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**APPRAISAL OF AVAILABILITY AND EXTENT OF UTILIZATION OF
COMPUTER-BASED RESOURCES IN TEACHING AND LEARNING OF
GEOGRAPHY IN COLLEGES OF EDUCATION, NIGER STATE.**

**Aja, Kelechi Nnenna
Tukura, C. S. (PhD)
Anthony, Aniah (PhD)
&
I. I. Kuta (PhD)**

*School of Science and Technology Education
Federal University of Technology, Minna*

Abstract

The study examined the "Appraisal of Availability and Extent of Utilization of Computer-Based Resources in Teaching and Learning of Geography in Colleges of Education, Niger State." This study employed descriptive survey design approach. A sample of 300 students and seventeen 17 lecturers from Geography Education Departments of the two colleges of Education in Niger State were used for the study. A multi stage sampling techniques was used to get the sample .instrument namely "Computer-Based Resources Questionnaire for Lecturers (CBRQL)" and "Computer-Based Resources Questionnaire for Students (CBRQS) were developed by the researcher to illicit responses from Geography lecturers and students. The instrument, (CBRQL and CBRQS)" were validated by four experts in Federal University of Technology, Minna, two from Geography Department and the other two from Education Technology Department. The reliability coefficient of 0.74 and 0.86 respectively were obtained using Cronbach-alpha method. Six research questions and two null hypotheses guided the study. Research questions were answered using mean and standard deviation while Man Whitney U test statistics was used to test the hypotheses. The findings revealed that Colleges of Education in Niger State had few geography computer-based resource packages in their computers for teaching and learning of geography, findings further shared that there was very minimal utilization of Geography Computer-based resources by Geography lecturers and students of both Colleges of Education. Though, the lecturers and students were competent in the use of computer technology tools. In the light of this, it was recommended among others that Government should collaborate with Non-Governmental Organizations such as School Net Nigeria (SNG) to establish computer supply program that will ensure

regular and adequate provision of computer technology tools and other necessary accessories to all Colleges of Education in Nigeria.

Key word: Appraisal, Computer-based, Resources, Geography, College of Education.

Introduction

Geography is one of the social science subjects taught in both senior secondary schools and higher institutions in Nigeria. The advancement of science and technology has made Geography not only relevant but very important (Bahir Dar, 2014). Its usefulness cuts across all fields of human endeavour such as planning, administration, academics, cartography, climate, environmental and other related areas (Adebayo, 2011).

Teaching and learning are two interdependent activities that take place daily in the life of an individual. Bhoomireddy and Bhatia (2004) see teaching as a system of actions intending to produce learning. They also view teaching as an activity that is designed and performed to produce change in behavior. Learning on the other hand as defined by Hornsby (2001) is a gradual change in one's attitude about something so that one behaves in a different and acceptable way. Branford, J., Brown, A., & Cocking, R. (2000). also see learning as an inference from some performances of the organism manifesting in a change of behavior. Teaching and learning therefore, are twin activities involved in the total educative process. Hence, it involves the teacher, the learner and other equipment and materials. Teachers play the central role in the teaching-learning processes. They help to impart knowledge and skills to the learners that can help them to function well in life. The advent of technology has led to the introduction of computer-based resources in the teaching-learning process, this has made it possible for many types of education training. This has also made teaching and learning clearer, appealing and interesting enabling the learners to assimilate knowledge and skills faster (Farrell, 2017). The introduction of computer technology into teaching has permeated nearly all aspects of human organization and education roles. Much has been written on its usefulness and relatedness to all areas of human discipline such as education, computer and information technology, engineering, agriculture etc (Songhao, Saito, and Maeda, 2011).

The usefulness of computer technology in teaching has therefore been stressed by many educators and researchers. Computer is a powerful interest-arousing device that could bring into play the senses of touch, sight and hearing. Countries all over the world especially the developed ones are working towards bringing almost the total use of computers in teachings and learnings in their schools (Sharma, 2013). The inclusion of the electronic computer system into the educational sector provides the machinery to solve teaching and learning

problems even more rapidly and accurately than hitherto conceived. This has eventually made the computer system the doyen of humanity as it continues to exert greater acceptance (Milman *et al.*, 2012). Today computer technology in schools is one of the most far-reaching and fast growing developments in education.

In developing countries like Nigeria, computers are widely used in schools for administrative work. The need for computer technology and literacy in the educational system should be made relevant. Computers have been found to be an effective device for presenting an instructional programs. According to Judy (2011), computer can be used to diversify, develop and improve the pedagogical relation of teaching and learning. Encouragement of computer education in the institutions of learning for innovative and effective has become necessary as the world is now a global village (Kwacha, 2013).

Statement of the Research Problem

Students' achievement in geography is characterized by poor achievement probably as a result of non-utilization of computer-based resources such as in teaching and learning of Geography. The use of traditional lecture method in geography classes hardly motivates students, as a result it makes them passive thereby makes the subject appears difficult. Also, abstract concepts such as Map reading, Land forms, Earth quakes, Volcanoes, are taught only using textbooks and unelaborated diagrams, maps among others (Onyejemezi, 2001; Olaitan, 2002; & Salawu, 2003). Poor funding is also one of the factor responsible for non-availability of computer-based resources in schools. Some of these resources could be available but teachers might lack knowledge and skills on how to use them. Several strategies such as field trip, use of video packages, computer aided instruction among others have been used at National Certificate in Education (NCE) level to teach Geography to students but the achievements of National Certificate in Education (NCE) students in Geography had remained poor It is against this background that the researcher intends to investigated the availability and extent of utilization of computer-based resources in teaching and learning of Geography in collages of education in Niger State.

Objectives

Specifically the objectives were to.

1. Find out the extent of the availability of computer-based resources in the Colleges of Education in teaching geography in Niger State.
2. Determine the extent of utilization of the computer-based resources in teaching by lecturers in Geography Education Department in Colleges of Education in Niger State.

3. Find out the extent of utilization of the computer-based resources in learning Geography in Colleges of Education in Niger State.
4. Examine the computer-literacy level of Geography lecturers in teaching Geography in Colleges of Education in Niger State.
5. To find out the factors that affect the use of computer-based resources in teaching and learning of Geography in Colleges of Education in Niger State.
6. The relationship between the extent of availability and utilization of computer-based resources in Colleges of Education in Niger State.

Research Questions

The following research questions were raised to guide the study.

1. What is the extent of the availability of computer-based resources in the Colleges of Education in teaching Geography in Niger State?
2. To what extent are computer-based resources being utilized by students in learning Geography in Colleges of Education in Niger State?
3. How effective are the Geography lecturers in computer-based resources in the teaching of Geography in Colleges of Education in Niger State?
4. To what extent are computer-based resources being utilized in teaching Geography in Colleges of Education in Niger State?
5. What are factors that affect the use of computer-based resources in teaching and learning of Geography in Colleges of Education in Niger State?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance.

1. There is no significant difference between students' responses in Colleges of Education Minna and Federal College of Education Kontogora in utilization of computer-based resources in learning of Geography.
2. There is no significant difference between students' responses in Colleges of Education Minna and Federal College of Education Kontogora on extent of utilization of computer-based resources in learning of Geography.

Method

This study employed the descriptive survey design. The study used quantitative and qualitative approaches in collecting and analyzing of data. The population of this study comprised all Geography student in 2017/2018 academic session of Colleges of Education in Niger State (Niger State College of Education, Minna, and Federal College of Education, kontogora) with a total of 1,159 (917 from Niger State College of Education, Minna and 242 from Federal

College of Education, Kontogora) and all the geography lecturers in Geography Education Department in both Colleges of Education (11 from Niger State College of Education, Minna and 6 from Federal College of Education, Kontogora). A sample of 300 geography students from the Geography Education department of the two colleges of Education in Niger state, were used for the study. A multi stage sampling technique was used to get the sample. Two structured questionnaires titled Computer-Based Resources Questionnaire for Lecturers (CBROL) and Computer-Based Resources Questionnaire for students (CBRQS) were developed by the researcher to illicit responses from Geography lecturers and students. The instruments CBRQL and CBRQS were validated by four experts, two from Geography Department, Federal University of Technology, Minna and other two from Education Technology Department, Federal University of Technology, Minna. In order to determine the reliability of Computer-Based Resource questionnaire for lecturers and Computer-Based Resource for students, lecturers from Geography Education, College of Education, Zuba were used. Sixty geography students who were not part of the study sample were also sampled randomly from College of Education, Zuba. The reliability of the instruments were determined using the Cronbach-alpha method as 0.74 for CBRQL and 0.86 for CBRQS respectively. The researcher administered the questionnaire with the help of research assistants to Geography lecturers and students. The researcher collected the questionnaires for analysis after the lecturers and students had responded to them. The research questions were answered using mean and standard deviation while the hypotheses were tested using Man-Whitney U test at 0.05 level of significance.

RESULTS

Research Question 1

What is the extent of the availability of computer-based resources in the Colleges of Education in Niger State?

Table 1. Frequencies and Percentages of Responses of Geography Lecturers and Students on the Availability of Computer-Based Resources in Niger State College of Education, Minna.

S/N	Items	Frequencies and percentages of students' responses		Frequencies and percentages of lecturers' responses	
		YES	NO	YES	NO
1.	e-Geography Textbooks	146 (97.3%)	4 (2.7%)	10 (90.9%)	1 (9.1%)
2.	Earth in Relation to the sun software	143 (95.3%)	7 (4.7%)	1 (9.1%)	10 (90.9%)
3.	Map Reading and Interpretation e-Package	142 (94.7%)	8 (5.3%)	8 (72.7%)	3 (27.3%)
4.	e-Cartography software	124 (82.7%)	26 (17.3%)	7 (63.6%)	4 (36.4%)
5.	Climatology e-software	108 (72.0%)	42 (28.0%)	8 (72.7%)	3 (27.3%)
6.	Geography e-Journal	13 (8.7%)	137 (91.3%)	6 (54.5%)	5 (45.5%)
7.	e-Regional Geography materials	133 (88.7%)	17 (11.3%)	10 (90.9%)	1 (9.1%)
8.	e-world Atlas package	43 (28.7%)	107 (71.3%)	4(36.4%)	7 (63.6%)
9.	Population Geography e-package	140 (93.3%)	10 (6.7%)	10 (90.9%)	1 (9.1%)
10.	Field Trip features e-packages	33 (22.0%)	117 (78.0%)	2 (18.2%)	9 (81.8%)
11.	e-lecture Note material	10 (6.7%)	140 (93.3%)	2 (18.2%)	9 (81.9%)
12.	e-physical Geography Materials	135(90.0%)	15(10.0%)	9 (81.8%)	2 (18.2%)
13.	e-Conference Proceeding Materials	9 (6.0%)	141 (94.0%)	7 (63.6%)	4 (36.4%)
14.	e-Economic Geography materials	147 (98.0%)	3 (2.0%)	11 (100.0%)	0 (0.0%)
15.	e-Human Geography materials	147 (98.0%)	3 (2.0%)	11 (100.0%)	0 (0.0%)

NB: ≥ 50 = Available
 Table 4.1.1 showed that out of the 15 items listed, only 9 items were agreed by both lecturers and students to be available in the college. They are item 1,3,4,5,7,9,12,14, and 15. In addition the lecturers indicated that item 6 and 13 were also available while the students indicated that item 2 was also available.

Table 2: Frequencies and Percentages of Responses of Geography Lecturers and Students on the Availability of Computer-Based Resources in Federal College of Education, Kotongora

S/N	Items	Frequencies and percentages of students' responses		Frequencies and percentages of lecturers' responses	
		YES	NO	YES	NO
1.	e-Geography Textbooks	140 (93.3%)	10 (6.7%)	5 (83.3%)	1 (16.7%)
2.	Earth in Relation to the sun software	14 (9.3%)	136 (90.7%)	1 (16.7%)	5 (83.3%)
3.	Map Reading and Interpretation e-Package	137 (91.3%)	13 (8.7%)	4 (66.7%)	2 (33.3%)
4.	e-Cartography software	52 (34.7%)	98 (65.3%)	1 (16.7%)	5 (83.3%)
5.	Climatology e-software	107 (71.3%)	43 (28.7%)	4 (66.7%)	2 (33.3%)
6.	Geography e-Journal	18 (12.0%)	132 (88.0%)	4 (66.7%)	2 (33.3%)
7.	e-Regional Geography materials	56 (37.3%)	94 (62.7%)	5 (83.3%)	1 (16.7%)
8.	e-world Atlas package	34 (22.7%)	116 (77.3%)	2 (33.3%)	4 (66.7%)
9.	Population Geography e-package	136 (90.7%)	14 (9.3%)	6 (100.0%)	0 (0.0%)
10.	Field Trip features e-packages	68 (45.3%)	82 (54.7%)	0 (0.0%)	6 (100.0%)
11.	e-lecture Note material	19 (12.7%)	131 (87.3%)	1 (16.7%)	5 (83.3%)
12.	e-physical Geography Materials	129 (86.0%)	21 (14.0%)	5 (83.3%)	1 (16.7%)
13.	e-Conference Proceeding Materials	14 (9.3%)	136 (90.7%)	0 (0.0%)	6 (100.0%)
14.	e-Economic Geography materials	142 (94.7%)	8 (5.3%)	0 (0.0%)	6 (100.0%)
15.	e-Human Geography materials	141 (94.0%)	9 (6.0%)	5 (83.3%)	1 (16.7%)

NB: $\geq 50\%$ = Available

Table 4.1.2 revealed that out of the 15 items listed, only 6 items were agreed by both lecturers and students to be available. They are item 1,3,5,9, 12 and 15. In addition, the lecturers indicated that item 6 and 7 were also available while the students indicated that item 14 was also available.

Research Question 2

To what extent are computer-based resources being utilized by students in learning Geography in College of Education in Niger State.

Table 3. Mean and standard deviation of extent of utilization of computer-based resources in learning of Geography in Colleges of Education in Niger State

S/N	ITEMS	Mean (\bar{X})	S.D	Decisio
1	Geography students present their field trip reports via projector and computers	2.99	1.44	Disagreed
2.	Geography Department has a well functional computer laboratory	2.01	1.40	Disagreed
3	My lecturers sometimes take us to geography computer laboratory to do Geography practicals	3.36	1.38	Agreed
4	The computers with e- geography resources in the laboratory are not always used	3.22	1.36	Agreed
5.	We sometimes do assignments in the computer laboratory using e-learning packages	3.02	1.45	Agreed
6.	Every students have equal access to computer in the laboratory	2.94	1.46	Disagreed
7.	Our laboratory has internet access	3.08	1.50	Agreed

NB: ≥ 3.0 Criterion shows = Agreed

The results presented in Table 3 reveal that the Geography Education Students agreed on item 3, 4, 5, and 7 with mean scores of 3.36, 3.22, 3.02 and 3.08. They disagreed on item 1, 2 and 6 with mean scores of 2.99, 2.01 and 2.94. However, the criterion mean total of 2.95 showed that there was low extent of utilization of computer-based resources in learning Geography in both Colleges of Education in Niger State.

Research Question 3

How effective are Geography Education lecturers in utilizing computer-based resources in teaching of Geography in Colleges of Education in Niger State.

Table 3. Mean and standard deviation of self-effectiveness of Geography Education lecturers in utilizing computer-based resources in the teaching of Geography in Colleges of Education in Niger State

S/N	ITEMS	Mean (\bar{X})	S.D	DECISION
1	I can set up and deliver lectures with a projector	3.06	1.39	AGREED
2.	I can type with computer	3.20	1.05	AGREED
3.	I can use internet effectively	3.35	1.97	AGREED
4.	I have personal computer	3.24	1.30	AGREED
5.	I can use Google to search for learning materials	3.25	1.06	AGREED
6	I prefer hard copy materials to computer-based resources	2.94	1.08	DISAGRE E
7	I do not like using computer-based resources because of the large number of students offering geography	3.65	1.06	AGREED

NB: ≥ 3.00 Criterion shows = Agreed

From Table 2, it can be inferred that the Geography Education Lectures were very effective in utilizing computer-based resources in teaching of Geography in both Colleges of Education in Niger State since the average mean total is 3.24. They agreed on item 1, 2, 3, 4, 5, and 7 with mean scores of 3.06, 3.20, 3.35, 3.24, 3.25 and 3.65 and disagreed on item 6 with mean score of 2.94.

Research Question 4

To what extent are computer-based resources being utilized by lecturers in teaching Geography in Colleges of Education in Niger State.

Table 4.5: Mean and standard deviation of extent of utilization of computer-based resources by lecturers in teaching of Geography in Colleges of Education in Niger State

S/N	ITEMS	Mean (\bar{X})	S.D	DECISION
1	I often use my laptop to deliver lectures	4.12	1.4	Agreed
2	I often use projector to enhance delivering of lectures	4.12	1.4	Agreed
3.	I always deliver lectures using e-learning packages	1.82	1.4	Disagreed
4.	I sometimes received students' group assignment via emails	3.12	1.7	Agreed
5	I give students learning materials in soft copy only	1.35	1.6	Disagreed
6.	Geography department has internet for staff to access information	3.29	1.1	Agreed
7.	We do not use computer-based resources in Geography Department	2.47	1.18	Disagreed

NB: ≥ 3.00 Criterion shows = Agreed
 From the results in table 4.5, Geography education lecturers agreed on item 1, 2, 4, and 6 with mean scores of 4.12, 4.12, 3.12 and 3.29 respectively and disagreed on items 3, 5 and 7 with mean scores of 1.82, 1.35 and 2.47. The computer-based resources were therefore used to a large extent in teaching Geography in colleges of education in Niger State.

Research Question 5

What are the factors that affect the use of computer-based resources in teaching and learning of Geography in Colleges of Education in Niger State.

Table 5. Mean and standard deviation of the factors that affect the uses of computer-based resources in teaching and learning of Geography in Colleges of Education in Niger State

S/N	ITEMS	Mean (\bar{X})	S.D	DECISION
1	There is inadequate computer-based resource soft wares in the laboratory	3.94	1.4	Agreed
2	There is low level of teachers' interest in using computer-based resources in Geography department.	3.35	1.3	Agreed
3	There is poor access to Geography computer laboratory	2.18	1.3	Disagreed
4.	Computer-based resources are expensive to purchase	3.40	1.5	Agreed
5.	There is unstable power supply	3.94	1.6	Agreed
6.	There is limited time for teaching students using Computer-based resources	2.29	1.0	Disagreed
7.	Population of students will not permit the use of computer-based resources	2.82	1.2	Disagreed

NB: ≥ 3.00 Criterion shows = Agreed

From Table 5 the lecturers agreed on item 1, 2, 4 and 5 that inadequate computer-based resources software; low level of teachers' interest in using computer-based resources, expensiveness of computer-based resources and unstable power supply were serious factors that affect the uses of computer-based resources in teaching and learning of Geography in colleges of Education in Niger State. On the other hand, the lecturers disagreed on item 3, 6, and 7 that there were challenges concerning the accessibility to geography computer laboratory, time for teaching students geography using computer-based resources and population of geography students in use of computer-based resources in teaching of Geography in Colleges of Education in Niger State. However, the average mean total of 3.13 indicated that the factors (item 1, 2, 4 and 5) are strong enough to affect the uses of computer-based resources in teaching and learning of Geography in both Colleges of Education in Niger State.

Hypothesis 1

There is no significant difference between students' responses from both Colleges of Education on the effectiveness of students utilization of computer-based resources in learning of Geography. To test the hypothesis, Man-Whitney U test statistics was used.

Table 6: Man-Whitney U Test of the difference between students' responses from both Colleges of Education on their Self-effectiveness in utilizing computer-based resources in learning of Geography

Institutions	N	Mean Ranks	Sum of Ranks	Man Whitney U	P	Remarks
Minna and Federal College of Education	150	140.04	21006.00			
Effectiveness of Students	150	160.03	23844.00	9681.000	0.045	Significant

From Table 6, the result showed mean ranks of 140.04 and 160.03 respectively for responses of students of Niger State College of Education, Minna and Federal College of Education, Kotongora on their self-effectiveness in utilization of computer-based resources in learning of Geography, Man Whitney U value of 9681 and a P value of 0.045 which is less than 0.05. The mean score variations of Geography students' responses from both Colleges of Education are therefore, statistically significant at $P < 0.05$ level. Hence, the null hypothesis that there is no significant difference between students' responses from both Colleges of Education on their self-effectiveness in utilization of computer-based resources in learning of Geography was rejected.

Hypothesis 2

There is no significant difference between students' responses in College of Education Minna and Federal College of Education Kotongora on the extent of utilization of computer-based resources in learning of Geography. To test the hypothesis, Man-Whitney U test statistics was used.

Table 7: Man-Whitney U Test of the difference between students' responses from both Colleges of Education on the extent of utilization of computer-based resources in learning of Geography

Institutions	N	Mean Ranks	Sum of Ranks	Man Whitney U	P	Remarks
Minna and Federal College of Education Kontogora	150	138.74	20810.50			
Extent of students' Utilization	150	161.34	24039.50	9484.500	.024	Significant

From Table 7, the results showed mean ranks of 138.74. and 161.34 for responses of students of Niger State College of Education, Minna and Federal College of Education Kotongora on extent of utilization of computer-based resources in learning of Geography, Man whitney U value of 9484.500 and a P vale of 0.024 which is less than 0.05. The mean score variations of Geography students' responses from both Colleges of Education are therefore, statistically significant at P value 0.05 level. Hence, the null hypothesis that there is no significant difference between students' responses from both Colleges of Education on the extent of utilization of computer-based resources in learning of Geography is rejected.

Discussion of findings

The study aimed at appraising the availability and extent of utilization of computer-based resources in teaching and learning of geography in Colleges of Education in Niger State. From the first research question it revealed that some of the geography computer-based resources listed are not available in Geography Department of the sampled schools. Among them are e-World Atlas package, Field Trip Features e-packages and e-lecture note materials.

Furthermore, the study revealed that Geography lecturers and students of both Colleges of Education are very effective in the utilization of computer-based resources. However, the usage is very minimal. These findings are in agreement with that of United Nations Education, Scientific and Cultural Organization (UNESCO, 2002) that in many schools, weaknesses in Geography education can be associated with limitations in the use of computer technology and strategic managements of computer-based resources. Similarly, Fakeye (2010), Kinuthia (2009) posits that in developing countries, there is currently limited inclusion of real-world learning experience in the traditional classroom setting. Mostly the content presented in the classroom is disconnected from its real-world context.

This contextual dichotomy tended to have a negative impact on the learning process, adversely affecting learners' motivation in particular (Ivers, 2003). Furthermore, in agreement to the fore-stated, Robert (2013) opines that interest is one of the basic motivations required for students to learn faster, retain skills longer and be able to apply the skills in solving other practical problems. When computer-based resources are used with traditional methods of teaching and learning they will increase students' interest in the topic at the time of learning, help to make teaching less stressful and lessen the burden of the lecturers. In confirmation to this findings, Donert (2005) added that the teacher's time of having to re-teach the entire lesson to the slow learners who require further assistance would be saved for other lesson preparations when computer-

based resources are used with traditional methods of teaching and learning unlike when only traditional methods of teaching and learning are used. This implies that, such students on their own can practice what they have in computer over and over until they attain success.

Also, the study revealed some of the factors affecting the uses of geography computer-based resources in Geography Education Departments in Colleges of Education in Niger State as inadequate computer-based resources, unstable power supply, low-level of teacher's interest and high cost of geography computer-based resources software.

In agreement with this, Joseph, Francis & Omolo (2010) in their study on application of computer-based resources in Geography Education in secondary schools in Kisumu District of Nyanza Province, Kenya concluded that many schools in Kisumu district did not have computers dedicated to teaching and learning of Geography Education instead, there were sporadic and superficial use of computer technology in basic applications for manipulation of figures and texts using Microsoft Excel and Microsoft Word.

The extent of computer usage in Geography Education was therefore minimal, if any, uncoordinated and lacking in innovation (Hinostroz, J. E., Isaac, S, & Bougroun, M (2016). In the same vein, a study carried out by Francis (2009) on assessment of computers in schools in selected countries in developing world, he concluded that schools in developing countries inevitably tend to have far few computers per student than richer countries do. In the United States, the ratio of students to computers dropped from 125 to 1 in 1983 to 5 to 1 in 2000. However, in developing countries the assessment found that Costa Rica had an average of between 53 and 73 students per computer in its schools while Chile had 68 to 137 students per machine.

Conclusion

Few computer-based resources were found to be available for teaching and learning of geography in both Colleges of Education, The lecturers and students in both Colleges of Education were also found to be very effective in the utilization of computer-based resources in teaching and learning of geography.

There was low extent of utilization of computer-based resources in teaching and learning of geography by both lecturers and students in both Colleges of Education due to inadequate computer-based resource soft wares in the laboratory, low level of teachers' interest in using computer-based resources in both Geography departments, high cost of computer-based resources in geography, among others, responses of geography students from both Colleges of Education on effectiveness of students' utilization and also on the extent of utilization of computer-based resources in learning of geography were

statistically significant at $P < 0.05$ level rejecting the two hypotheses tested for the study.

Recommendations

1. Government through Non-Governmental Organizations such as School Net Nigeria (SNNG) should establish computer supply program that will ensure regular and adequate supply of computer technology tools and other necessary accessories to all Colleges of Education and other higher institutions.
2. Government through Non-Governmental Organizations such as School Net Nigeria (SNNG) should sensitize teachers and students through regular seminars and workshops on the need to maximally utilize the available computer-based resources and other computer technology tools in teaching and learning.
3. Government should take up the responsibility of directly funding the acquisition of computer technology tools for public Colleges of Education, and other higher institutions through budgetary allocations in the Ministry of Education.
4. Government in consultation with all the stakeholders in education especially Ministry of Education should review the entire curriculum so as to include new teaching and learning methods that ensure computer-based resources/computer technology tools are integrated in teaching and learning when necessary in classrooms.

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