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Pre-Service Teachers' Internet Usage a Function of Demographic Factors: The Case of a Nigerian College of Education

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Abstract

With the overreaching acceptance of ICT in education and access to Internet occasioned by advancement in technology, this paper investigates pre-service teachers' use of Internet in a college of education. The study was a descriptive survey. Data was collected using a researcher designed instrument tagged "Student Internet Use Scale" (SIUS). The population comprised of all NCE pre-service teachers in Alvan Ikoku Federal College of Education Owerri Nigeria. Findings show that mobile phones remains the most widely used mode of internet access with social networking, searching for information on school assignments, chatting forming the major reasons why they surf the net. Social networking is the major purpose for Internet use by female pre-service teachers while school related activities are of priority to males. The difference in purpose of internet use according to gender is however not statistically significant; similarly, there is no statically significant difference between male and female pre-service teachers in the frequency of Internet usage. The result has far reaching implication for provision and use of Internet facilities to enhance teaching and learning in the College and colleges of education in Nigeria.

Keywords*: Internet usage; Demographic factors; Pre-service teacher; College of Education; Nigeria*

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Introduction

Alvan Ikoku Fderal College of Education widely acclaimed as the foremost college of education in Nigeria was established in 1963 as advanced teachers' College Owerri assisted by UNESCO to cater for middle teaching manpower need of states in the eastern region of Nigeria. The Institution was renamed Alvan Ikoku College of education in 1973 under the proprietorship of the government of east central state of Nigeria (AIFCE, 2013). The Federal government took over the proprietorship of the institution in 2007 (AIFCE, 2013). Students undergo a teacher training period of three years leading to the award of Nigeria Certificate in Education (NCE). This certificate is the minimum teaching qualification required for entry into teaching profession in Nigeria (FRN, 2004).

Since the women's conference in Beijing China, which called for action to achieve equality, development and peace (Doran, et al., 1995), all nations especially developing nations have been making concerted efforts to close the gender gap in all spheres of life. Though it is believed that men have dominated in every country of the world (Aja-Okorie, 2013), the impact of women's contribution to nation building can be felt in all spheres of human endeavour. In the field of teaching, women seem to have a solid footing. They are naturally critical players in the education process as their roles in schools highly hinge on "'natural' affinities with children and their innate love for teaching and nurturing, as well as their ability to do it" (Aja-Okorie, 2013:274). In Alvan Ikoku federal college of Education, the population of female pre-service teachers is far higher than that of male at all the study levels.

Use of the Internet

The Internet technology has permeated all facets of human activities with very great impact on teaching and learning making it imperative that teachers and learners should use technology in the learning environment (Li, Kirkup & Hodgson, 2001; Yusuf, 2006; Adediran & Kehinde, 2014). The Internet is a houses enormous resource that makes for lifelong learning for both teachers and the learners. Such resources can be accessed by both teachers and learners for knowledge update, give and receive assignments as well as collaborate with professional colleagues (Scholastic, 2003). It has the capacity to provide quick access to information sources and databases in institutions a variety of locations across the globe. A teacher can put the Internet to use as a complement to classroom teaching by referring students to websites to enable them have deeper knowledge about a specific topic in the learning situation (Usun, 2003). Bon (2007) emphasises the role of the Internet as a suitable alternative for costly hardcopy books, by allowing students' access to scholarly information resources. The development in technology which has helped reduce the cost of Internet usage there by making it affordable to both teachers and learners has increased the adoption and use of this resource in the classroom (Serim, n.d.). People can conveniently surf the Internet using different types of mobile devices in place of expensive computers.

The Internet can be described as information super highway through which is transmitted and shared globally. It is visualized as a global system of interconnections between millions of computer networks which enables almost instant access and sharing of information by means of the Transmission Control Protocol/Internet Protocol (TCP/IP) (Adediran & Kehinde, 2014;Griffith, 2002; University of California Berkeley (UCB) Library, 2004).Perhaps the description offered by Amichai-Hamburger and Hayat (2010) makes the concept of the Internet more explicit as the formation of an unbroken stream of computers connected together to form one network, which enables interaction among hundreds of millions of people browsing the net. The potentials of the Internet for educational and persona-social usage are quite great. It has been severally used for varying purposes ranging from teaching and research, through communication, entertainment, global exploration to social networking. Its' pervasiveness in the learning setting has warranted an investigation on how pre-service teachers utilize this resource in their academic pursuit.

Certain demographic characteristic of individual have been found to have influence on individuals' activities in many settings. In the field of teaching and learning, demographic factors have regularly been investigated as they usually exert far reaching effects on teaching and learning. Gender is one of the demographic variables that have frequently appeared in literature of internet usage. For economic reasons, people tend to believe that there is unequal access to the internet between males and females.

Related Empirical Studies

A handful of studies have reported significant difference in Internet usage in the favour of males as regards purpose of use (Adediran & Kehinde, 2014; Fallows, 2005; Tahiroglu et al., 2008; Wasserman & Richmond-Abbott, 2005; Wieser, 2000). On the other hand some other studies have

shown no significant difference between males and females (Helsper, 2010; Singh, 2001). Though males are shown to have a higher propensity to use the internet more than the females, such differences were found statistically insignificant. In the same vein, the findings of Odell, Korgen, Schumacher and Delucchi (2000) points to the fact that the gender gap in internet access has almost been bridged. They pointed out that the divide to focus research on is how gender influences usage of internet.

The mode of gaining access to the internet has also been investigated by researchers. Mishra (2009) found out that 62.31% of the respondents who participated in his study gain Internet access via cybercafés. The same is the case of Ojokoh and Asaolu(2005) as well as Omotayo (2006). Similarly Bankole and Babalola (2012) found that cybercafés within and outside the university campus is responsible for over 30% and 66% internet access for students of a Nigerian public university.

According to Selwyn, (2008) studies on Internet use by students have shown that students' use of Internet for the purpose of school related activities is heavily entwined with uses for leisure and constrained by factors like time and cost. Similarly Tadasad, Maheswarapp and Alur (2003) report that internet use by undergraduates is confined to general or leisure purposes. Recreational uses of the Internet which top the list of research finding also include chatting and social networking (Adediran & Kehinde, 2014). In terms of internet use for academic purposes, several research reports indicate that students use the internet mostly for sending and receiving e-mail (Adediran & Kehinde, 2014;Bankole & Babalola 2012; Birgin et al. 2010; Jagboro, 2003; Ruzgar, 2005), research (Jagboro, 2003; Kaur & Manhas, 2008; Mishra, 2009). Birgin, et al. (2010) also found that pre-service teachers mostly employ the internet in general information search, entertainment like playing online games and video as well as download.

For excellence to be achieved in future classrooms and for attainment of millennium development goals as well as inculcate in the learners the 21st century skills, teachers should be made to use technology in teaching. The need for technology integration in teaching has warranted that pre-service teachers should be proficient in the use of technology; hence the foundation for doing so must be laid at that level (Teo, 2008). In all the studies reviewed above, only one was carried out in the college of education setting, the rest were carried out in university settings with many of them done outside Nigerian education system. In these studies study level as well as the age of the subjects were not considered as demographic factors that may affect the dependent variable. None of the said studies was carried out within the south eastern part of Nigeria hence the need for this study.

Objectives of the Study

This study on pre-service teachers' use of internet was carried out with the view of achieving the following objectives:

To ascertain the modes through which pre-service teachers in the college gain access to the Internet

To find out major reasons why the pre-service teachers access the Internet

To determine if there is difference in purpose of Internet by pre-service teachers in the college according to gender,

To determine if there is difference in frequency of Internet usage by pre-service teachers in the college according to gender, age and study level.

Research Questions

The following research questions are posed to so that their answers will help achieve the objectives stated above.

What are the major modes of gaining access to the internet utilized by pre-service teachers in Alvan Ikoku federal college of education Owerri?

What are the major purposes for pre-service teachers accessing the Internet?

Is there any difference in mean scores on purpose of Internet access between male and female pre-service teachers in the college?

Is there any difference in the frequency of Internet use by pre-service teachers according to gender, age and study level?

Research Method

This research is a case study conducted in Alvan Ikoku Federal College of education Owerri Nigeria. The population comprised all NCE students of the college for the 2013/2014 academic year, level 100-300. A sample of 300 hundred respondents was drawn from the population using stratified random sampling techniques. Instrument used for collection of data was a researcher-made questionnaire tagged "Student Internet Use Scale" (SIUS). The questionnaire is made up of five sections. Section A dwells on the demographic information of the respondents, sections B require the

respondents to select from a list of suggested modes of internet access to indicate individual access point to the Internet. The section allows for more than one option. Section C to E was made up of Likert type items requiring the respondent to choose from strongly agree, agree, undecided, disagree and strongly disagree to indicate his/her opinion concerning the item. Section C seeks information on the reasons or purposes for accessing the Internet. Section D seeks information on Internet resources mostly used and frequency of use. The reliability of the SIUS was determined using Cronbach's alpha giving a reliability coefficient of 0.87.

The questionnaire was administered on the respondents during education lectures in the school of education for each of the levels. The filled out questionnaires were collected on the spot after the lectures. A total of 268 questionnaires were returned correctly filled out giving a return rate of 89.3%. Data was analysed using percentages, independent sample t-test and analysis of variance (ANOVA).

Demography of the Respondents

The respondents were made up of 93 male and 175 female pre-service teachers which represent 34.7% and 65.3%. The demographic statistics of the respondent are as displayed in table 1. The average age of the respondents is 21 years, with 127 (47.4%) of them between the age of 20-24years and 110 (41%) in second year level of study.

Table 1. Cross tabulation of Gender, Age and Study level of Respondents

Study Level of Respondents				Age of Respondents			Total
				16-19years	20-24years	25years and Above	
First year	Gender	male	Count	9	11	3	23
			% of Total	11.7%	14.3%	3.9%	29.9%
		female	Count	22	20	12	54
			% of Total	28.6%	26.0%	15.6%	70.1%
	Total		Count	31	31	15	77
			% of Total	40.3%	40.3%	19.5%	100.0%
Second year	Gender	male	Count	14	20	7	41
			% of Total	12.7%	18.2%	6.4%	37.3%
		female	Count	24	33	12	69
			% of Total	21.8%	30.0%	10.9%	62.7%
	Total		Count	38	53	19	110
			% of Total	34.5%	48.2%	17.3%	100.0%
Third year	Gender	male	Count	8	11	10	29
			% of Total	9.9%	13.6%	12.3%	35.8%
		female	Count	10	32	10	52
			% of Total	12.3%	39.5%	12.3%	64.2%
	Total		Count	18	43	20	81
			% of Total	22.2%	53.1%	24.7%	100.0%
Total	Gender	male	Count	31	42	20	93
			% of Total	11.6%	15.7%	7.5%	34.7%
		female	Count	56	85	34	175
			% of Total	20.9%	31.7%	12.7%	65.3%
	Total		Count	87	127	54	268
			% of Total	32.5%	47.4%	20.1%	100.0%

Results and Discussion

The findings of this study are arranged according to research questions and tables are used to display the results.

Research Question 1

What are the major modes of gaining access to the internet utilized by pre-service teachers?

As displayed in table 2 the major modes of internet access open to and adopted by the pre-service teachers are mobile phones n=162(60.4%) and public cybercafés n=71 (26.5%). Females however access the Internet more through mobile phone n=121 (69.1%) than males n= 41 (44.1%). The male pre-

service teachers however tend to use public cybercafés n=37 (39.8%) more than their female counterparts n=34 (19.4%). From the result presented in table 2, mobile phones are the predominant mode of accessing the Internet used by the pre-service teachers; this is trailed by public cybercafés. This finding is at variance with the findings in existing literature (Bankole & Babalola, 2012; Mishra, 2009; Ojokoh & Asaolu, 2005; Omotayo, 2006) that found that cybercafés remain the major mode of Internet access to academic communities studied. The development in mobile technology may have a role to play in this preference as almost every student in higher institutions of learning has access to mobile devices. The inability to keep the college cybercafé at the centre of excellence of the college functional may have greatly made the students to rely heavily on browsing with their mobiles. At the time of this survey, there was no functional cybercafé within the proximity of the college that has the capacity of handling Internet needs of the college community.

Table 2. Cross tabulation of Gender and Mode of Internet Access

			Mode of Internet access				Total
			Mobile phone	Laptop & modem	IPad & tablet	Public cybercafé	
Gender	male	Count	41	10	5	37	93
		% within Gender of Respondents	44.1%	10.8%	5.4%	39.8%	100.0 %
		% of Total	15.3%	3.7%	1.9%	13.8%	34.7%
	female	Count	121	5	15	34	175
		% within Gender of Respondents	69.1%	2.9%	8.6%	19.4%	100.0 %
		% of Total	45.1%	1.9%	5.6%	12.7%	65.3%
Total		Count	162	15	20	71	268
		% within Gender of Respondents	60.4%	5.6%	7.5%	26.5%	100.0 %
		% of Total	60.4%	5.6%	7.5%	26.5%	100.0 %

Research Question 2

What are the major purposes of pre-service teachers accessing the Internet?

Findings from the study also show that there are four major purposes for which the pre-service teachers that participated in this study surf the Internet as shown in table 3. They include social networking (M= 4.112, SD= 1.18), searching for school related materials (M = 3.493, SD = 1.117), communication (M = 3.138, SD = 2.017) and general information searching (M = 2.174, SD = 1.204). This result is in agreement with the research reports of Adediran and Kehinde (2014) which states that pre-service teachers mostly use the Internet as an avenue for chatting and social networking; Lei, (2009) who report social networking as the major purpose for pre-service teachers' use of the Internet; Tadasad, Maheswarapp and Alur (2003) who found that students mostly use the internet for leisure; for communication like sending and receiving e-mail (Adediran & Kehinde, 2014; Birgin et al. 2010; Jagboro, 2003; Ruzgar, 2005).

Table 3. Gender and Purpose of Internet Access

Gender of Respondents		General information	Communi cation	School-related information	Online shopping & banking	Social Networking	Entertainment	Other
male	Mean	2.8065	3.2473	3.6989	2.5161	3.8280	2.0860	2.0215
	N	93	93	93	93	93	93	93
	Std. Deviation	1.17268	3.10909	1.11106	.87988	1.21247	.84256	.89659
female	Mean	2.7143	3.0800	3.3829	2.2057	4.2629	1.9714	2.0629
	N	175	175	175	175	175	175	175
	Std. Deviation	1.22172	1.05830	1.10731	.85297	1.12931	.81246	.77426
Total	Mean	2.7463	3.1381	3.4925	2.3134	4.1119	2.0112	2.0485
	N	268	268	268	268	268	268	268
	Std. Deviation	1.20353	2.01668	1.11675	.87339	1.17502	.82327	.81734

Table 3 also shows the purpose for surfing the net according to gender. From the table it is evident that there is mean difference between male and female pre-service teachers in their response to the purposes for browsing the Internet. While females scored higher mean scores in the use of the Internet for social networking (M = 4.263, SD = 1.129), the males had a mean score of (M = 3.83).The males however use the Internet more for the purpose of searching for school related information (M = 3.7; SD = 1.111), communication (M = 3.247; SD = 3.109) and general information searching.

Research Question 3

Does the mean score of male and female pre-service teachers on the purpose of Internet usage differ significantly? To determine if there observed differences in the mean scores of the pre-service teachers differ according to gender, an independent sample t-test was employed. The test compared the mean scores of male and female respondents on their responses to purpose of Internet usage. The result of the investigation is as displayed in table 4 below.

Table 4. Independent sample t-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Diff. Lower	Upper
Total purpose usage	Equal variances assumed	.512	.475	1.240	266	.216	.52430	.42277	-.30810	1.35670
	Equal variances not assumed			1.112	139.853	.268	.52430	.47150	-.40789	1.45649

A significant difference was not found to exist in scores for males in searching for purposes of Internet usage (M = 20.2043, SD = 4.06084) and females (M = 19.6800, SD = 2.80607; t (266) = 1.240, p = .22 two-tailed).The magnitude of the difference in the means (mean difference = .52, 95% CI: -.30810 to 1.35670) was rather very small (eta squared = .006). The result of this test goes a long way to support the reports of a closing gender gap regarding the use of Internet between males and females (Odell, Korgen, Schumacher & Delucchi, 2000).

Research Question 4a

Is there any significant difference between male and female pre-service teachers in their frequency of using the Internet?

To answer the research question, an independent sample t-test was conducted. The mean scores of male and female pre-service teachers on their response to frequency of Internet usage were compared. The result of the test shows no significant difference between male and female pre-service teachers regarding their frequency of Internet usage as displayed in table 5. The male mean score (M = 23.7, SD = 5.25) and female mean score (M = 23.53, SD = 3.05; t (266) = .341 p = .73 two tailed). The magnitude of the difference in the means (mean difference = .17, 95% CI: -.82587 to 1.17229) was very small (eta squared = .0004).

Table 5. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Diff.	
									Lower	Upper
Total Freq. of use	Equal variances assumed	3.520	.062	.341	266	.733	.17321	.50742	-.82587	1.17229
	Equal variances not assumed			.293	125.929	.770	.17321	.59133	-.99702	1.34344

This further supports the finding of Yang, (2003) who found no significant effect of gender on the Internet usage of pre-service teachers. Both male and female pre-service teachers of today have access to internet via their mobiles hence the non-significant difference in frequency of use between them.

Research Question 4b

Is there any significant difference in mean scores of pre-service teachers on frequency of Internet use according to study level?

To provide answer to this research question, a one way analysis of variance was conducted to find out if differences exist in the frequency Internet usage mean scores according to study level of the pre-service teachers. The assumption for homogeneity of variance was tested using the Levene's test of homogeneity and the assumption was not violated as the test result was p = .610 was greater than .05; (which means not significant). The analysis of variance conducted for the three study levels of the pre-service teachers is shown in table 6.

Table 6. ANOVA of Frequency of Internet Usage by Study Level

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30.566	2	15.283	.981	.376
Within Groups	4130.461	265	15.587		
Total	4161.026	267			

There were observed differences in the mean scores of the three study levels of the pre-service teachers, the differences were however not statistically significant as shown in table 6. We therefore report that there was no significant difference at the $p < .05$ level in frequency of Internet usage for the three groups as a result of their level of study: $F (2, 265) = .981$, $p = .38$.

Research Question 4c

Is there any significant difference in mean scores of pre-service teachers on frequency of Internet use according to age?

In the same vein, a one way analysis of variance was also conducted to find out if differences exist in the mean scores of the pre-service teachers as a result of age. The assumption for homogeneity of

variance was tested again using the Levene's test of homogeneity and the assumption was not violated as the test result was p = .350 was greater than .05; (which means not significant). The analysis of variance conducted for the three study levels of the pre-service teachers is shown in table 7.

Table 7. ANOVA of Frequency of Internet Usage by Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	35.493	2	17.746	1.140	.321
Within Groups	4125.533	265	15.568		
Total	4161.026	267			

Based on the result of the one way analysis of variance test conducted, we therefore report that there was no statistically significant difference in frequency of Internet usage at the $p < .05$ level for the three age groups: $F(2, 265) = 1.140$, $p = .32$. This result is a confirmation of Yang (2003) who reported that age difference is not a factor in internet use by pre-service teachers.

Conclusion

The pre-service teachers in Alvan Ikoku Federal College of Education Owerri are found to be frequent internet users. With no functional institutional Internet access, the pre-service teachers access the Internet mostly using their personal mobile devices as well as patronizing public cybercafés near to the college. Among the major purposes for which the pre-service teachers surf the Internet, the most prominent remains social networking and searching for course related information. Gender difference exist in purpose of internet use among the pre-service teachers with female pre-service teachers using the internet more for social networking while the males use it more for searching for school related materials. The overall purposes for using the Internet however do not differ significantly according to gender.

Similarly, finding on the frequency of use of the internet between male and female pre-service teachers indicate a slight edge in frequency of use in favour of the males, however this difference was too minimal to be statistically significant. In the same vein, the frequency of Internet usage by these pre-service teachers was neither significantly different according to age of the pre-service teachers nor according to study level. This research finding is a confirmation of the pre-service teachers' readiness to use internet technology both as personal communication tool as well as teaching and learning tool. It therefore behoves on the College faculty to integrate internet technology into the pre-service teachers' curriculum to harness the gains of technology in education as well as maximize the time spent on the Internet by pre-service teachers for academic gains.

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