Assessment of E-Learning Resources Utilization by Students of Tertiary Institutions in Katsina State, Nigeria

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Abstract
This study investigated assessment of e-learning resources utilization by students of tertiary institutions in Katsina State. The descriptive survey design was adopted for this study. Three hundred and eighty-one (381) students of tertiary institutions in Katsina State were randomly selected for the study. A researchers’ designed questionnaire titled “Utilization of E-learning Resources Questionnaire” (UERQ) with a Cronbach's Alpha reliability coefficient of 0.85 was used to collect data. Frequency, percentage, mean, t-test and ANOVA statistics were used to analyse the data collected. Findings revealed that there is no significant difference in the e-learning utilization by students of tertiary institutions in Katsina State based on gender and age but there is significant difference based on class levels and institutions.

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It was recommended that Nigerian tertiary institutions general studies curriculum should be re-designed to include e-learning utilization training to help the students understand how they can utilize e-learning resources.

Keywords
Assessment, E-learning Resources, Utilization, Tertiary Institutions

Introduction
Assessment plays an important role in national development especially in teaching and learning process. The essence of assessment is to ensure quality, to improve teaching methods and students’ performance. It is crucial to the educational process both for teachers’ advancement, students’ promotion, and effective teaching. Assessment of learning (summative) generally occurs at the conclusion of a course, semester or academic year. Assessment for learning is formative in nature and is used by teachers to consider approaches to teaching and next steps for individual learners and the class (Earl, 2003). Formative assessment provides feedback, which can be used to improve learning while the programme of instruction is still on.

In addition, assessment involves the collection of information about an individual’s knowledge, skills, attitudes, judgment, interpretation, and uses the data to take relevant decisions about the individual, instructional process, curriculum or programme (Ugodulunwa, 2008). Anikweze (2013) defines assessment to include teacher, peer and self-assessment processes, where the goal is to develop new models of assessment geared to foster life-long skills. Because assessment covers all aspects of school learning, teachers must be skilled in different techniques of assessment. These techniques include tests, projects, assessments, observations, anecdotal records, interviews, rating scales, inventories and the use of e-learning resources to facilitate teaching and learning process. The roles of e-learning in the teaching and learning process cannot be overestimated, especially in Nigeria where emphasis is being placed on technological development (Olutola&Olatoye, 2015).
E-learning has become a veritable tool to be used in achieving proper educational objectives in the school setting. Nwokike (2010) defined e-learning as an innovative approach to deliver electronically-mediated, well-designed, learner-centred and interactive learning environment to anyone, anytime and anyplace by utilizing the internet and digital technologies in concern with instructional design principles (Hedge and Haward, 2004). According to Daniel (2009), e-learning plays an important role in professional development for adults in the workforce. As the world strives to meet development goals, there is increasing recognition of the potential of e-learning to meet growing educational challenges. E-learning takes various forms: for instance, it can be web satellite, TV, video conferencing, CD-ROM, i-pods, e-mails, wireless and mobile technology among others (Eke, 2011).

For students to utilize and enjoy the usefulness of e-learning resources efficiently in Nigerian tertiary institutions, they must have the mastery of operating educational hardware. Also, functioning e-learning resources must be available for them in their institutions and they should be motivated to use them. E-learning can occur inside or outside of the classroom. It can be self-paced (asynchronous learning) or it may be instructor-led, (synchronous learning).

Asynchronous E-learning is self-paced and allows participants to engage in the exchange of ideas or information without the dependency on other participants’ involvement at the same time (Wikipedia, 2014). It uses technologies such as e-mails, blogs, wikis and discussion boards as well as web-support, textbooks (Loutchko, Kurbel&Pakhomov, 2002). On the other hand, Synchronous E-learning occurs in real time with all participants interacting at the same time (Wikipedia, 2014). It involves the exchange of ideas and information with one or more participants during the same period of time.

A face-to-face discussion is an example of synchronous learning. In e-learning environments, examples of synchronous learning include online real time live teacher instruction and feedback, Skype conversations, chat rooms or virtual classrooms. Both the synchronous and asynchronous learning methods rely heavily on motivation, self-discipline and the ability to communicate in writing effectively. E-learning is not a new phenomenon in promoting education in some parts of the world. Some
institutions in Nigeria use it to promote distance learning education and life-long learning.

Nwokike (2011) summarized the merits of e-learning as follows:

i. electronic learning is both convenient to the teacher and the learner,
ii. e-learning is flexible. Learning can take place anywhere and anytime,
iii. learners enjoy having the opportunity to learn at their own pace, and their own time and
iv. help students to develop knowledge of internet.

E-learning is beneficial to corporation, education, teachers and learners. Also, it is one of the effective ways to facilitate teaching and learning process in Nigerian tertiary institutions. Based on the importance of e-learning resources in teaching and learning process, this study investigated assessment of e-learning resources utilization by undergraduate students of tertiary institutions in Katsina State, Nigeria.

**Purpose of the study**

The main purpose of the study was to assess the e-learning resources utilization by students of tertiary institutions in Katsina State. Specifically, the study examined:

1. frequency of students’ utilization of e-learning resources in tertiary institutions in Katsina State.
2. students’ utilization of e-learning resources in tertiary institutions in Katsina State based on gender, class level, institutions and age.

**Research question**

One research question was formulated to guide the study.

1. What is the students’ level of utilization of e-learning resources?

**Research hypotheses**

The following research hypotheses were formulated to guide the study:

1. There is no significant difference in the e-learning resources utilization by male and female students of tertiary institutions in Katsina State.
2. There is no significant difference in the e-learning resources utilization by students of tertiary institutions in Katsina State, on the basis of class level.

3. There is no significant difference in the e-learning resources utilization by students of tertiary institutions in Katsina State on basis of institutions.

4. There is no significant difference in the e-learning resources utilization by students of tertiary institutions in Katsina State on the basis of age.

5. There is no significant difference in the e-learning resources utilization by students of Universities and Colleges of Education in Katsina State.

**Research Methodology**

The study adopted a descriptive survey research design. Data was collected from a representative sample of respondents in order to make generalizations on the target population. The population of this study comprised all students in tertiary institutions in Katsina State, while the target population is made up of all students in four tertiary institutions in Katsina State. These students are from two Colleges of Education (Isa Kaita College of Education, Dutsin-Ma & Federal College of Education, Katsina) and two Universities (Federal University, Dutsin-Ma & Umaru Musa Yar’adua, Katsina) in Katsina State. The simple random sampling technique was used to select students from the sampled institutions. A total of three hundred and eighty-one (381) students participated in the study.

In this study, researchers-designed questionnaire titled “Utilization of E-learning Resources Questionnaire” (UERQ) was used to collect data from respondents. It was divided into two sections. Section ‘A’ contained the personal information of the respondents such as name of school, level, gender and age. Section ‘B’ contained items on level of utilization of e-learning resources by undergraduate students of tertiary institutions in Katsina State.

A four-point Likert-type scale UERQ was used. The scale has four points, namely: Available and frequently used (4- points), Available but not frequently used (3- points), Available but not used at all (2- points), and Not
Available (1-point). Expert judgment was used in validating the instrument. The Cronbach's Alpha reliability coefficient of 0.85 was obtained. Analysis of data was carried out using frequency and percentage, mean, t-test and ANOVA statistics at 0.05 alpha level.

Results

Research question one: What is the students’ level of utilization of e-learning resources?

Table 1: Percentage Showing the Level of Utilization of E-learning Resources by Students’ of Tertiary Institutions in Katsina State.

| S/N | E-learning technologies                  | Available and frequently used | Available but not frequently used | Available but not used at all | Not available | No response |
|-----|-----------------------------------------|-------------------------------|----------------------------------|-------------------------------|---------------|-------------|
| 1.  | Web-based learning                      | 57(15.0%)                     | 40(10.5%)                        | 127(33.3%)                    | 147(38.6%)    | 10(2.6%)    |
| 2.  | Computer-based learning                 | 48(12.6%)                     | 31(8.1%)                         | 134(35.2%)                    | 160(42.0%)    | 8(2.1%)     |
| 3.  | Virtual classrooms                      | 76(19.9%)                     | 34(8.9%)                         | 93(24.4%)                     | 152(39.9%)    | 26(6.8%)    |
| 4.  | Content delivery via e-networks         | 93(24.4%)                     | 59(15.5%)                        | 125(32.8%)                    | 81(21.3%)     | 23(6.0%)    |
| 5.  | Audio or video tape                     | 114(29.9%)                    | 64(16.8%)                        | 80(21.0%)                     | 98(25.7%)     | 25(6.6%)    |
| 6.  | Satellite TV                            | 114(29.9%)                    | 55(14.4%)                        | 68(17.8%)                     | 121(31.8%)    | 23(6.0%)    |
| 7.  | CD-ROM                                  | 107(28.1%)                    | 60(15.7%)                        | 81(21.3%)                     | 103(27.0%)    | 30(7.9%)    |
| 8.  | Video conference                        | 174(45.7%)                    | 55(14.4%)                        | 63(16.5%)                     | 52(13.6%)     | 37(9.7%)    |
| 9.  | I-pods                                  | 171(44.9%)                    | 51(13.4%)                        | 57(15.0%)                     | 45(11.8%)     | 57(15.0%)   |
| 10. | E-mail                                  | 30(7.9%)                      | 28(7.3%)                         | 87(22.8%)                     | 210(55.1%)    | 26(6.8%)    |
| 11. | Wireless and mobile technology          | 22(5.8%)                      | 34(8.9%)                         | 77(20.2%)                     | 236(61.9%)    | 12(3.1%)    |
| 12. | Internet connectivity                   | 16(4.2%)                      | 26(6.8%)                         | 69(18.1%)                     | 259(68.0%)    | 11(2.9%)    |
From table 1 above, in item 1, 57(15.0%) of the respondents affirmed that web-based learning is available and frequently used by them, 40(10.5%) responded that it is available but not frequently used by them, 127(33.3%) responded that it is available but not used at all and 147(38.6%) responded that web-based learning is not available to them and 10(2.6%) respondents did not respond to item number 1. On the use of e-mail, item 10 reveals that 30(7.9%) of the respondents affirmed E-mail is available and frequently used by them, 28(7.3%) responded that it is available but not frequently used by them, 87(22.8%) responded that it is available but not used at all and 210(55.1%) responded that e-mail is not available to them and 26(6.8%) respondents did not answer item number 10.

Hypothesis testing results

**Hypothesis 1:** There is no significant difference in the e-learning resources utilization by male and female students of tertiary institutions in Katsina State.

**Table 2:** t- test summary of comparison of e-learning resources utilization by male and female students of tertiary institutions in Katsina State.

| Variable | N  | X       | SD  | Df  | Calculated t-value | Sig. of t-value | Remark       |
|----------|----|---------|-----|-----|--------------------|----------------|--------------|
| Male     | 232| 31.4335 | 8.298| 379 | 0.321              | 0.748          | P >0.05 (NS) |
| Female   | 149| 31.1544 | 8.387|     |                    |                |              |

NS = Not Significant.

Table 2 reveals that there is no significant difference in the utilization of e-learning resources between male and female students of tertiary institutions (t= 0.321, P> 0.05). Therefore, the hypothesis is upheld. Thus, male and female students in tertiary institutions in Katsina State are not significantly different in their use of e-learning resources.
Hypothesis 2: There is no significant difference in the e-learning resources utilization by students of tertiary institutions in Katsina State, on the basis of class level.

**Table 3:** Details of the ANOVA Statistics on E-learning Resources Utilization by Students of Tertiary Institutions in Katsina State on the Basics of Class Level

| Sources         | Sum of Square (SS) | Df | Mean Square (MS) | Cal. F-Value | Sig. of F-value | Remark  |
|-----------------|--------------------|----|------------------|--------------|----------------|---------|
| Between Groups  | 378.643            | 3  | 126.214          | 1.834        | 140            | P >0.05 (NS) |
| Within Groups   | 25945.000          | 377| 68.820           |              |                |         |
| Total           | 26323.643          | 380|                  |              |                |         |

NS= Not Significant.

Table 3 reveals that there is no significant difference in the use of e-learning resources by students’ level of study (100 level to 400 level). Students in each level use e-learning resources just like student in any other level ($F_{3, 377}=1.834, P>0.05$). The hypothesis is upheld.

**Graph 1:** Mean graph showing the level of use of e-learning resources by students’ of tertiary institutions in Katsina State on the basis of class level.
The mean graph 1 revealed that the mean scores of the four levels were not significantly different. The graph did not start from 0.00. Final year/ 400 level students of tertiary institutions in Katsina State has/have the highest mean score of (32.4355) in e-learning resources utilization, followed by those students in 200 level with a mean score of (32.0000), followed by 300 level students with a mean score of (31.0916), while 100 level students have the lowest mean of (29.3810).

**Hypothesis 3:** There is no significant difference in the e-learning resources utilization by students of tertiary institutions in Katsina State on basis of institutions.

**Table 4:** Summary of ANOVA statistics on e-learning utilization by students of tertiary institutions in Katsina State based on institutions.

| Sources         | SS     | DF | MS    | Cal. Value | F-Value | Sig Value | F-Value | Remark |
|-----------------|--------|----|-------|------------|---------|-----------|---------|--------|
| Between Groups  | 324.109| 3  | 108.03| 1.567      | .197    | P >0.05 NS|         |        |
| Within Groups   | 25999- | 377| 68.964| 1.567      | .197    | P >0.05 NS|         |        |
| Total           | 26323.6| 380|       |            |         |           |         |        |

Table 4 reveals that there is no significant difference in the use of e-learning resources by students based on their institutions. Students in each institution use e-learning resources just like students in any other institution ($F_3^377=1.567$, P>0.05). Therefore, hypothesis 3 is upheld.
Graph 2: Mean Graph showing the level of use of e-learning resources utilization by students of tertiary institutions in Katsina State based on institutions.

Graph 2 reveal that the students of four tertiary institutions involved were not significantly different in their e-learning resources utilization. Students of FCE Katsina have the highest mean score of (32.8700) in e-learning resources utilization, followed by FUDMA students with a mean score of (30.8283), followed by UMYU Katsina students with a mean score of (30.7857), while Isa Kaita has the mean score of (30.7143). These mean scores are not significantly different based on ANOVA analysis table. Therefore, hypothesis 3 is upheld.

Hypothesis 4: There is no significant difference in the e-learning resources utilization by students of tertiary institutions in Katsina State on the basis of age.

Table 5: t-test Analysis on e-learning resources utilization by students of tertiary institutions in Katsina State on the basis of age.

| Variable | N   | X    | SD    | df  | Cal. t-value | Sign of t-value | Remark          |
|----------|-----|------|-------|-----|--------------|-----------------|-----------------|
| 22 years and below | 233 | 31.1121 | 8.70699 | 379 | -.594 | 0.553 | P>0.05 (NS) |
| 23 years and above | 158 | 31.6266 | 7.76607 |     |              |                 |                 |

NS= Not Significant.
Table 5 reveals that there is no significant difference between the use of e-learning resources by students of tertiary institutions in Katsina State based on their age (t= -0.594, P> 0.05). Thus, students in tertiary institutions in Katsina State are not significantly different in their use of e-learning resources based on their age. Therefore, hypothesis 4 is upheld.

**Hypothesis 5:** There is no significant difference in the e-learning resources utilization by students of Universities and Colleges of Education in Katsina State.

**Table 6:** t-test Analysis on e-learning resources utilization by students of Universities and Colleges of Education in Katsina State.

| Variable              | N  | Mean   | SD    | DF  | Cal. t-value | Sig. of t-value | Remark       |
|-----------------------|----|--------|-------|-----|--------------|-----------------|--------------|
| Universities          | 183| 30.8087| 8.3825| 379 | -1.166       | .245            | P>0.05 (NS)  |
| Colleges of Education | 198| 31.8030| 8.2602|     |              |                 |              |

Table 6 reveals that there is no significant difference between the use of e-learning resources by students of Universities and College of Education in Katsina State (t= -1.166, P> 0.05). Thus, students of Universities and College of Education in Katsina State are not significantly different in their use of e-learning resources. Therefore, hypothesis 5 is upheld.

**Discussion of Findings**

Based on the data collected, the findings of this study revealed that there is no significant difference in the male and female students of tertiary institutions learning resources. This implies that male and female students in Katsina State have the same level of utilization of e-learning resources. The findings of this study is against the study by Amkpa (2007), which revealed that male and female students differ
significantly in attitudes towards computer applications which later affect their job opportunities after graduation. In addition, Ford and Moss (1996) reported that gender is a predictor of internet use and attitudes, males seem to enjoy browsing on the internet for enjoyment, while females tend to only use it for work-related purposes. This finding disagrees with the studies by Manda and Mulkangara (2007) and Ford, Miller, and Moss (2001) who reported that male students use e-resources more than female students, and that female students have more difficulties to find information online than males. Ozoemellem (2009) reported high frequency of use of electronic information resources by both male and female postgraduate students. Also, it was discovered that there is no significant difference in the e-learning resources utilization by students of tertiary institutions in Katsina State on the basis of class level (100 to 400 levels).

In addition, there is no significant difference between students of tertiary institutions in Katsina State on the basis of institutions. This study is against the study of Olatokun (2009), which found that the level of education had the strongest influence on the capability to use personal computer and computer with Internet services by different categories of people including students, with respondents having less education being more disadvantaged in the use of facilities.

Chiaha, Eze and Ezeudu’s (2013) study is in agreement with the findings of this study. In their study, they found that there is no significant difference between the mean scores of federal and state universities on the extent to which students have access to e-learning facilities. Their findings in both state and federal institutions revealed that a greater percentage (57.15%) of undergraduate students did not have access to e-learning facilities. Specifically, the study reveals that 60.48% of students did not have personal computers, while 57.4% and 61.61% did not have regular electricity supply.

Moreover, the findings show that there is no significant difference in the e-learning resources utilization by undergraduate students of tertiary institutions in Katsina State based on age. Age has no influence on the utilization of e-learning resources by students. This implies that the age of students cannot determine the utilization of e-learning resources in Nigerian tertiary institutions. The Pew Internet and
American Life Project found that although 73% of teens between the ages of 12 and 17 use social media, the rates of social media use are even higher (83%) for young adults between the ages of 18 and 29 (Lenhart, Purcell, Aaron, & Zickuhr, 2010; Madden & Zickhur, 2011). Due to age restrictions and limited access to social media, pre-adolescent students do not appear to have the same level of social media use as older students (Lenhart et al., 2010). In addition to the number of teens and young adults using social media, two-thirds of adult Internet users also use social media (Madden & Zickhur, 2011).

**Conclusion**

This study investigated the assessment of e-learning resources utilization by students’ of tertiary institutions in Katsina State. The findings of this study revealed that the age, gender, institutions and class level of students in tertiary institutions had no influence on the utilization of e-learning resources by the students. This implies that the age, gender, institutions and class level of students cannot determine the utilization of e-learning resources in Nigerian tertiary institutions.

**Recommendations**

The following recommendations were made based on the results of this study:

1. Government should provide adequate fund to equip all the e-learning centres in Nigerian tertiary institutions,
2. Nigerian tertiary institutions General Studies (GST) curriculum should be re-designed to include e-learning utilization training to help the students to understand how they can utilize e-learning resources,
3. There should be an awareness campaign on the usefulness and utilization of e-learning resources in Nigerian tertiary institutions,
4. Government and other stakeholders in education should assess the level of utilization of e-learning resources by students of Nigerian tertiary institutions periodically to know their needs and challenges, and
5. Private sectors, non-governmental and voluntary organizations should assist to equip universities e-learning resource centres.

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