

The Use of Internet in Teaching and Learning by Staff of Faculty of Science and Technology Bingham University

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ABSTRACT

The internet which is the world most extensive network which initially was used mainly by the US defense department, scientists and professors is used today almost by all organizations. It is used extensively in the area of teaching and learning, it is very useful for collaboration between teachers and students and students to student's interaction. It affords all students to be able to speak up by posting messages. This research work focused on the use of Internet in teaching and learning by the staff of the Faculty of Science and Technology of Bingham University Karu, Nigeria. Using structured questionnaires for data collection, the paper also tried to find out the general knowledge and attitude of the lecturers to Information Technology. The study also attempted to find out the level of computer literacy among the staff of the faculty. The study found out that most academic staff have adequate access to computers and internet; will prefer spending time with the computer; and are computer literate.

Keywords: *Internet, Teaching, Learning, and Collaborative Learning.*

1. INTRODUCTION

The internet is a collection of global computers linked by a common network that render services to various users across the world. The Internet carries an extensive range of information resources and services. It began in early 70's as US department of defense network to link scientist and university professors around the world. But nowadays, most organizations and even small business connect to the internet by subscribing to an internet service provider (ISP) with a permanent connection to the internet and sells temporary connections to retail subscribers. Connection to the internet is either through a telephone line or Modem, though this is being replaced by a broad band connection Keneth, et al (2006), it became the world's most extensive, public communication system that now rivals the global telephone system in reach and range. It is the world's largest implementation of client/server computing and internet-working, linking millions of individual networks all over the world.

The Internet has enabled or accelerated new forms of human interactions through instant messaging, Internet forums, and social networking. Online shopping has boomed both for major retail outlets and small artisans and traders. Business-to-business and financial services on the Internet affect supply chains across entire industries.

The funding of a new U.S. backbone by the National Science Foundation in the 1980s, as well as private funding for other commercial backbones, led to worldwide participation in the development of new networking technologies, and the merger of many networks. The commercialization of what was by the 1990s an international network resulted in its popularization and incorporation into virtually every

aspect of modern human life. As of 2011, more than 2.1 billion people – nearly a third of Earth's population – use the services of the Internet. (www.internetworldstats.com/stats.htm)

The Internet has no centralized governance in either technological implementation or policies for access and usage; each constituent network sets its own standards. Only the overreaching definitions of the two principal name spaces in the Internet, the Internet Protocol address space and the Domain Name System, are directed by a maintainer organization, the Internet Corporation for Assigned Names and Numbers (ICANN). The technical underpinning and standardization of the core protocols (IPv4 and IPv6) is an activity of the Internet Engineering Task Force (IETF), a non-profit organization of loosely affiliated international participants that anyone may associate with by contributing technical expertise. (Wikipedia.com, 2012).

Internet does not only imply access to websites, today, there is knowledge and information on every aspect of the educational world over the internet. The resources provided on various web pages are indeed very informative and useful for professionals and students related to every field of work. Bingham University is a private University owned by Evangelical Church Winning All (ECWA) with the mission to produce men and women who will catalyze the revolution in self-reliance at all levels of a Godly society and a vision of transforming the Nigerian Nation into Knowledge and skills driven, Christ centered society. The university is equipped with the state of the art information technology (IT) infrastructure. This study intends to find if the Information Technology

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2. OBJECTIVES OF THE STUDY

This study attempts to find out how the lecturers of Faculty of Science and Technology of Bingham University use internet in Teaching and Learning activities specifically it:

- (a) Attempts to find out how useful internet is to both students and staff in Teaching and Learning activities
- (b) The general knowledge and attitude of the lecturers of faculty of science and technology to information technology
- (c) Attempts to find out the level of computer literacy among the lecturers of the faculty of science and technology.

3. USE OF INTERNET

Internet use around the world has been growing rapidly. Most people use the internet and some can't do without it, because it has become an indispensable personal and business tool. The use of computers thus serves the role of change agent within the classroom environment affording and stimulating reflection, redesign and change. Wilson, et al (1994, P.9). In 2007, according to the Canadian Survey 73% of people aged between 16 and above use the internet for personal reasons. When same survey was carried out in 2009, the report showed a 7% raise in the use of internet with the same parameters. Recent survey by the Internet World statistics in 2011 reveals that 5.7% of the World's Population uses the internet. However 37.0% of Africa's population uses the internet. Nigeria in comparison with its African Counterpart has been rated as the one of the top countries that performs better on internet accessibility.

Table 1: Internet Usage and Population Growth Nigeria:

YEAR	Users	Population	% Pen.	Usage Source
2000	200,000	142,895,600	0.1 %	ITU
2006	5,000,000	159,404,137	3.1 %	ITU
2009	23,982,200	149,229,090	16.1 %	ITU

Source: Internet Usage Statics for Nigeria;

<http://www.internetworldstats.com/af/ng.htm>

3.1 Internet in Teaching and Learning

The internet is having a powerful impact on our society, but its role in education is just beginning to be developed in many parts of the world. It is dynamic, broad-based, relatively expensive tool for information gathering when use properly. It allows for collaborative learning, multimedia learning experiences, and in general, it addresses natural learning intelligence of students. The students learn appropriate ways to gain from the learning resource that will be updated throughout the study carrier. It will not only improve learning, but will enhance lifelong learning skills (National Association of Secondary School Principals NASSP Bulletin, 2000).

Honey and Moeller (1990) conducted a research on two groups of teachers who use computers and those who do not. The report showed that teachers who made the greatest use of computers uniformly exhibited constructivist practices including collaboration, project-based work, and hands-on activities with their students, and those computers facilitated there teaching in these ways. It was advocated by Fishman and Pea (1994), that electronic mail and related internet based collaborative tools represent another constructivist compatible application of internet. They also noted that by facilitating written communication among students across diverse school settings, email may foster a richer negotiation of common understanding among different individual and classes

3.2 Internet and Research

The internet is a wide range of networks based on TCP/IP, it started out as a single network for research sponsored by the American Department of Defense Advanced Research projects Agency(DARPA). The functionalities of two recent internet tools of interest to education and research are the World Wide Web (WWW) which is a distributed hypermedia system that runs over the internet in hypertext, if more information is needed about a particular subject, it can just be clicked, it links to further details. Before the evolution of Internet, conducting research for school, work or out of

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curiosity involved a set of encyclopedias and a trip to the library. However, we now live in an age where information is readily accessible from ones computer. On the Web, one can find information about any topic you desire. The World Wide Web is a huge database of user-submitted content where you can access an astronomical number of informative sources, online groups and multi-media. Because all of the content on the internet is self-submitted, and there are very few regulations as to what a person can and can't publish, content found on the Web may be inaccurate and opinion based in many cases. Education on the Internet is a ticket to a whole new world of online learning, teaching, and research. It combines an explanation of Internet basics with a targeted guide to help teachers, students, and parents easily locate and use the wealth of education resources on the Internet.

3.3 Internet and Collaborative Learning

Collaborative learning is an act of working together with one or more people in order to achieve something. Collaborative learning is a situation in which two or more people learn or attempt to learn something together Dillenbourg (1999). Collaborative learning can based on the model that knowledge can be created within a population where members actively interact by sharing experiences. It is an umbrella for a variety of approaches in education that involve joint intellectual effort by students, teachers and scholars Chiu, (2000). Chiu,(2004) emphasized the term as an umbrella term for a variety of approaches in education that involve joint effort by students, teachers, and scholars.

Stahl (2004) postulated that "Knowledge is constructed in social interactions such as discourse". The theory suggests that learning is not a matter of accepting fixed facts but it is dynamic and evolving result of interactions primarily taking place within communities of people. This implies that learning is not static, it is also obvious that two people have to come together to improve knowledge. Many scholars use the internet as a basic tool for collaborative learning. This is because they capitalize on one another's resources and skills.

3.4 Internet and Distance Learning

The internet can be used for materials presentation of course content, assignments, quizzes, student's projects and electronic research. Strong and Harman (1997) noted the reality of the Internet and the WWW phenomenon; they reviewed and compared three offerings of graduate degrees via the internet, two masters degree programme in the field of management and one master's degree programme in the area of information science. Their studies showed that the Internet and www if properly implemented and used can help in the area of distance education. Iji(2006),

supported this idea by noting that the idea and motive of adopting the new information and communication technology to distance education is very encouraging. He however noted that the target populations are swimming in the ocean of new information and communication technology illiteracy; this has serious implication for the government, teachers and learners. It has also been observed by UNESCO (1998), that the new information and communication technology are at the top hierarchy, but unless these technologies are applied with the appropriate teaching methods, they will add nothing to education, but confusion and mistaken objectives. The implication of this is that teachers must be conversant with technology changes and applications. The stake holders in education must embark on ICT literacy campaigns for all participants without exceptions, teachers must be trained and decision makers and students alike must be trained. Researchers from Cornell University have observed that, "the web provides significant new functionality in transmitting information to the student and providing forums for exchange. The web is revolutionizing some areas of study through increased opportunities for learning and alternative formats for information" Dwyer, Barbieri, and Doerr, (1995). Online forums, like Blackboard's Discussion Board and Chat, provide public areas to post information, this makes it possible for students to share perspectives, and this is because each student can view another student's answers and learn through the exposure to different ideas.

Internet based learning affords the individual students the same opportunity to "speak up" by posting messages without typical distraction such as seating arrangement, volume of student voices, and gender biases. Shy and anxious student feel more comfortable expressing ideas and backing up facts when posting online instead of speaking in a lecture room, (Blackboard.com, 2000). They also noted that studies prove that online discussions provoke more confrontational and direct communication between students.

The virtual classroom is a space within Blackboard where one may engage with students virtually, it provides a synchronous forum for discussing, sharing, reviewing, and collaborating with peers (and tutors/facilitators). It also offers the ability to bring in visiting experts without the need for travel or access to video conferencing equipment. It can also provide a complete archival record of all interactions within a given session, aiding review and reflection. (UCD, 2000) It has been explained that the educational advantages that arise when supplementing a course with web-based tools include:

- Enhancing student- to- student and faculty-to-student communication.
- Enabling student –centered teaching approaches.

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- Providing 24/7 accessibility to course materials.
- Reducing “administrivia” around course management. (Blackboard.com, 2000).

include web CT, model, Tooling University, wiziq, second life and WebEx. (Wikipedia, 2011). WiziQ is a free platform that provides complete freedom for learning. It can work with any browser and operating system. It can be combined with model for real time online collaboration and interaction.

4. ONLINE EDUCATION

Online education has been defined as “an approach to teaching and learning that utilizes Internet technologies to communicate and collaborate in an educational context. This includes technology that supplements traditional classroom training with web-based components and learning environments where the educational process is experienced online” (blackboard.com, 2000). Online educational tools provide many ways that help increase communication between students and faculty. Some of these tools include discussion boards, chats, blogs and e-mails. Many studies have shown that adding these elements to a course increase student motivation and participation in class discussions and projects. According to Kubala (1998) Student are “more willing to participate [due to] a measure of anonymity, which serves as a motivator... people feel more empowered. They are daring and confrontational regarding the expression of ideas,” Beldarrain(2006) in discussionboard.com also listed some of the benefits of using discussion boards to include:

- Students can continue in class discussion outside normal time-tabled classes.
- All students can participate, so they are democratic.
- Some students are not confident enough to speak out in face to face classes but are willing to contribute to discussion boards.
- They give students time to reflect on their thoughts before contributing.
- They allow students to work on their reply and check for grammar and spelling before posting – particularly useful for student whose first language is not the one used in the discussion.
- They allow student to practice their writing skills in a more informal way.
- They offer peer learning opportunities- and this takes some of the workload away from the tutor.
- They foster a learning community, “As new technologies emerge, instructional designers and educators have unique opportunities to foster interaction and collaboration among learner, thus creating a true learning community.”
- Learning Management System (LSM)

The internet provides many virtual classroom programmes that use E-learning platform to administer and manage students courses, thereby providing learning contents to students. (Wikipedia, 2008) These systems

Second life (at second.com) has a platform that supports 3D visualization and it is used as a virtual classroom by many colleges and universities like Princeton, Rice University, University of Derby UK, Vassar and Open University UK.

WebEx (webex.com) is used by many education provides as online learning platform and classroom. It is a CISCO web solution that is used for meeting and collaboration. It is real time solution used as an interactive whiteboard, chat, and VOIP technology that allows audio and video sharing, though not a free service it is offers a good platform.

4.1 Blogs

A blog is a form of online diary that offers a means for students to collect, collate and reflect on their learning and daily work practices. It may offer a way of providing innovative assessment methods that promote critical thinking among students. It allows for a great degree of flexibility for the individual learner as it allow them access and contribute to their blog at any given time. Each student usually has complete control over their content, style and design. They may also comment and participate in many of their peer’s blogs creating a rich community of shared knowledge. (CSU, 2011).

4.2 Clickers

According to (UCD, 2000) Clickers refer to as Audience or Personal Response Systems (ARS/PRS), these are small handheld units the size of a mobile phone that students can use to respond to question posed by the lecturer. Questions are usually multiple choices in format and students can respond by selecting the appropriate option on their clicker. The anticipation rate and the breakdown of student response are instantly available in a graph via Power point. It is also noted that:

Clickers offers a means for students to participate in class; to offer their opinion, Answers questions, gage understanding and acquire feedback. Utilizing a PowerPoint or Keynote presentation it offers the academic a way to engage with. The learners in a small or large group setting. Many academics are utilizing, Clickers to enable active learning to become integral to the learning process by contributing to the way a session may develop. Clickers are most commonly

used to engage student and maintain interest in larger classes. Student answer question via the clickers and then discuss the potential options or concepts that may apply. They may be used for icebreaker activities, to pose question throughout class, stimulate discussion, summarize material, and also to gain instant student feedback on teaching.

5. METHODOLOGY

The Administered questionnaire was structured in three sections. The first section, deals with the use of internet by student and lecturers, accessibility to internet and the use of online library and discussion groups. The second section addressed the general knowledge and attitude to Information Technology while the third section was on assessing the computer literacy level of the respondents. Respondents were required to respond to yes or no on the first section.

6. DATA COLLECTION

For the purpose of this study, Over 35 questionnaires were administered, 30 questionnaires were returned. Responses from the respondent are shown on Table I, II and III respectively.

7. RESULT, DISCUSSION AND ANALYSIS

In analyzing the result from the respondents, simple percentages (%) were used. In section I, about 90% of respondents indicated that they have access to computer system while 93% have personal Computers. Looking at the responses on internet access in office and home, over 50% has internet access both in office and at home, though only 30% find the internet access frustrating. About 80% of the respondents would like to prepare web based materials for their teaching, while 60% of respondents do not use professional discussion groups on the internet in their courses. On the average, emails are used to communicate assignments to students as 43% of respondents use it while 13% of respondents are indifferent. Interactive chats /discussion with students were low as only 35% use interactive discussion on courses in the faculty. The respondents generally, use the internet for research (100%), while 63% of respondents are subscribed to on line journals and use the online library resources for research purpose. The findings reveal that the respondents appreciate the use of internet in their primary assignment (lecturing) but seldom use collaboration tools (email, blogs, and discussion groups) to collaborate with students and their fellow.

Section II, focused on the general attitude of respondents to information technology. It was discovered that from the results that 86% of the respondents are computer literate, 76% will prefer free time on the net and can use computers for most of their work. Unfortunately, 26% of the respondents do not have adequate internet access. 86% believed that computers are very essential for work and also believed that all teachers need to have adequate knowledge of information technology (IT) (96%) agreed that computers will improve efficiency, speed and accuracy. On whether computers will motivate students to learn better, 90% believe so, while 10 % fairly agreed. Though 74% agree to the fact that IT education should be compulsory on everyone in the education sector, 100% of respondent applaud the fact that IT education should be encouraged. From the results it is obvious that the lecturers in the faculty appreciate and have positive attitude towards the use of information technology.

From the section that focused on the ability to perform basic operations. It is observed that 100% of respondents strongly agree to the fact that they can boot the computer system. 90% of the respondents can perform some basic computer literacy, they can delete, rename computer file and browse the Internet. Interestingly, about 80% of the respondents strongly believe they can do the following: move compute file from one folder to the other, Open computer files on any program, create folder in a directory, format flash disk, send and receive mail, use word processor to produce document and print, search, locate and download files on the internet. The result showed that 50% can create simple database with DBMS, but only 40% can write simple programs. From the results we can conclude that the staff of the faculty have high level of computer literacy, though more advance computer operations should be encouraged.

8. CONCLUSION AND RECOMMENDATION

The internet is a platform that serves as a global reservoir of knowledge for researchers and students to share common knowledge in a diverse way, they have often taken advantage of the virtual library to publish, interact and share their findings across. Thus the net is a safe haven for teaching, learning and online education for students and scholars to share and interact collaboratively.

The findings of this research shows that there is a need for Bingham University to design ways of improving collaboration between students and Lecturers and explore the use internet collaboration tools in Teaching and Learning. We make the following recommendations:

- Computers cuts across all professions and all institutions, therefore it should improve on

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equipping offices with Information Technology Infrastructure and internet connectivity; this will alleviate the problems internet access.

- The University authority should embark on systematic computer training for all the staff, so that collaboration between staff and students will be effective.
- The federal government should encourage IT education in our institutions. In addition collaboration should be nurtured the attitude of collaboration from the primary schools between teachers and students, then it will be work over when our students join universities.

In conclusion, the need for everybody in the society to be computer literate cannot be overemphasized, more so, those in the academic environment cannot shy away from using the IT in research and Collaboration, it does not only make us productive, but help us to gain access to world best online libraries, helps us to do our work faster and more efficient. Therefore, every effort must be made to ensure that everyone in the academic circle use the internet for research, collaboration and learning.

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APPENDIX

Table1: Use of Internet by Students and Teachers

S.no	I - Use of Internet by teachers	N(f)	%	N(f)	%	IDF(f)	%
1	Do you have access to a Personal Computer (PC)?	27	90.00	3	10.00	0	0.00
2	Do you have a Personal Computer?	28	93.33	2	6.67	0	0.00
3	Do you have internet access in the office?	17	56.67	13	43.33	0	0.00
4	Do you have internet access at home?	18	60.00	12	40.00	0	0.00
5	The internet is useful for students in science and technology faculty	29	96.67	0	0.00	1	3.33
6	I often find the internet frustrating to use	9	30.00	20	66.67	1	3.33
7	I would like to prepare web based materials	24	80.00	5	16.67	1	3.33
8	Do you use professional discussion groups on internet in your subject area?	12	40.00	18	60.00	0	0.00
9	Do your students join discussion groups in your subject area?	18	60.00	9	30.00	3	10.00
10	Do you use email in relation to students' assignment submission?	13	43.33	13	43.33	4	13.33
11	Do you use internet for your research work?	30	100.00	0	0.00	0	0.00
12	Are you subscribed to online journals and educational materials?	19	63.33	11	36.67	0	0.00
13	Do you take courses /studies online?	15	50.00	12	40.00	3	10.00
14	Do you use online Library for research purposes?	19	63.33	11	36.67	0	0.00
15	Do you have online interactive chats/discussion with your students?	10	33.33	20	66.67	0	0.00
16	How long have you been using internet?	2	6.67	1	3.33	27	90.00
17	How often do you use internet in science lesson preparation?	22	73.33	4	13.33	4	13.33

Table II: General Knowledge and attitude to IT

S.no	Items	SA(f)	%	FA(f)	%	DA(f)	%	DAA(f)	%
1	You are computer Literate	26	86.67	4	13.33	0	0.00	0	0.00
2	You will prefer free time on computer	23	76.67	6	20.00	1	3.33	0	0.00
3	You have adequate access to computer and Internet	8	26.67	15	50.00	7	23.33	1	3.33
4	You can use computers for most of your work	23	76.67	7	23.33	0	0.00	1	3.33
5	Computers are very essential to your work	26	86.67	4	13.33	0	0.00	0	0.00
6	All teachers need to have Adequate	29	96.67	1	3.33	0	0.00	0	0.00

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	knowledge of information technology(IT)								
7	IT will improve efficiency , speed and accuracy	30	100.00	0	0.00	0	0.00	0	0.00
8	Computers will motivate students to learn better	27	87.10	3	9.68	1	3.23	0	0.00
9	The use of IT in education should be encouraged	27	100.00	0	0.00	0	0.00	0	0.00
10	IT education should be compulsory for everyone in the education sector	23	74.19	8	25.81	0	0.00	0	0.00

Table III: Basic Computer Literacy

S.no	Items	SA(f)	%	FA(f)	%	DA(f)	%	DAA(f)	%
1	You can: Boot a computer system	30	100.00	0	0.00	0	0.00	0	0.00
2	Execute or 'Run' a computer program	23	76.67	4	13.33	3	10.00	0	0.00
3	Use computer to create file in any program	21	70.00	4	13.33	0	0.00	5	16.67
4	Open a computer file in any program	24	80.00	3	10.00	2	6.67	1	3.33
5	Modify an existing file in computer program	17	56.67	8	26.67	3	10.00	2	6.67
6	Copy a computer file	26	86.67	2	6.67	0	0.00	2	6.67
7	Delete a computer file	27	90.00	2	6.67	0	0.00	1	3.33
8	Rename a computer file	27	90.00	2	6.67	0	0.00	1	3.33
9	Make or create a directory or folder	25	83.33	3	10.00	2	6.67	0	0.00
10	Move a computer file from one point to another	24	80.00	6	20.00	0	0.00	0	0.00
11	Format a disk flash drive	25	83.33	3	10.00	2	6.67	0	0.00
12	Copy computer files from one device to another	25	83.33	3	10.00	2	6.67	0	0.00
13	Use a word processor to produce a document	25	83.33	3	10.00	1	3.33	1	3.33
14	Use a Spreadsheet program for simple computation	25	83.33	3	10.00	2	6.67	0	0.00
15	Use a database management system(DBMS) to create simple database	15	50.00	6	20.00	8	26.67	1	3.33
16	Write a simple computer program using any programming language	12	40.00	5	16.67	10	33.33	3	10.00
17	Send and Receive e-mail	26	86.67	4	13.33	0	0.00	0	0.00
18	Browse the Internet	28	93.33	2	6.67	0	0.00	0	0.00
19	Search ,Locate and download any document	25	83.33	5	16.67	0	0.00	0	0.00
20	Print a document from the computer	26	86.67	3	10.00	1	3.33	0	0.00