



AN EVALUATION OF THE USABILITY FACTORS AFFECTING THE USE OF THE INTERNET FOR TEACHING AND LEARNING

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ABSTRACT

Exploring the internet is central to teaching and learning that requires continuous and committed efforts that would more than put it on a fast track for eventual production of optimal results. It is an attempt to provide a framework for understanding the dynamic events in the educational sector and how best the use of internet can be situated that this study emerges. It provides a perspective on the suitability of Internet to educational endeavours and achieves this with the use of primary data, obtained with a 15-item questionnaire. The questionnaire is structured to take care of dependent variable and three independent tested at 0.5 significant level with the use of a paired t-test. All the null hypotheses constructed in respect of the variables tested at the chosen level of significance are rejected, this provides the basis for the conclusion that internet play a significant role in pushing the frontier of knowledge.

Keywords: Usability, learning, Internet, Teaching, Students and Framework.

1. INTRODUCTION

Internet has become an indicator of a country's socio-economic status in the information society as it has become an important and popular source of information. Internet has come with an evolution that cannot be compared with existing technologies that were before it (Molosi, 2001). There have been major changes in technology, which are having impacts upon performance and service delivery in educational/research processes at the university level. One of the most significant of these changes is occurring in information technology and is brought about by advances in computers and networking (Lawal et al, 2008). To this end, application of internet for quality of service delivery in educational industry relates to a judgement, which determines the extent of preparation and efficiency of teachers, adequacy and accessibility of materials and facilities needed for effective teaching and learning, and how the teachers can cope with the challenges ahead of their job (Okebukola, 2006).

The principal contribution of a university to society turns out on the quality of knowledge it generates and impacts, the habits of critical thought and problem-solving it institutionalizes and inculcates in its graduates, and the values of openness and democratic governance it promotes and demonstrates. The easiest way to ascertain these contributions is the caliber and commitment of lecturers to continuous improvement in teaching, research and community interactions; the range and quality of the curriculum and pedagogy; the quality and extent of educational facilities; commitment to evaluation and review of the activities to seek continuous improvements (Akuegwu, 2011). Lecturers can only pass on skills and ideas to their students if they themselves are masters of their trade (Bamiro & Liverpool, 2002). Today growth and advancement in telecommunication infrastructure has led to increased Internet connectivity. Internet has shifted the paradigm of education from the traditional classroom lecture that it used to be to electronic teaching-learning process.



The Internet can be used as a supplement to traditional instructional method (Usum, 2003). To complement a lecture, instructors may ask students to find specific web sites to gain more in-depth knowledge about a particular topic. The instructor may also ask students to search the Internet for information on services offered in a particular location. The foregoing therefore necessitates a probe, in the form of research, to assess the usability factors of internet in the teaching and learning.

2. LITERARY REFLECTIONS

2.1 Adoption and Use of Internet

Utilization of Internet is a function of several factors among which is the perceived ease of access to the Internet (Lishan, 2004). Adeoye (2004) observed that a policy and institutional framework is needed to explain the diffusion of Internet into educational institutions in Africa. To properly use Internet, institutions should provide the basic infrastructural requirements such as electricity, while commitment from policy makers should be put in place. Anderson (2004) reiterated that many developing countries have a long way to go before securing a steady supply of electricity. As much as organizations and institutions tried to make available Internet facility for use by their people, inadequate access points, connectivity problems as well as affordable computing accessories are major constraints (Lishan, 2004). These constraints are strong factors against Internet use since they bring extra costs to end-users.

There are various challenges that constrain the use of Internet by users. One of the major challenges of Internet is obstruction of widespread access by poor telecommunications the result of veiled interests in state monopolies of obsolete networks with prohibitive price structures (Lishan, 2004). Anderson (2004) on the other hand emphasized the cost of Internet access which is beyond the reach of most institutions and individuals. The high cost is exacerbated by lack of a policy environment that fosters competition, foreign direct investment and private sector participation. Adeogun (2002) in his own view sees the biggest obstacle to Internet use as the limited service bandwidth which affects the ease and spread of access.

Inadequate technology support can hinder effective use of Internet in teaching-learning process in the schools. This technology support can be viewed from the perspectives of technical support for technical problems and instructional (pedagogical) support for instruction. The institution factors had considerable effects on students' utilization of Internet (Adams, 2003). Alhaji (2007) categorized the main institutional determinants of access and use into three categories namely connectivity infrastructure, costs, and physical infrastructure of the Internet. He further highlighted that in Nigeria, cost ranks as the highest institution constrains to the use of Internet, and closely followed by physical infrastructure and the connectivity infrastructure. Adams (2003) in his study on factor affecting Internet use in Kenya revealed connectivity infrastructure as the most limiting factor, followed closely by costs.

Choe (2003) identified strong leadership; excellence across the schools operations; Positive ethos and collaborative culture; and well-motivated and caring staff as major institutional characteristics determining the extent of use of Internet in an organization.

The focus on the technology, as opposed to the need to apply it to the situation of teaching and learning, has dominated many studies, and it may be the that has led to the common belief that Internet in schools is a technology-driven activity (Usum. 2003), when in fact the process is about change management and how the organization supports the use of the technology as a change enabler. Internet use and perception in schools is about the institutions people, process and policies, not the infrastructure in use. Choe (2003) observed that the issue Internet use is not about the relative importance of equipment, support or training, but a much broader debate about mindsets, assumptions, beliefs and value of individuals and organizations.



Islam and Panda (2007) stated that the application of web-based information retrieval trends of researchers is ever increasing and the electronic material will eventually replace the traditional library and users need not go there to find and collect information they need. Al-Ansari(2006) focused on the Internet use by the faculty including purpose of use, impact on teaching and research, Internet resources that they use and the problem faced while using the Internet. It was discovered that majority of them have been using the computer and Internet for more than five years. The Internet has helped them save time, find up-to-date information and compare with their colleagues. Almost all of them want to improve their Internet use skill through formal training.

Shahriza et. al.(2007) found that website is seen as an increasingly important reading source. Genoni et al.(2006) in their study indicated that the research users are positive regarding the usefulness of the Internet for research purposes and for expanding their scholarly community. Kinengyere (2007) stated that availability of information does not necessarily mean actual use. This showed that users are not aware of the availability of such resources or they do not know how to access them or they do not know what they offer. The study suggested that these call for continued information literacy programme. Over the years, the Internet has become an all important technological tool in the production, marketing, and use of information world wide. Bemah (2002) stated that the exponential growth in information and knowledge and the corresponding increase in user needs have stipulated a greater degree of technological inventions and strategies towards the management, transmission/dissemination, organization and the use of information.

In the study of Internet usage and satisfaction of students at the Federal University of Technology Minna, Oyedun (2006) reported that only 30.8% of the respondents indicated that they were satisfied with the provision of the general Internet services while 62.2% answered negatively. Adeogun (2002) emphasized that internet have broken the barriers of time, distance and location which use to impede the growth of formal education. Information and communication technologies have also had profound impact on the tasks and skills of teachers in both the pattern and quality of lecture delivery (Mogbo 2002). All these point to the fact that internet is very important for effective teaching, learning ,and research activities in an academic environment.

2.2 The Challenges Associated with the use of Internet

As contained in Fasae and Aladeniyi (2012), Kaur (2000) surveyed the use of Internet facility at the Guru Nanak Dev. University, Amritsar. The findings revealed that all respondents used search engines to browse the required information and majority faced the problem of slow Internet connectivity. Jagboro (2003) carried out a study of Internet usage in Nigerian universities where opinion of 73 respondents was sought for. On specific uses of Internet, two-third of the respondents indicated that they used it for e-mail, to get research materials followed while course materials had 39.73%. The recorded low level of utilization of the Internet was attributed to the low level of connectivity and the high cost of cybercafé facilities. Moreso, Hanaver et al. (2004) surveyed a diverse community college to assess the use of the Internet by the students of health – related information. The surveyed showed that 83% Internet users had access to the Internet at their home and 51% of the respondents accessed Internet at the college or library. In the same vein, Kumar and Kaur (2005) conducted a research on Internet and its use in the Engineering Colleges of Punjab, India. It was indicated that the major problem faced by the users was slow access speed of the Internet. In comparing Internet with conventional documents, 91.6% of the respondents noted that the Internet is easy to use, 89.1% agreed that it is informative and 88.1% felt it is time saving.

Using computers to communicate with others is an increasingly popular activity— especially among teen girls. Teens frequently make social contacts online through the various options now available on the Internet. In one recent study, the Home Net project, researchers conducted an in-depth analysis of the effects of acquiring access to the Internet among a group of 93 families. The study found that 10- to 19- year-olds (referred to inclusively as “teens”) were especially likely to report using the Internet for social purposes. Compared with the adults in the study, teens—and especially girls—liked using the Internet for communicating with friends, meeting new people, getting personal help, and joining groups. Teens told researchers that keeping up with both local and distant friends was an important use of the Internet for them, and they often used the Internet for keep-in-touch communications involving small talk, gossip, and news of the day, with a “here-and-now” flavor.

As discussed further below, the two year study documented that, despite the use of the Internet for such social purposes, teens who spent more time online experienced greater declines in social and psychological well-being during their first year with access to the Internet. Over time, however, these effects appeared to diminish (Subrahmanyam et al, 2000).

2.3 Statement of the Problem

Nigeria has set for herself a wide array of ambitious goals of several global and national frameworks that seek to promote the fundamental right of her citizens to quality education. However, the quality of teaching and learning in our schools remain a significant challenge. It is against this backdrop that this study evaluates the usability factors of internet in the teacher's activities in the institution of learning and by extension seeks to evaluate the application of internet in improving teaching and learning in school subjects.

2.4 Purpose of the Study

The adoption of internet as a veritable tool that contributes immensely to the achievement of feats in the educational sector has been lauded. It has aided research, made for improved pedagogy, served as an eye opener for emerging innovation and landmark discovery, provided an impetus for exchange of knowledge to bridge the gap of knowledge explosion etc. The beautiful contributions of internet to educational development notwithstanding, it is not iron clad to ward off challenges of all kinds, hence; the need to access the level of applicability of internet with a view to unveil the possible real challenges that might hinder its adaptability and to appraise its suitability that would make for full scale adoption.

3. RESEARCH DESIGN

3.1 Hypothesis

H_{01} : There is no significant relationship between internet adoption and efficient performance of educational tasks by teachers.

H_{02} : There is no significant relationship between internet adoption and learners academic achievement.

H_{03} : There is no significant relationship between internet adoption and abuse of its usefulness

3.2 Population of the Study

The population for the study comprises lecturers drawn from two different institutions (EACOED and FSS) of learning..

3.3 Sample and Sampling Technique

The researcher employed a stratified sampling technique to select 80 lecturers from the aforementioned institutions.

3.4 Instrument

The instrument called "Internet Adoption for Instructional Service Delivery Questionnaire (I.A.I.S.D.Q.) was used for data collection. This instrument had 2 sections A and B. Section A sought information on demographic variables while section B had 12 items, arranged on a 4 point likert rating scale. 4 of the items measured applicability of internet facilities for quality instructional service delivery, while the other 4 measured utilization of internet facilities for task accomplishment and the remaining items determined the use of internet and job satisfaction.

3.5 Validity and Reliability

The instrument was face-validated by experts in measurement and evaluation, this thus provides basis for the instrument to measure what it purports to measure. The trial testing gave a reliability coefficient estimate of 0.63 to 0.87, a confirmation that the instrument was reliable and consistent in achieving the research objectives.

3.6 Method of Data Collection

The administration of the instrument was personally carried out by the researcher, a measure which yielded a 100% returns rate.

3.7 Method of Data Analysis

Population t-test (test of single mean) and paired t-test statistical techniques were used to analyze data obtained for this study.

3.8 Data Presentation and Analysis

Hypothesis 1

H_{01} :-There is no significant relationship between adoption of internet and efficient performance of educational task.

Table 1: Paired T-Test of internet adoption and efficient educational task performance.

Variable	N	Mean	Std. Dev	Std Error	t. Cal	t.Crit	df	Sig(2tail)
Internet use	80	6.67	2.54	0.6541	13.211	3.57	87	0.000
Efficient task performance	80	3.38	1.84	0.4335				

Source: Author's computation

t-Calculated value = 13.21, t Critical value = 3.57, df = 87, p = 0.000 Decision=0.05 level of significant

Table 1 presents information on the analysis of the relationship between the independent variable (internet adoption) and the dependent variable (efficient performance of educational task) and it shows that there is a significant relationship between internet adoption and efficient performance of educational task (the t- Calculated value, 13.211 was greater than t-Critical value, 3.57 at df=87 and P=0.000<0.05). The Null hypothesis was rejected. Therefore, it was concluded that there is a significant relationship between internet adoption and efficient performance of educational task. This finding is consisted with Yusufu's (2005) who found that ICTs provide a variety of tools to support and facilitate teachers professional competence. ICTs transform teaching and helps teachers to be more efficient and effective, thereby increasing their interests in teaching.

Hypothesis 2

H_{02} :- There is no significant relationship between internet adoption and learners academic achievement.

Table 2: Paired T-Test of internet adoption and learners academic achievement.

Variable	N	Mean	Std. Dev	Std Error	t. Cal	t.Crit	Df	Sig(2tail)
Internet adoption	80	8.87	2.97	0.4303	18.23	3.57	87	0.000
Learners academic achievement	80	6.88	2.62	0.2435				

Source: Author's computation

t-Calculated value = 18.23, t Critical value = 3.57, df = 87, p = 0.000 at =0.05 level of significance

Means in Table 2 suggest that variables of interest were almost at par as far as use of ICT was concerned. The t value ($p > 0.05$) supported this observation. Thus at the five percent, the null hypothesis to the effect that there is no significant relationship between internet adoption and learners academic achievement was rejected. The study's finding is contrary to what was hypothesized, was similar to that of Annenberg (1999), and as well in conformity with others (e.g. Kaveri, Massimo and Mutua, 2000) all of which demonstrate that there is a palpable relationship between ICT adoption and learners academic performance.

Hypothesis 3

H₀₃: There is no significant relationship between internet adoption and abuse of its usefulness

Table 3: Paired T-Test of internet adoption and abuse of its usefulness.

Variable	N	Mean	Std. Dev	Std Error	t. Cal	t.Crit	Df	Sig(2tail)
Internet adoption	80	8.77	2.96	0.4201	14.93	3.57	87	0.000
Abuse of Internet Usefulness	80	4.98	2.23	0.2332				

Source: Author's computation

t-Calculated value = 14.93, t Critical value = 3.57, df = 87, $p = 0.000$ at $\alpha = 0.05$ level of significance

Table 3 presents information on the analysis of the relationship between the independent variable (internet adoption) and the dependent variable (Abuse of Internet Usefulness) and it shows that there is a significant relationship (the t-Calculated value, 14.93 was greater than t-Critical values, 3.57, $df=87$, $P=0.000 < 0.05$). The Null hypothesis was rejected. Therefore, it was concluded that there is a significant relationship between internet adoption and abuse of Internet usefulness. This fits into Nwankwo (2000) submission, that the abuse of internet by its users resulting from perversion has been rife to open the floodgate and exacerbates unwholesome practices.

4. CONCLUSION

Globally today, the use of Internet facilities for communication and sharing of knowledge can never be overemphasized. In Africa, the Internet uses had come to stay as it has gained a wider supports and acceptance in nearly all spheres of life. More importantly, in an academic environment where students need to search for more information outside their own institution, in order to enhance their academic performance. This study has examined the usage of Internet by students. It was discovered that the uses of the Internet have positively influenced the student's academic efficiency through increased access to current information, ease research process as well as improved professional competency. However, it is clear that a majority of students in Nigerian higher institution of learning are satisfied with the use of the Internet but noted that more still needs to be done.



5. RECOMMENDATIONS

Following the findings of this study, these recommendations are made:

1. There should be adequate orientation on the content, adequacy and relevance of the Internet and Internet resources to the academic and research activities of the students. This will ultimately encourage the students' regular use of the Internet.
2. The management of the University should ensure the adequate provision of appropriate institutional factors in terms of adequate policies framework, steady power supply, reliable Internet connection etc to ensure that the Internet is always available for use always
3. (c)The Internet facilities located inside the campus should be made more functional to encourage Internet use by members of staff and students within the campus.
4. Lecturers should encourage submission of assignments/term paper via e-mail.
5. Access points should be installed in all the buildings in the campus so that users can maximize the utilization of Internet services.
6. There should be an alternate power supply in order to have a steady supply of electricity needed for effective Internet services.
7. School management should collaborate with computer supplier to make available note-book and lap-top computer to students at a cheaper price. This will encourage students to own computer, access information and communicate with it at ease.
 - a. Adequate space and facilities should be provided for those that want to make use of their own lap-top or note-book in the cybercafé, university library or resource centre. This will enable them to save relevant information discovered, to be used at a later date.

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