Wireless Internet Access Use by Staff and Students at the Kwara State Polytechnic, Ilorin-Nigeria

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Abstract: The main purpose of this research was to investigate how the academic staff and students are using the Polytechnic wireless Internet access. The goal of the study is to help the Polytechnic management determine the level of acceptance and usage of the Polytechnic wireless Internet access among the academic staff and the students. The study also identified factors that militating against the usage of wireless Internet access. Semi-structure interview, personal observation and questionnaire were employed. The research questions are: What is the level of awareness of wireless Internet access by the academic staff and students? How are academic staff and students using wireless Internet in their offices, lecture rooms and outside the lecture rooms for research? What factors contributed to low usage of wireless Internet access? We used descriptive statistics which include frequencies count, percentage and composite bar charts for the analysis and reporting of the findings of the interview and questionnaire. The result demonstrated that 100% of academic staff respondents are fully aware while 5.5% of students' respondents are aware of the Polytechnic wireless Internet access. Unavailability of wireless Internet signal at several parts of the Polytechnic and failure to release the password to the staff and students were factors contributed to low usage. It was recommended to the Polytechnic management to install radio at various parts of the Polytechnic to improve the signal and also to create and release password to the interested staff and students.

Keywords: Wireless, Internet Access, Radio, Staff, Students, Internet, VSAT

I. INTRODUCTION

Wireless network refers to two or more computers communicating using standard network rules or protocols, but without the use of cabling to connect the computers together. Staying connected no longer means being tied down to cables and phone lines. The rapid advances in wireless Internet technology have enabled wireless connectivity from the home, office, car, and anywhere around the world. Wireless communications allow people greater flexibility while communicating, because they do not need to remain at a fixed location, such as a home or office, but instead can communicate with other people while travelling in a car or walking along a street. All wireless communications devices use radio waves to transmit and receive signals. These devices operate on different radio frequencies so that signals from one device will not overlap and interfere with nearby transmissions from other devices.

Wi-Fi, an abbreviation for wireless fidelity, is a wireless communication technology that can be used to provide connections between portable computers and wired connections to the Internet. To connect users to the Internet, Wi-Fi devices use low-power transmitters and receivers equipped with special computer chips containing radio modems. Wireless communications begin with a message that is converted into an electronic signal by a device called a transmitter. There are two types of transmitters: analogue and digital. An analogue transmitter sends electronic signals as modulated radio waves. The analogue transmitter modulates the radio wave to carry the electronic signal and then sends the modified radio signal through space. A digital transmitter encodes electronic signals by converting messages into a binary code, the series of zeros and ones that are the basis of all computer programming. The encoded electronic signal is then sent as a radio wave. Devices known as receivers decode or demodulate the radio waves and reproduce the original message over a speaker.

Reference [1] in their white paper noted that universities and colleges are among the most aggressive adopters of Wi-Fi technology. The trend toward more collaborative and open learning environments, fuelled by the explosive adoption of mobile devices among students and faculty, makes higher education campuses fertile ground for wireless LANs. Reference [2] observed that wired and wireless access networks continue to evolve toward higher-capacity, multi-service systems. Also [2] examine the implications of divergent evolutionary paths for market structure and regulatory policy. "We recognize that in today's competitive, quickly evolving educational environment, it is crucial to provide high-speed wireless Internet access in every part of our campus to meet the needs of our teaching and learning community" says [3].

Reference [4] noted that wireless networking has moved from an interesting curiosity to an appealing technology alternative for potential users in higher education. Successful pilot projects are encouraging a growing number of institutions to move toward major wireless commitments. Reference [5] in their survey and interviews found that many students expressed the expectation to have more wireless coverage across campus. Several students can share one wireless network, which makes access to the Internet more cost effective.

This article focuses on wireless communications systems and it use in Kwara State Polytechnic by the Staff and Students. The aims of the study are to:

i. find out academic staff and students awareness of wireless Internet access in the Polytechnic.

ii. determine the level of usage of wireless Internet access resources of the Polytechnic by Staff and Students of the Polytechnic.

iii. find out the factors that contributes to low usage of the Polytechnic wireless Internet access.

A. Internet Access in Kwara State Polytechnic

The Kwara State Polytechnic, Ilorin was established in 1971 and commenced operation in January 1973 with administrative machinery patterned closely after the existing universities in the country. As at its inception in 1973, the Polytechnic had 110 students, 11 members of academic staff and 3 senior administrative staff [6]. Today, the polytechnic has over 10,000 students and over 500 academic staff at various department of the Polytechnic. The Polytechnic had her first Internet connectivity in May 2005 with the intention of upgrading the manual system of students' application and admission processing. It was installed by Edlink Portal Global Services, an information technology consultant employed by the Polytechnic. The means of connection was through a VSAT (Very Small Aperture Terminal). The Internet service was eventually extended to the offices of principal officers of the Polytechnic. In 2008, Microlink Ltd came on board and worked in collaboration with Edlink Portal Global Services for application and admission processing for that academic session.

By 2009, the Nigeria Communication Commission (NCC) constructed an ICT Centre for the Polytechnic as part of the services rendered to the polytechnics in the country. This package included one hundred sets of wireless enabled personal computers, wireless Internet access through 1.2 diameters VSAT, one antenna, and one idirect 3000 series router with a mast. The Internet service then was mainly for ICT centre and the administration block. However, by 2011 NCC upgraded the existing system by providing another 1.8 diameter VSAT, idirect 5000 series modem, 4-sectorial antenna and one base station. The package was called Kwara Polytechnic Wireless Cloud. The package is to provide wireless Internet access for Staff and Students of the Polytechnic.

II. RESEARCH METHODOLOGY

A. Research Questions

To achieve the purpose of this study, the following research questions were addressed by this study [7]:

i. What is the level of awareness of wireless Internet access by the academic staff and students?

ii. How are academic staff and students using wireless Internet in their offices, lecture rooms and outside the lecture rooms for research?

iii. What factors contributed to low usage of wireless Internet access in the Polytechnic?

B. Data Collection Methods

A semi-structure interview, personal observation and questionnaire were employed for this study [8]. These methods were considered appropriate for obtaining information on the use of wireless Internet access by the academic staff and students of Kwara State Polytechnic, Ilorin.

Method 1

Polytechnic academic staff and the students who are suppose to be using the wireless Internet access were the major participants of the study, and being interviewed to provide the researchers' perspectives on how staff and students are using wireless Internet access for research and learning within the Polytechnic environment. A semi structured interviews were employed to elicit in-depth responses. All the interviews were conducted face-to-face. Each interview was based on self experience and lasted for about 15 minutes. We interviewed 20 academic staff (17 male and 3 female) and 50 students (34 male and 16 female) which took us two weeks.

Method 2

Personal observation is a method of watching the subject of research in action and simultaneously recording the information required. We used our laptops to search for the availability of wireless Internet access within the polytechnic environment. We started from the Administration block, through IFMS (Institute of Finance and Management Studies), IBAS (Institute of Basic and Applied Sciences) and later to IES (Institute of Environmental Studies) and IGS (Institute of General Studies). The strength of the wireless signal were found and recorded.

Method 3

A questionnaire was constructed to gather information on the use of wireless Internet access by the academic staff and students of Kwara State Polytechnic, Ilorin. The questionnaire sought for the respondents' awareness of wireless Internet access, usages of wireless Internet access and factors that hinder the usage of the Polytechnic wireless Internet access.

A total of 160 questionnaires were administered. 60 copies were distributed among the academic staff out of which 56 were returned completely filled which representing 93% return rate. While 100 copies were distributed among the students out which 91 copies were returned completely filled which representing 91% return rate. We personally administered the questionnaires to the respondents which took us three weeks.

III. DISCUSSION OF RESULTS

Based on our personal observation there are strong wireless Internet access signal around Administration Block, Bursary department Junior and Senior Establishment department. This must due to the fact that the wireless transmitter is located

around the place. However, IBAS, IES and IGS experienced

Gender	Frequency		Percentage	
	Staff	Students	Staff	Student
Male	17	34	85%	68%
Female	3	16	15%	32%
Total	**20**	**50**	**100%**	**100%**

weak Internet signal, this must be due to their distance to the wireless transmitter and obstruction. Finally, there are no wireless Internet access signals around IFMS at all.

We used descriptive statistics including frequencies count, percentage and composite bar charts for the analysis and reporting of the findings in interview and questionnaire.

Table 1: Gender of Interviewees among Staff and Students
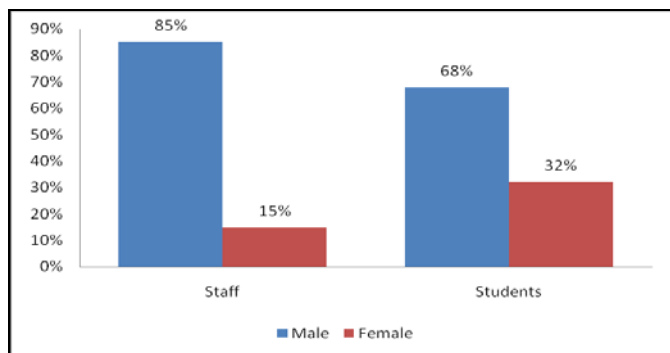
Source: Authors' Findings from Interview

Fig. 1: Gender among Staff and Students Interviewed (Source: Authors' Computation)

Table 1 and Fig. 1 reveal that there are more male interviewees (85%) than female interviewees (15%) among the academic staff. This implies that there are more male academic staff than female across the various Institute surveyed at the Polytechnic. The table also shows that there are more male interviewees (68%) than females (32%) among the students interviewed.

All the academic staff interviewed were aware of the Polytechnic wireless Internet access, only four have actually access it while none has actually used the facility. Out of 50 students interviewed only 6 were aware of the wireless Internet access while none of them has actually access the facility.

Table 2: Awareness and Usage of Wireless Internet Access among Staff and Students

Variables	Frequency		Percentage	
	Staff	Student	Staff	Student
Awareness of the Polytechnic Wireless Internet Access	56	5	100 %	5.5%
Access to the Polytechnic Wireless Internet Access	5	1	8.9%	1.1%
Usage of Polytechnic Wireless Internet Access	1	0	1.1%	0.0%

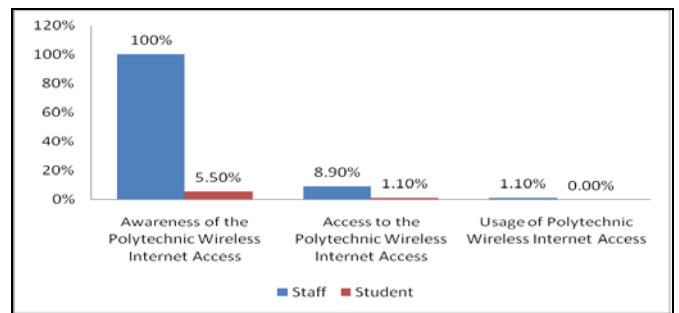Source: Authors' Findings from Questionnaire

Fig. 2: Awareness and Usage among Staff and Students (Authors' Computation)

Table 2 and Fig. 2 reveal that all respondents (100%) amongst academic staff are aware of the Polytechnic wireless Internet access. This high rate was due to the fact that the management mentioned it during the college assembly in February 2012. However, there is low awareness among students (5.5%). This low rate among the students must due to the fact that they have not been properly informed.

Moreover, table 2 and fig. 2 also show that there low access to the wireless Internet access among staff and students (8.9% and 1.1% respectively). This may be due to the number of staff and students owning their personal laptop that they might be used to access the wireless Internet access. Finally, the table and fig. also reveal low Polytechnic usage among staff and students of the Polytechnic (1.1% and 0.0% respectively). This low usage must be due to the fact that the Polytechnic management has not been officially released the username and password to interested academic staff and students.

Table 3: Factors Contributed to Low Usage of the Polytechnic Wireless Internet Access (Staff)

Question Variables	YES		NO	
	Freq.	%	Freq.	%
I don't have my personal laptop	38	67.9	18	32.1
I have not been given Username and Password	56	100	0	0.0
I don't have anything to do on the Internet	0	0.0	56	100
I experience weak wireless Internet access in my office and lecture rooms	16	88.9	2	11.1

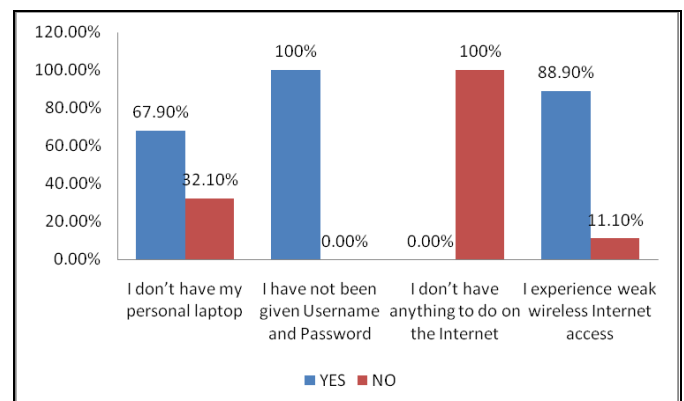Source: Authors' Findings from Questionnaire, 2012

Fig. 3: Factors contributed to low usage among Staff (Source: Authors' Computation)

Table 3 and Fig. 3 show the factors contributed to low usage of the Polytechnic wireless Internet access among academic staff. 67.9% of academic staff does not have their personal

laptop to access wireless Internet facilities. Also none of the academic staff (0.0%) have been given Username and Password that might be used to access the facilities. The table also reveals that all the academic staff (100%) has a lot to do on the Internet if given Internet access. Finally, 16 staff (88.9%) out 18 academic staff that has laptop experienced weak signal of wireless Internet access in their various offices.

Table 4: Factors Contributed to Low Usage of the Polytechnic Wireless Internet Access among Students

Question Variables	YES		NO	
	Freq.	%	Freq.	%
I don't have my personal laptop	88	96.7	3	3.3
I have not been given Username and Password	91	100	0	0.0
I don't have anything to do on the Internet	55	60.4	36	39.6

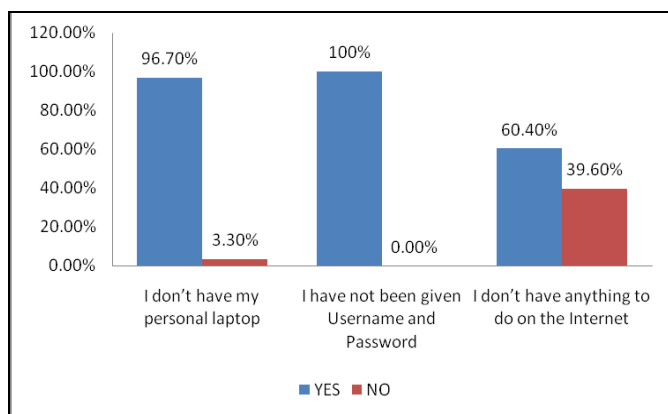Source: Authors' Findings from Questionnaire, 2012

Fig. 4: Factors contributed to low usage among Students (Source: Authors' Computation)

Table 4 and Fig. 4 reveal that majority of the students (96.7%) do not have their personal laptop that they might be used to access the wireless Internet facilities. None of the students (0.0%) has been given User name and Password. It also reveals that 60.4% of the students believe they do not have anything to do on the Internet.

IV. CONCLUSION

Based on our observation, interview and questionnaire, it was discovered that all academic staff (100% of respondents) are aware of the existence of wireless Internet access in the Polytechnic. But this valuable information sources have not been fully utilized by these academic staff as shown from our findings (1.1%). It was also discovered that only the places closer to the wireless transmitter enjoy strong signal of wireless Internet access while other places experience low or no signal at all. The rate at which the academic staff respondents (100%) depend on Wireless Internet access for research shows that the wireless Internet access provided by the NCC will be of high benefits if given Username and Password to access it. However, on the students' side, it was found that majority of the students (94.5%) were not aware of the wireless Internet access and many of them (60.4%) do not even know the

importance of the facility on their various course of study. Finally, 67.9% of respondents among the academic staff do not even own their own laptops which represent a bad figure in an academic setting. 96.7% of respondents among the students do not have their own personal laptops which need to be addressed.

The following were recommended based on the results of our findings that:
i. the Polytechnic should create awareness to both Staff and Students on the availability of wireless Internet access.
ii. the Polytechnic should create and release User name and Password to the interested staff and student at lower monthly bill.
iii. the Polytechnic Management should collaborate with private organization to make available laptops to the interested Polytechnic Staff at a subsidized rate.
iv. the Polytechnic Management should install radio at various institute and department to enhance the signal levels across the Polytechnic.
v. the Polytechnic should re-orientate the students on the importance of Internet on their various course of endeavor.

V. ACKNOWLEDGMENT

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