of virtual teaching resources between public and privately owned Colleges of Education in Southern Nigeria

4.1 Research Questions

The following research questions will guide the study;

1. What virtual teaching resources are available in Colleges of Education in Southern Nigeria?
2. What is the difference in the availability of virtual teaching resources between public and privately owned Colleges of Education in Southern Nigeria?
3. What is the difference in the extent of utilization of virtual teaching resources between public and privately owned Colleges of Education in Southern Nigeria?

4.2 Research Hypotheses

Ho1. There is no significant difference in the availability of virtual teaching resources between public and privately owned Colleges of Education in Southern Nigeria

Ho2. There is no significant difference in the extent of utilization of virtual teaching resources between public and privately owned Colleges of Education in Southern Nigeria.

5. Methodology

The study adopted the ex-post facto design because there was no interference by the researchers on the characteristics of the population and samples. The population of the study includes all Colleges of Education (Federal, State & Private) in Southern Nigeria. A sample size of twelve (12) public and private Colleges of Education across the South-South geopolitical zone of Nigeria was used. The purposive sampling technique was used in selecting the educational institutions while simple random sampling technique was employed in selecting five hundred and four (504) lecturers representing 10% of the five thousand and thirty four (5034) lecturers across the twelve colleges was sampled.

The instruments for the study included a checklist adapted from National Commission for Colleges of Education (NCCE) while the second is a questionnaire titled Questionnaire on Utilization and Prospect of Virtual Resource Colleges of Education in Nigeria (QUPVRCEN) which is sub-divided into two parts (section A and B) Section A required data regarding the name and geographical location of the school. Section B focused on items relating to the research questions. The respondents are requested to describe the extent of utilization of the items presented using the following parameters: least utilized (LU), underutilized (UU), moderately utilized (MU), fully utilized (FU).

The instrument was validated by experts in the Faculty of Education, University of Benin. The test-retest reliability check in public and Private Colleges of Education in Ondo State was used to determine the reliability of the instrument at 0.05 level of significance using Pearson's product correlation coefficient which yielded 0.72. Descriptive statistics such as frequencies, percentages, mean, standard deviation and t-test statistics was used.

6. Results

Research Question one: What virtual teaching resources are available in Colleges of Education in Southern Nigeria?

Table 1: Availability of virtual teaching resources in Southern Nigerian Colleges of Education

S/no	Questionnaire Variable	N	Fully Available (FA)	Moderately Available (MA)	Barely Available (BA)	Not Available (NA)	Mean
1.	Goggle classroom are utilized as a teaching resource in our school	504	3	18	93	390	1.27
2.	Digital White Boards are commonly used for lectures in our school	504	19	41	102	342	1.48
3.	Our lecture notes are sometimes communicated via Whatsapp	504	224	102	127	51	2.99
4.	Institutional email address are used to send out assignments to students	504	13	73	148	270	1.66
5.	Lecturer's emails are sometimes used to receive assignments from students	504	39	41	56	362	1.53
6.	Our school sometimes uses Zoom for lectures and	504	151	116	190	47	2.74

	seminars						
7.	Webinar are common teaching aids used in our school	504	55	91	144	241	1.97
8.	Video lectures are sometimes organized and sent out to students in my school	504	30	66	103	305	1.64
9.	Our school uses Canva's online graphic for publishing animated laboratory practical examples during practical sessions to students	504	18	67	128	291	1.63
10.	Our school encourages asynchronous learning by providing digital coursework during weekends and holidays to students	504	72	89	101	242	1.98
	Total Mean						1.89

Key: 0.0 - 0.9 = Not Available, 1.0 - 1.9 = Barely Available, 2.0 - 2.9 = Moderately Available, 3.0 – 4.0 = Fully Available

Table 1 revealed that variables items 1, 2, 4, 5, 7, 8, 9 and 10 had a mean score below the bench mark mean score of 2.50 indicating that these virtual teaching resources were not used as teaching resources in Colleges of Education in Nigeria. However variables items 3 and 6 had the highest frequency of 224 and 151 under the Fully Available column indicating that Whatsapp based communication system and the use of zoom virtual teaching resource used for lectures and seminars are fully available in Colleges of Education in Nigeria. Furthermore, both variables items 3 and 6 had a mean score above the bench mark mean score of 2.50 indicating that Whatsapp and Zoom are virtual teaching resources available in Colleges of Education in Nigeria. Conversely, the total mean for all the variables had a mean score of 1.89 which is below the mean bench mark of 2.50 indicating that on an average f virtual teaching resources were not available in the right quantity in Colleges of Education in Southern Nigeria.

Research Question Two: What is the difference in the level of availability of virtual teaching resource in between public and privately owned Colleges of Education in Nigeria?

Table 2 Level of availability of virtual teaching resources

S/N	Item	Private Owned Colleges Of Education						Public Owned College Of Education						Gross Total
		Avail able	%	Not Avail able	%	Sub tota l	%	Ava ilabl e	%	Not Avai lable	%	Sub tota l	%	
1.	Google classroom driven technology	98	56.32	76	43.68	174	100	16	4.85	314	95.15	330	100	504
2.	Digital White Boards infrastructur	113	64.94	61	35.06	174	100	49	14.85	281	85.15	330	100	504

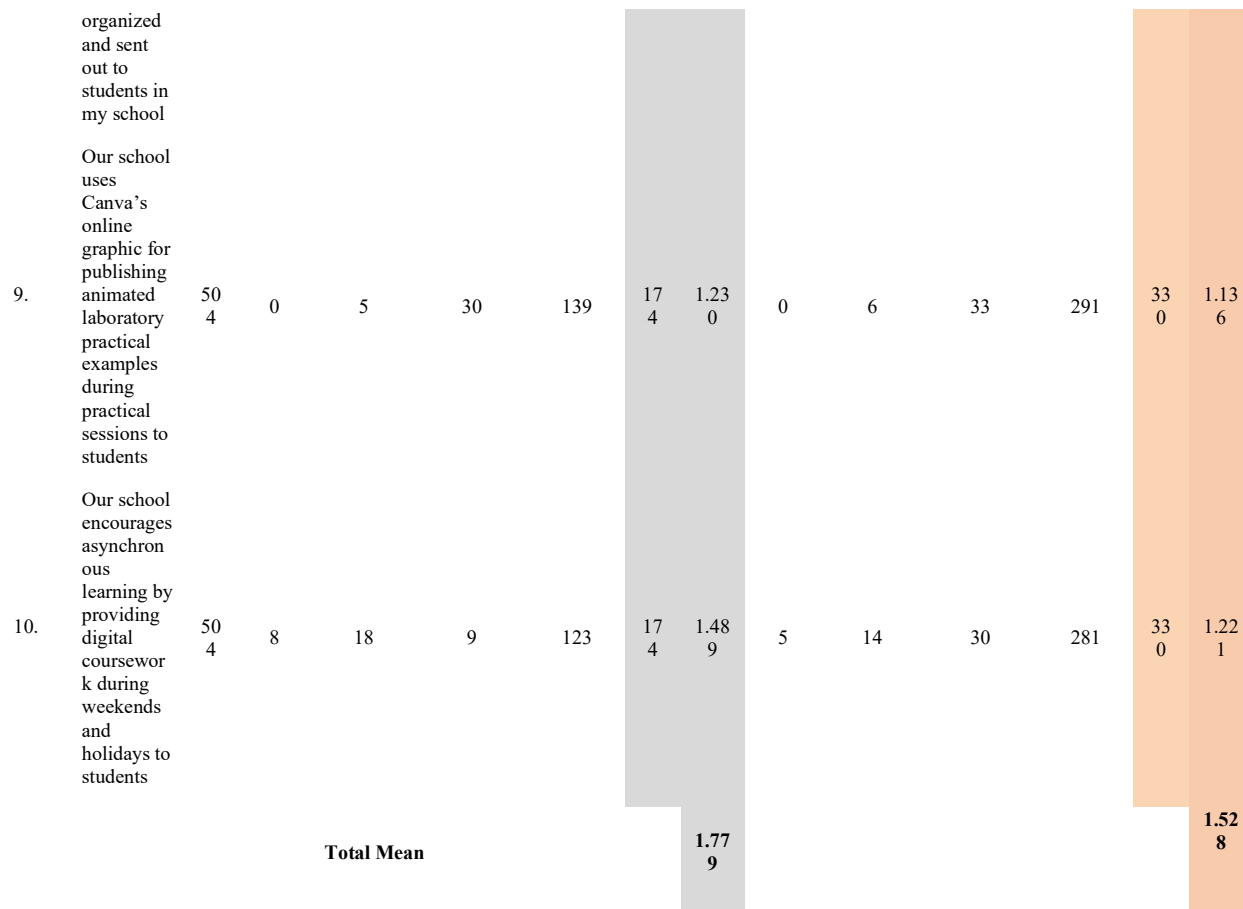
	Private Colleges of Education				Public Colleges of Education				Total				
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
3. Whatsapp based communication system	158	90.80	16	9.20	174	100	295	89.39	35	10.61	330	100	504
4. assignments led email feedback system for lecturers	144	82.76	30	17.24	174	100	90	27.27	240	72.73	330	100	504
5. Designated emails addresses for assignments submission for students	118	67.82	56	32.18	174	100	18	5.45	312	94.55	330	100	504
6. Zoom enabled conferences for lectures and seminars	161	92.53	13	7.47	174	100	296	89.70	34	10.30	330	100	504
7. Webinar supported teaching aids	135	77.59	39	22.41	174	100	155	46.97	175	53.03	330	100	504
8. Lecture Video archives based asynchronous studies	66	37.93	108	62.07	174	100	133	40.30	197	59.70	330	100	504

Table 2 showed that variables items 1 – 7 had a frequency of 98, 113, 158, 144, 118, 161, and 135 respectively, with percentage levels above 50% average indicating that the above virtual teaching resource were available in privately owned Colleges of Education in Nigeria. Conversely, only variables items 3 and 6 with a frequency of 295 and 296 had a percentage levels above 50% average indicating that the above virtual teaching resource were available in public owned Colleges of Education in Nigeria.

Research Question Three: What is the difference in the extent of utilization of virtual teaching resources between public and privately owned Colleges of Education in Southern Nigeria?

Table 3: Extent of virtual resources utilization in Nigeria

S/no	Questionnaire Variable	N	Private Owned Colleges Of Education					Public Owned College Of Education					Sub total	Mean
			Fully Utilized (FU)	Moderately Utilized (MU)	Underutilized (UU)	Not Adequate for Utilization (NAU)	Sub total	Mean	Fully Utilized (FU)	Moderately Utilized (MU)	Underutilized (UU)	Not Adequate for Utilization (NAU)		
1.	Goggle classroom are utilized as a teaching resource in our school	504	0	7	16	151	174	1.172	0	5	12	313	330	1.067
2.	Digital White Boards are commonly used for lectures in our school	504	6	14	28	126	174	1.425	5	12	24	289	330	1.191
3.	Our lecture notes are sometimes communicated via Whatsapp	504	108	37	18	11	174	3.391	134	51	93	52	330	2.809
4.	Institutional email address are used to send out assignments to students	504	4	25	58	87	174	1.690	3	19	80	228	330	1.385
5.	Lecturer's emails are sometimes used to receive assignments from students	504	9	21	35	109	174	1.598	6	18	31	275	330	1.258
6.	Our school sometimes uses Zoom for lectures and seminars	504	28	39	51	56	174	2.224	63	64	71	132	330	2.176
7.	Webinar are common teaching aids used in our school	504	19	37	48	70	174	2.029	15	44	66	205	330	1.603
8.	Video lectures are sometimes	504	10	15	35	114	174	1.546	9	26	64	231	330	1.433



Key: 0.0 - 0.9 = Not Adequate for Utilization, 1.0 - 1.9 = Underutilized, 2.0 - 2.9 = Moderately Utilized, 3.0 - 4.0 = Fully Utilized

Table 3 revealed under the Private Owned Colleges of Education column, that variables items 1, 2, 4, 5, 8, 9 and 10 had a mean score within the rank of 1.0 - 1.9 = Underutilized, which is also below the bench mark mean score of 2.50 implying that these virtual teaching resources were underutilized in Private Colleges of Education in Nigeria. Conversely, under the Public Owned Colleges of Education column, that variables items 1, 2, 4, 5, 7, 8, 9 and 10 had a mean score within the rank of 1.0 - 1.9 = Underutilized, also below the bench mark mean score of 2.50 indicating therefore that these virtual teaching resources were underutilized in Public Colleges of Education in Nigeria. However only variables items 3 under private Colleges of Education column had mean scores above the average mean bench mark of 2.50 with a score of 3.391 falling within the rank of 3.0 - 4.0 = Fully Utilized category implying that Whatsapp is Fully Utilized when adopted as virtual teaching resources in Private Owned College of Education in Nigeria, while variables items 3 under public Colleges of Education column had mean scores above the average mean bench mark of 2.50 with a score of 2.8.09 falling within the rank of 2.0 - 2.9 = Moderately Utilized category indicating that Whatsapp is Moderately Utilized when adopted as virtual teaching resources in Public Owned College of Education in Nigeria. Furthermore, the total mean for all variable items under the Private Owned Colleges of Education column had a mean score of 1.779, while the total mean for all variable items under the Public Owned Colleges of Education column had a mean score of 1.528 both falling within the 1.0 - 1.9 = Underutilized category and also below the mean bench mark of 2.50 indicating holistically that on an average virtual teaching resource in private and public Colleges of Education in Nigeria are Underutilized.

Research Hypotheses

Research Hypothesis one: There is no significant difference in the availability of virtual teaching resources between private and public owned Colleges of Education in Southern Nigeria

Table 4. T-test showing the significant difference in the availability of virtual teaching resources between private and public owned Colleges of Education in Nigeria

Variables	N	Mean	SD	t-calc	t-crit	Df	p	Decision
Availability of virtual teaching resources in private owned Colleges of Education	174	2.96	0.37	11.986	1.98	2	0.00	Rejected
Availability of virtual teaching resources in public owned Colleges of Education	330	2.29	0.68					

The table 4 shows a t-test measuring the mean values for the variables for the availability of virtual teaching resources between private and public owned Colleges of Education in Nigeria. The table revealed a t-calculated value of 11.986 which is greater in value than the standard t-critical or table value of 1.98, with a p value of 0.00, rejecting the null hypothesis and as a result there is a significant difference in the availability of virtual teaching resources between private and public owned Colleges of Education in Nigeria.

Research Hypothesis Two: There is no significant difference in the extent of utilization of virtual teaching resources between private and public owned Colleges of Education in Southern Nigeria

Table 5 T – Test showing significant difference in the extent of utilization of virtual teaching resources between private and public owned Colleges of Education in Nigeria

Variables	N	Mean	SD	t-calc	t-crit	Df	p	Decision
Extent of utilization of virtual teaching resources in private owned Colleges of Education	174	1.78	0.65	4.551	1.98	2	0.00	Rejected
Extent of utilization of virtual teaching resources in public owned Colleges of Education	330	1.53	0.55					

The table shows a t-test measuring the mean values for the variables for difference in the extent of utilization of virtual teaching resources between private and public owned Colleges of Education in Nigeria. The table revealed a t-calculated value of 4.551 which is greater in value than the standard t-critical or table value of 1.98, with a p value of 0.00, rejecting the null hypothesis and as a result there is a significant difference in the extent of utilization of virtual teaching resources between private and public owned Colleges of Education in Nigeria.

7. Discussion of Results

The study revealed that Whatsapp and Zoom are virtual teaching resources available in Colleges of Education in Nigeria, and on an average from a holistic point of view virtual teaching resources were not available in Colleges of Education in Nigeria. The study showed also that Whatsapp based communication system is adequate when employed as a virtual teaching material in Colleges of Education in Nigeria, and from a holistic point of view virtual teaching resources were not adequate in Colleges of Education in Nigeria.

The study also revealed that the use of Zoom for lectures and seminars were Moderately Utilized as virtual teaching resources in College of Education in Nigeria, and on an average virtual teaching resource were not available in Colleges of Education in Nigeria, and that lecturers were Moderately competent above average in the use of the above virtual teaching resources in Colleges of Education in Nigeria and on an average from a holistic point of view the level of competency of lecturers in the use of virtual teaching resources in College of Education in Nigeria is Moderately Competent but below average.

The study highlights that Google classroom driven technology, Digital White Boards infrastructure, Whatsapp based communication system, assignments led email feedback system for lecturers, Designated emails addresses for assignments submission for students, Zoom enabled conferences for lectures and seminars, Webinar supported teaching aids and Lecture Video archives based asynchronous studies were virtual teaching resource were available in private owned Colleges of Education in Nigeria, whereas only Whatsapp based communication system and Zoom enabled conferences for lectures and seminars were virtual teaching resource available in public owned Colleges of Education in Nigeria

The study indicated that Whatsapp based communication system, assignments led email feedback system for lecturers and Zoom enabled conferences for lectures and seminars virtual teaching resource were adequate in privately owned Colleges of Education in Nigeria, whereas only Whatsapp based communication system virtual teaching resource was adequate in public owned Colleges of Education in Nigeria.

The study adds that Goggle classroom utilized as a teaching resource, Digital White Boards commonly used for lectures, Institutional email address used to send out assignments to students, Lecturer's emails are sometimes used to receive assignments from students, Video lectures organized and sent out to students, Canvas online graphic for publishing animated laboratory practical examples during practical sessions, asynchronous learning by providing digital coursework virtual teaching resources were underutilized in Private Colleges of Education in Nigeria, whereas all of the above virtual teaching resources including Webinar teaching aids virtual teaching resources were underutilized in Public Colleges of Education in Nigeria.

The study also revealed that Designing Academic Calendars that can be administered via Goggle classroom, Enforcement of mandatory use of Digital White Boards, Encouragement of the use of Whatsapp as direct communication channels between lecturers and students, Promotion of the use of Institutional email address as assignments forwarding platforms to students, Encouragement of the use of Lecturer's emails as assignments receptors systems from students, Enforcement of the use of Zoom technologies for lectures and seminars, Mandatory use of Webinar as common teaching aids, Encouragement of the use of Videos as lectures materials that can be sent out to students, Promotion of the mandatory use of Canvas online graphic for publishing animated laboratory practical during practical sessions and the Encouragement of the use of asynchronous learning by providing digital coursework during weekends and holidays were prospects of improving virtual teaching resources in the Colleges of Education in Nigeria.

Furthermore, the study earmarked that there is a significant difference in the availability of virtual teaching resources between private and public owned Colleges of Education in Nigeria. Revealing further that there is a significant difference in the level of adequacy of virtual teaching resources between private and public owned Colleges of Education in Nigeria. In conclusion, the study showed that there is a significant difference in the extent of utilization of virtual teaching resources between private and public owned Colleges of Education in Nigeria.

8. Conclusion

The study conducted shows that there is a significant difference in the availability and utilization of virtual teaching resources between private and public owned Colleges of Education in Southern Nigeria. This can be attributed according to Adeyeye, Afolabi, and Ayo, (2014) to the "standard of Nigerian Higher Education and educational processes which contribute to the quality of learning and teaching environments that encourage dialogue, exchange of ideas, intrinsic approaches to study and optimal utilization of time and resources", which may vary from institution to institution.

9. Recommendations

Based on the findings and the conclusion of this study, the researcher puts forth the following recommendations:

- i. More virtual teaching resources should be employed by institutions of higher learning in Nigeria
- ii. Provision of infrastructure to support technology driven educational systems should be provided and put in good working condition
- iii. Government and educational institutions should provide flexible curriculum that can easily be administered via technology based systems

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