

AVAILABILITY AND UTILIZATION OF INTERNET SERVICES AMONG UNDERGRADUATES IN ENUGU STATE OWNED TERTIARY INSTITUTIONS

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Abstract

The introduction of ICT in Nigerian tertiary institutions is a remarkable step that will contribute to knowledge production, communication and information sharing among students and teachers in the school system. At present, many public tertiary institutions in Nigeria can now boast of computer laboratories through which students are gaining basic computer literacy, however, the commitment of government to the provision of infrastructure for ICT policy implementation seem not to be enough. This study therefore aimed at determining the Availability and utilization of internet services among undergraduates in Enugu state owned tertiary Institutions. This was done by reviewing literature on related concepts. It was therefore suggested that strategies unveiled in the study be adopted to enhance Availability and utilization of internet services among undergraduates in Enugu state owned tertiary Institutions. It was recommended that to improve the availability and utilization of internet services by undergraduates in government owned tertiary institutions, the government should subsidize the cost of computers and internet facilities, reduce of tariffs on data subscription and sponsor free computer trainings by the government.

Introduction

The use of the internet has become a central part of the developed and developing societies around the world. The internet is more than just a means of seeking information. people have discovered that the internet can be used to connect with other people for business or commercial purpose, to make new or to reawaken old friends and long lost relatives (Anderson,2001).the internet is an integral part of most students with

more than 90 percent of the students have access to the internet (Anderson,2001).Computer is now easily found in our offices, homes industries, where they perform different tasks like data processing, mass storage sector and business analysis. It is also applied in school, bank, and agricultural sector, management companies for data processing and money transactions with the help of spreadsheet and area network, it is also use in school as a supplement to traditional instructional of teaching and learning. Computers have been used to create electronic libraries and catalogues to enhance academic research work.

According to Heeks (1999), many libraries now provide online resources to facilitate learning and research electronically. Communication technology (ICT) is a transformative tool and its full integration into the school systems is necessary to prepare students for the information society they will inherit. Currently ICT has been incorporated into the school curriculum, beginning with the pre-tertiary institutions. The internet allows cost-effective information delivery services, collaborative and distance education, more than has ever been imagined(Clyde,2002,Toddd,2007) The internet has myriad (a countless number or multitude) websites to help teachers develop or improve lesson plans exchange ideas, obtain information, and find free animations and simulations to enliven their lessons.

According to Awotua-Efebo (2000), most internet-based collaborative learning projects include teacher support and training, and conference proceedings are published regularly on the web. Chat rooms or forums may become a laboratory for new ideas. Online study resources can also provide interactive tools for teachers to access feedback from students, computer-based assignments are an effective way of ascertaining students understanding of concepts. Students also learn more quickly, demonstrate greater retention, and are better motivated to learn when they work with computers. From the early 1990s education stakeholders in Nigeria have been concerned about how teachers and students use computers in schools and how their use supports learning and Teaching. Teachers use computers to write lesson plans prepare materials for teaching, record and calculate students' grades, and communicate with other teachers as such, computers have become a routine tool for helping teachers accomplish their professional work". However, many teachers do not facilitate substantial student use of computers for learning activities computer-based test are easier to administer and are quicker to mark. Research findings have shown that the use of computers for drill and practice, and for instructional delivery yields positives results. However, the computers must be available in order to be used.

Availability means suitable/capable or ready for use to accomplish a purpose (new English dictionary version 2.8). ICT availability means suitable or ready for use. ICT availability means the level to which ICT tools is ready for users to use. ICT has become the talk of the moment in global socio-economic affairs. It has become so important that every country organization, institution, no matter how highly or lowly placed want to identify and embrace it. The world at present is knowledge-driven and information age has taken the center stage in virtually everything. Utilization and improving of ICT

facilities are therefore a sine qua-non for qualitative instructional service delivery in technical colleges. According to Ajayi (2008), the use of these ICT Facilities involves various methods which include, systemized feedback system, computer-based operation network, internet website and computer assisted instruction. It must however be stressed that effective use of the various internet services in teaching and learning depends on the availability of these facilities and teacher's competence in using them.

Utilization simply means "to put use" (oxford dictionary, 5th edition). internet utilization is a term used to describe the level to which internet is used and controlled. Utilization of internet services in involves to put to use or making use of the internet services and facilities. Availability of internet services and facilities in computer Education involves where the internet and facilities are ready or suitable and facilities should be available before it can be used by learners and teachers. With the of internet services/ICT in ESUT and other tertiary institution in Enugu metropolis, computer student can participate and excel in their chosen careers in future endeavor and teachers can take students beyond traditional limits, ensure their adequate participation in teaching and learning process and also crate vital environment to experiment and explore. The factors that can affect or influence availability and utilization of internet services by computer students are: finance, government, policy, level of computer literacy, power supply, internet by the teachers and students, hardware, software, personal access for teachers etc.

Therefore, this study was set to find out the availability and utilization of internet services in tertiary institutions in Enugu metropolis.

Review of Related Literature

Computer Network as Internet Facilities

A computer network is a group of devices connected with each other through a transmission medium such as wires, cables etc. These devices can be computers, printers, scanners, Fax machines etc.

Types of computer network

LAN (Local Area Network) - Can go up to 1 KM radius. A local area network (LAN) is a group of computers and associated devices that share a common communications line or wireless link to a server. Typically, a LAN encompasses computers and peripherals connected to a server within a distinct geographic area such as an office or a commercial establishment.

WAN (Wide Area Network) - No Limit. A wide area network (WAN) is a network that exists over a large-scale geographical area. A WAN connects different smaller networks, including local area networks (LANs) and metro area networks (MANs). This ensures that computers and users in one location can communicate with computers and users in

other locations. WAN implementation can be done either with the help of the public transmission system or a private network.

WLAN (Wireless Local Area Network) - A wireless local area network (WLAN) is a wireless computer network that links two or more devices using wireless communication within a limited area such as a home, school, computer laboratory, or office building. This gives users the ability to move around within a local coverage area and yet still be connected to the network. Through a gateway, a WLAN can also provide a connection to the wider Internet. Most modern WLANs are based on IEEE 802.11 standards and are marketed under the Wi-Fi brand name.

MAN (Metropolitan Area Network) - A metropolitan area network is a computer network that interconnects users with computer resources in a geographic area or region larger than that covered by even a large local area network (LAN) but smaller than the area covered by a wide area network (WAN). The term is applied to the interconnection of networks in a city into a single larger network (which may then also offer efficient connection to a wide area network). It is also used to mean the interconnection of several local area networks by bridging them with backbone lines. The latter usage is also sometimes referred to as a campus network.

CAN (Campus Area Network) - A campus area network is a computer network made up of an interconnection of local area networks (LANs) within a limited geographical area. The networking equipment (switches, routers) and transmission media (optical fiber, copper plant, Cat5 cabling etc.) are almost entirely owned by the campus tenant / owner: an enterprise, university, government etc.

SAN (Storage Area Network or System Area Network) - For storage area network, as a dedicated high-speed network that connects shared pools of storage devices to several servers, these types of networks don't rely on a LAN or WAN. Instead, they move storage resources away from the network and place them into their own high-performance network. SANs can be accessed in the same fashion as a drive attached to a server. Types of storage-area networks include converged, virtual and unified SANs.

Then for system area network, it is used to explain a relatively local network that is designed to provide high-speed connection in server-to-server applications (cluster environments), storage area networks (called "SANs" as well) and processor-to-processor applications. The computers connected on a SAN operate as a single system at very high speeds.

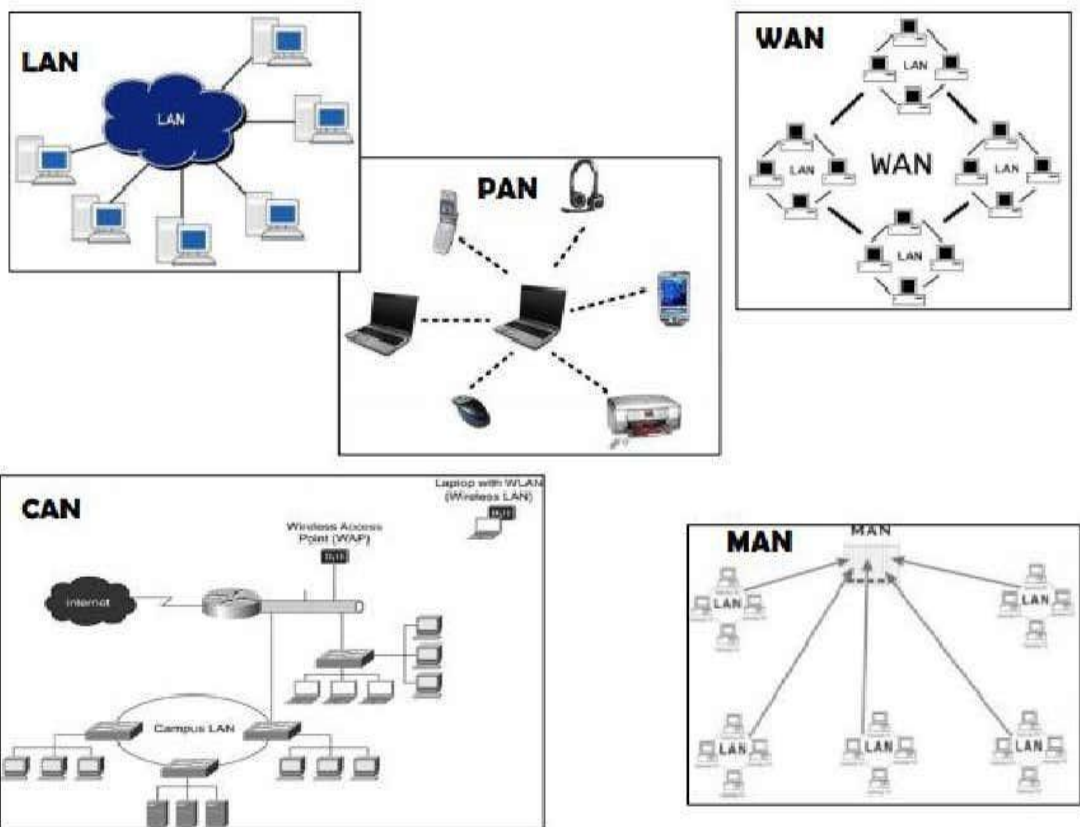
PAN (Personal Area Network) - The smallest and most basic type of network, a PAN is made up of a wireless modem, a computer or two, phones, printers, tablets, etc., and revolves around one person in one building. These types of networks are typically found

in small offices or residences, and are managed by one person or organization from a single device.

POLAN (Passive Optical Local Area Network) - As an alternative to traditional switch-based Ethernet LANs, POLAN technology can be integrated into structured cabling to overcome concerns about supporting traditional Ethernet protocols and network applications such as PoE (Power over Ethernet). A point-to-multipoint LAN architecture, POLAN uses optical splitters to split an optical signal from one strand of single-mode optical fiber into multiple signals to serve users and devices.

EPN (Enterprise Private Network) - These types of networks are built and owned by businesses that want to securely connect its various locations to share computer resources.

VPN(Virtual Private Network) - A virtual private network extends a private network across a public network, and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network. Applications running across the VPN may therefore benefit from the functionality, security, and management of the private network.



PARAMETERS	LAN	WAN	MAN
Ownership of network	Private	Private or public	Private or public
Geographical area covered	Small	Very large	Moderate
Design and maintenance	Easy	Not easy	Not easy
Communication medium	Coaxial cable	PSTN or satellite links	Coaxial cables, PSTN, optical fibre, cables, wireless
Bandwidth	Low	High	moderate
Data rates(speed)	High	Low	moderate

The purpose of having computer network is to send and receive data stored in other devices over the network. These devices are often referred as nodes.

There are five basic components of a computer network



Message: It is the data or information which needs to be transferred from one device to another device over a computer network.

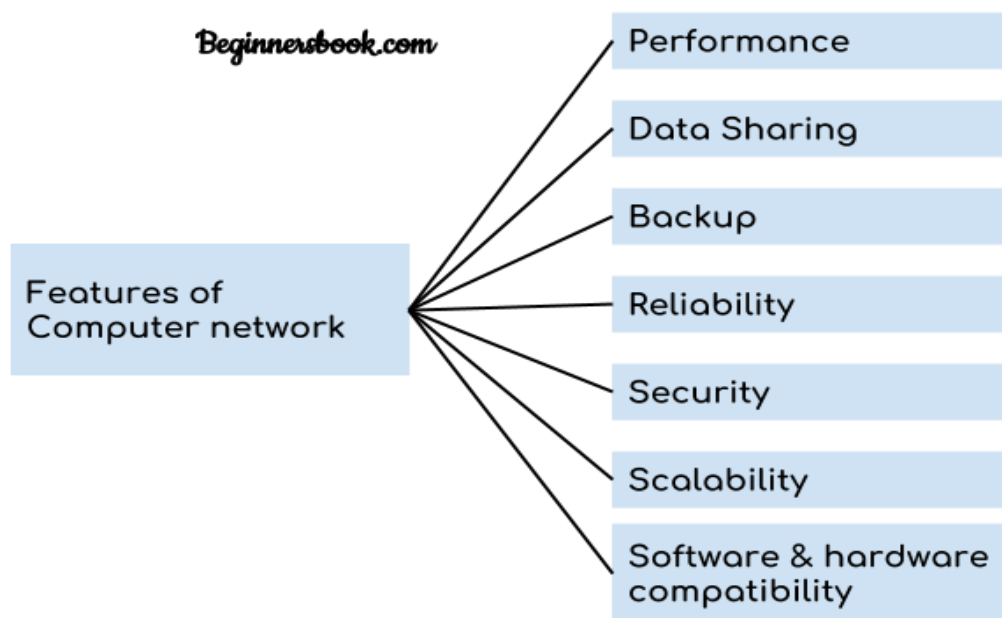
Sender: Sender is the device that has the data and needs to send the data to another device connected to the network.

Receiver: A receiver is the device which is expecting the data from other device on the network.

Transmission media: In order to transfer data from one device to another device we need a transmission media such as wires, cables, radio waves etc.

Protocol: A protocol is a set of rules that are agreed by both sender and receiver, without a protocol two devices can be connected to each other but they cannot communicate. In order to establish a reliable communication or data sharing between two different devices we need set of rules that are called protocol. For example, http and https are the two protocols used by web browsers to get and post the data to internet, similarly smtp protocol is used by email services connected to the internet.

Features of a Computer Network



A computer network has following features: by Explanations

Performance: Performance of a computer network is measured in terms of response time. The response time of sending and receiving data from one node (computer in a computer network are often referred as node) to another should be minimal.

Data Sharing: One of the reasons why we use a computer network is to share the data between different systems connected with each other through a transmission media.

Backup: A computer network must have a central server that keeps the backup of all the data that is to be shared over a network so that in case of a failure it should be able to recover the data faster.

Software and hardware compatibility: A computer network must not limit all the computers in a computer network to use same software and hardware; instead it should allow the better compatibility between the different software and hardware configuration.

Reliability: There should not be any failure in the network or if it occurs the recovery from a failure should be fast.

Security: A computer network should be secure so that the data transmitting over a network should be safe from unauthorized access. Also, the sent data should be received as it is at the receiving node, which means there should not be any loss of data during transmission.

Scalability: A computer network should be scalable which means it should always allow adding new computers (or nodes) to the already existing computer network. For example, a company runs 100 computers over a computer network for their 100 employees, let's say they hire another 100 employees and want to add new 100 computers to the already existing LAN then in that case the local area computer network should allow this.

A **Computer Architecture** is a design in which all computers in a computer network are organized. An architecture defines how the computers should get connected to get the maximum advantages of a computer network such as better response time, security, scalability etc. The two most popular computer architectures are **P2P (Peer to Peer)** and

Utilization of Internet in Tertiary Institutions

The need for utilization of Internet in tertiary institutions has been viewed by many authors like Haag (2004) as inevitable and something that could be used in all sphere of life to improve the Lives of people and solve societal problems. Laudon and Laudon (2002) stressing the need for Internet use in tertiary institutions said that Internet is a very fast method of communication, with messages arising anywhere in the world within seconds or a minute or two at most. Thelen (2002) in appraising the current which Internet plays in the life of students concluded that Internet plays a very crucial role in the attitude of students. Thelen further stated that coming from school that does not have Internet access, creates much complexity that going through the information resources on the Internet is definitely faster than reading an entire book.

Hobson (2007) opined that, the Internet and use of personal computers have altered many students and teachers well established habits like the way the media is used. Today students and teachers are more likely to read the morning headlines online than in the newspaper on the breakfast table. This shows that the utilization of Internet is for both teachers and students to broaden their knowledge. Fatoki (2004) in his own view posited that, Internet is an upcoming tool with a very high potential for students if only they can be guided in the use of the web resources in academic purposes. Fatoki further stressed that, the Internet provides improved information on current events and the latest opinions since it is timely, interesting and exposes students to a greater variety of materials.

Leroy (2005) stressed that the Internet is only a part of the school library which helps in liberating the students from the bonds of educational entrenchment as well as

quicken all learning activities. LeRoy further stressed that policy makers need to demonstrate the alternative means to antiquated and dominant paradigm of teachers as disseminators and student as receptors. Internet offers students the opportunity to learn at their own pace. Onwumbiko (2004) in his own view says that Internet. is fast becoming the perceived place to find all the information students want and is frequently used by library clients. Libraries and their catalogues are locked up as antiquated, not keeping up with the minute information users now demand. The best any tertiary institution can do for its students is to provide them with well-connected Internet facilities and teach them how to access it to retrieve information and other sundry sources. Mbachu (2007) stressed that the impact of Internet in the total operation of the school libraries connote that Internet is now a global tool for information acquisition, processing, storage, retrieval and dissemination. Daramola (2004), also remarks that the use of Internet in technological education programmes is an important step as it provides fast and easy transfer of skills in the exchange of Information.

Ebifung (2000) listed some of the factors that are essential, for successful use of the Internet. These include knowledge and usage of the Internet services; training on a continual basis; availability of equipment and technical assistance; supportive administration; collaboration with other teachers; collaboration with other students; and advanced planning. He gave a summary of some key reasons why students should be encouraged to use the Internet in their learning. These are motivating factors; fast communication; access to information; interactive activities; cooperative learning; locating research materials; acquiring varied writing skills. The Internet in all its ramifications has revolutionized community and information service the world over in the. Last decade, It has equally opened a new vista in the world of library and information service as it has generally enhanced scholarly communication and research in all fields of human endeavors. Rainer, Potter and Turban (2007), stressed that Internet also provides a true democratic communications forum and has produced a democratization of information. That is, the Internet handles everyone's communications the same way, whether secondary school student or the university student. It is the worth what we say that determines who is willing to listen, not your title or academic qualifications. In most, cases, users are free to say what they want on the Internet, and when. The Internet is an open sharing environment that is remarkably free of censorship, a tribute to its roots in the academic and research communities. Allen (2001) emphasized on the two basic ways through which students can find information on the web via Internet: searching and browsing. He stressed that the searcher should use the brute force of computers to dig up information and that the computer applications designed to do this sort of works on the web are called search engines. He further explained that browsing requires that the searcher should do a lot of the work herself. In the light of all these, the need for this study is obvious as most experts have rightly pointed out that the Internet is

very much important in our schools, yet, amazingly, has remained neglected. Thus; the utilization of internet services among the students of tertiary institutions is assessed.

Factors Militating Against the Utilization of Internet Services

Many factors militate against the use of Internet in school library. Among these factors is the absence of well-trained personnel known as teacher librarian who should organize and render services to users. Daramola (2004) said that; Internet in school library is militated against by lack of skilled manpower. Without the qualified personnel to handle the affairs of the internet. in the school library, there is bound to be set back in the process of school library development and utilization. The untrained school librarian without adequate knowledge of the new trend. cannot perform the function of teaching the student the methodology of using the Internet. Badu (2004) stated that; several factors inhibit the successful implementation of Internet such. as lack of skilled personnel, coupled with lack of training culture in Internet skills, intermittent electric power cuts. He further observed that trained personnel are so crucial for the effective performance of Internet in school library. A trained school librarian is very important without which the school library cannot function effectively.

Mbachu (2007) commenting on the problem of fund, stressed that fund will be required for training and retraining of specialist staff, who will man the media centers. Assistance from government, some social clubs together with the Association of old students could be great help towards achieving a reasonable fund To equip the Internet in the school library. Teachers on their own part should always use the Internet so that they can be in the position to encourage the students to use the library by giving them assignments to do with the use of Internet in the school library. Okeke, Orakpor and Ezejiolor (2007) commenting on the problem of the use of Internet by students' state that the major problems are fund, computer phobia, changes in the role of school librarian, pornography and misinformation. Others include change in library arrangement, installation and repairs. If challenges of this magnitude persist, it might hamper the utilization of internet services in tertiary institutions. Hence, the extent of utilization of internet services among students in Enugu State owned tertiary institutions.

Strategies for overcoming the problems of the utilization of internet services

Owing to the numerous problems facing the utilization of internet services, Ajayi and Adetayo (2005) posited that there are various ways by which the problems affecting the utilization of internet can be reduced to enhance its use by the students. Echezona (2005) opined that both availability and utilization of internet services would be enhanced if the following were taken into consideration:

- Provision of both printed and electronic information resources.
- Provision of need based education programme by the library for easier exploitation of available resources.

- Provision of on-line materials in electronic format.
- Updating the skills of the staff to enable them to help users. Improving the funding of the school to enable it to purchase and maintain needed information technology, books, journals and audio-visual resources.

Another strategy is on the area of awareness. The problem of inadequate awareness was addressed by Popoola (2008) who posited that awareness could be done through planned public relations programmes, study tours, user education programmes, organization of seminars, symposia and workshops are ways to encourage the utilization of internet services among students in Enugu State owned tertiary institutions.

Recommendations

To improve the availability and utilization of internet services by undergraduates in government owned tertiary institutions, the government should;

1. Subsidize the cost of computers and internet facilities
2. Reduce of tariffs on data subscription
3. Sponsor free computer trainings by the government

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