Nig .J. Tech. Res. (2009), 4(2), 21-29

An Analysis of Gender Internet Utilization among Science Education Students of Federal University of Technology, Minna

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Abstract

The study investigated gender utilization of the Internet among science education students of Federal University of Technology, Minna. A 4 point scale questionnaire with 25 items was used as the instrument for data collection. It was face validated by experts and has reliability coefficient of 0.66 using Kuder Richardson (KR) 20, 123 students constituted the sample for the study. The data obtained were analyzed using Chi-square statistics (χ^2).The findings show that there are differences in male and female science education student's utilization of Internet facility. It was recommended that, the university should partner with Internet Service Providers (ISP) to fast tract Internet Usage in both campuses of the university.

Introduction

What has remained the main focus or great concern in the field of science education is the biases and misconceptions about women and science. (Erinosho, 2005) in Moses and Daniel (2008).It is common to see gender stereotypes manifested in the day to day life of an average Nigerian. Certain professions and vocations (medicine, architecture, and engineering) have traditionally been ascribed to men.On the other hand, house chores such as washing of dishes, cooking, cleaning and so on, are seen as the exclusive reserve for the girls and as a result of this kind of mind set, the society sees the female child as a "weaker sex". In Nigeria and indeed Africa, gender bias is still very prevalent (Arigbabu and Mji, 2004). This is also a view that is corroborated by Onyeizugbo (2003) who affirmed that "sex roles are somewhat rigid in Africa; particularly in Nigeria.....gender differences are emphasized". Nevertheless, to reduce gender stereotyping and provide equitable access for engagement in societal development, males and females must be given their due rights to participate in development. This could only be achieved through increased awareness among people and societies on the importance of various sexes in development. For there to be effective awareness, effective instruments of communication like the Internet must be utilized, not withstanding the various types of communication facilities available from the classical period to the 21st century must be fully embraced.

The 21st century is the information driven age in all facets and has brought with it a new pattern of communication The Internet can be conceived as a rich, multi-layered, complex, ever changing textual environment. Academicians and students alike rely on the Internet for quick access to current information in all disciplines. The good thing about the Internet and its various accessories is that, it has pulled down the barriers of bookshelves and libraries. Science education students more than ever before, need to be aware of the

potentials and possibilities of the Internet, to identify and isolate techniques and pedagogical trends that can enhance the process of teaching, research and learning. Yushau (2006) stated that, computers have been "unconditionally" accepted as integral part of our educational system. And perhaps more than other fields, science teaching is thought to have benefited and established a stronger link with the development of Internet and computers in recent times especially with the e-learning.

The Internet has been male dominated since it's inception, (Garkenbach & Ellerman, 1998) in Christian et al (2000). Gender gap in Internet utilization has been in the use of WWW, E-mail, chart rooms and reading of electronic bulletins. According to Levi (2000), teachers play a vital role in addressing the problem of gender equity in science education. These roles are;

(a) To ensure the provision of equal opportunities and respect for differences in the classroom.

(b) To ensure that boys and girls have the same experience, i.e. treat boys and girls equally and

(c) Compensate for gender differences in society.

The Internet provides academics with low-cost method of obtaining and accessing information in science curriculum. It is relatively fast and accessible 24/7 (i.e. for 24 hours of the day and seven days of the week). Watson (1993) opined that, the Internet (ICT) has impacted on pupil's achievement in science and children spent longer time learning. Morrison et al (1993), in his study revealed that, there is enhanced sense of achievement in learning among pupils using laptops for a year across curriculum, including science.

Objective of the study

The main objective of the study was to determine whether there is gender gap amongst science education students in terms of Internet utilization.

Research questions

1. Is there any gender difference in science education students' utilization of Internet?

2. Is there any gender difference in science education students' utilization of Internet at the upper and lower levels of study?

RESEARCH HYPOTHESES

HO_1 There is no significant difference between male and female science education students utilization of Internet.

HO_2 There is no significant difference between male and female science education students' utilization of Internet at upper and lower levels of study.

Methodology

A descriptive research methodology was adopted for the study. The instrument were used to elicit opinion from a representative sample size of the students' population, from which inferences were made.

Population of the study

All science education students studying Physics, Chemistry, Biology, Geography and Mathematics Computer science constituted the population of the study.

Sample and sampling technique

Purposive sampling technique was used based on the previous knowledge of the studied population to gather the sample population. Through random sampling, a total of 213 students' (154 male and 59 female) were selected for the study.

Instrumentation

A four (4) point Likert-scale of 25 items was adapted. Section A solicited for demographic information's like; sex, age, academic level etc, while section B had opinion statements followed with options like; Strongly Agree (SA); Agree (A); Disagree (D); and Strongly Disagree (SD).

Method of collection and analysis of data

Questionnaire on Science Education Students' Internet Utilization (QSESIU) was used for data collection. It was administered during lecture hours by the researcher. The Statistical Package of Social Science (SPSS) version 11 was used for chi-square (χ^2) analysis of the data.

Result

Hypothesis One (HO_1)

There is no significant difference between male and female science education students' utilization of Internet.

Table 1: Result of Chi-square Test

Variables	N	Df	$\chi^2_{crit.}$	Chi-Square χ^2cal	Significance value	Inference	Decision
Male	154	4	9.488	256.3	0.05	Statistically significant difference	Ho_1 is rejected
Female	59						

When chi-square statistic was used to analyze the data obtained, a χ^2 values of 256.3 and table value of 9.488 were obtained at 0.05 level of significance (χ^2 cal. 256.3> 9.488).The hypothesis was therefore rejected. This implies that, differences exist between male and female science education students usage of Internet. Table 1 above show $\chi 2$ table values obtained.

Hypothesis Two (HO_2)

There is no significant difference between male and female science education students' utilization of Internet at upper and lower levels of study.

Table 2: Results of Chi-square Analysis of Internet utilization at lower and upper levels of study

LEVEL	Gender			Chi-Square χ^2_{cal}	χ^2_{crit}	df	Significance value (α)	Inference	Decisi
	M	F	N						
Lower Level	49	15	64						
Upper Level	87	29	116	255.4	3.842	1	0.05	Statistically significant difference	Ho_2 i rejected
TOTAL	136	44	180						

Not significant at 0.05 level

Upper level students in this study represent students at 500 and 400 levels of study, while lower level students are 300 and 200 levels science education students of 2007/2008 academic session. And when Chi-square (χ^2) statistics was applied to the data, which sought to establish whether there are differences in the utilization of Internet by Science Education students at their levels of study, a χ^2 value of 255.4 and a critical value of 3.842 were obtained. The calculated value was greater than the critical value and therefore the hypothesis was not accepted. This implied that, the differences observed in the utilization of Internet by students could not be significantly attributed to their differences in levels of study.

Discussion

The study investigated gender difference on Internet utilization among science education students in Federal University of Technology, Minna. The result showed that, there is a statistical gender difference. The result corroborated Onekutu (2002) that, "the stereotypical image of science as an essentially male domain". Ma (1995) also reported that, gender differences tend to be weak within educational systems.

Figure 1, 2 & 3 shown on diagrammatic expressions of Pie chart and stacked bar chart of frequency responses to Internet utilization among male and female. In figure 1 & 2 female students do not hold extreme views while 2% of male students do. 86% male students and 64% of female students agree with the utilization scale, 12% of male and 36% of female students disagree with most of questions. Stacked bar chart of responses of students' usage/non-usage of the Internet by gender also depicts a wide margin of differences in relations to Internet usage.

Fig 1: Pie chart of female students' usage of the Internet

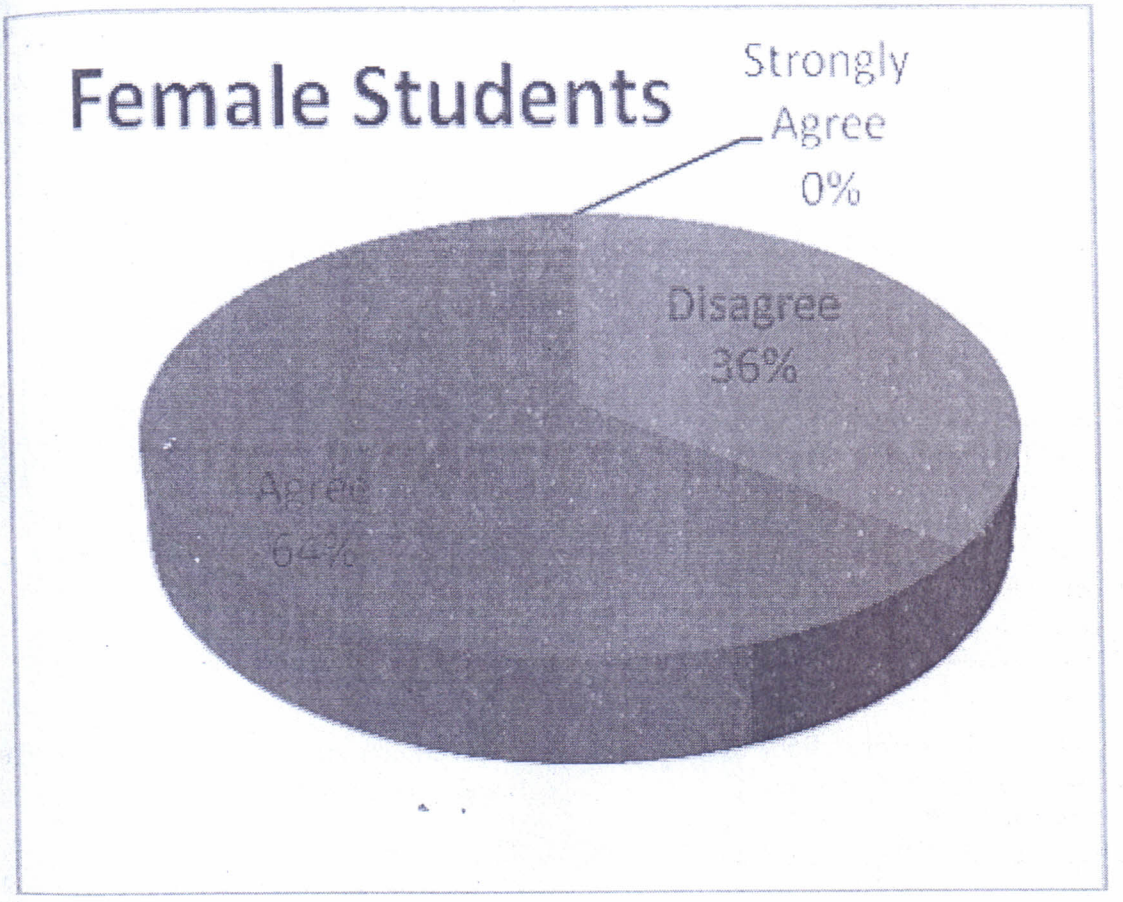
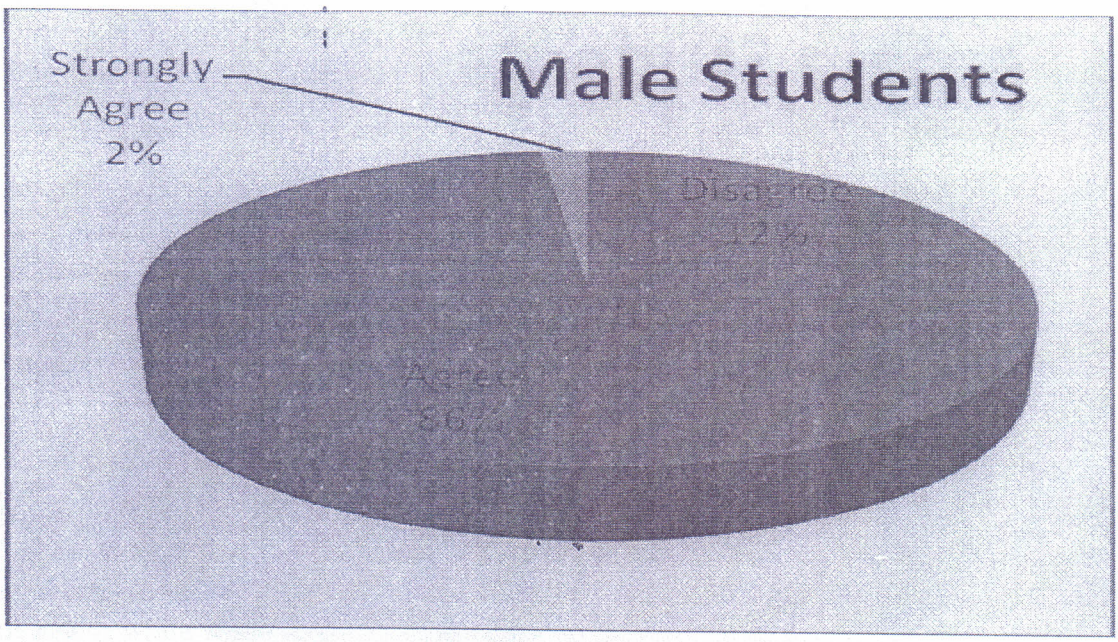


Figure 1 is a pie chart showing the responses of female students' to QSESIU (agree or disagree) while 64% agreed with most of the statements, 36% disagreed.

Fig 2: Pie chart of frequency of responses regarding male students' usage of the internet



Amongst male students, 86% of the respondents agreed, 2% strongly agreeing with the questions while 12% disagreed.This is a proportionate gender representation.

Fig 3: A Stacked bar chart of responses regarding students' usage/non-usage of the Internet classified by gender.

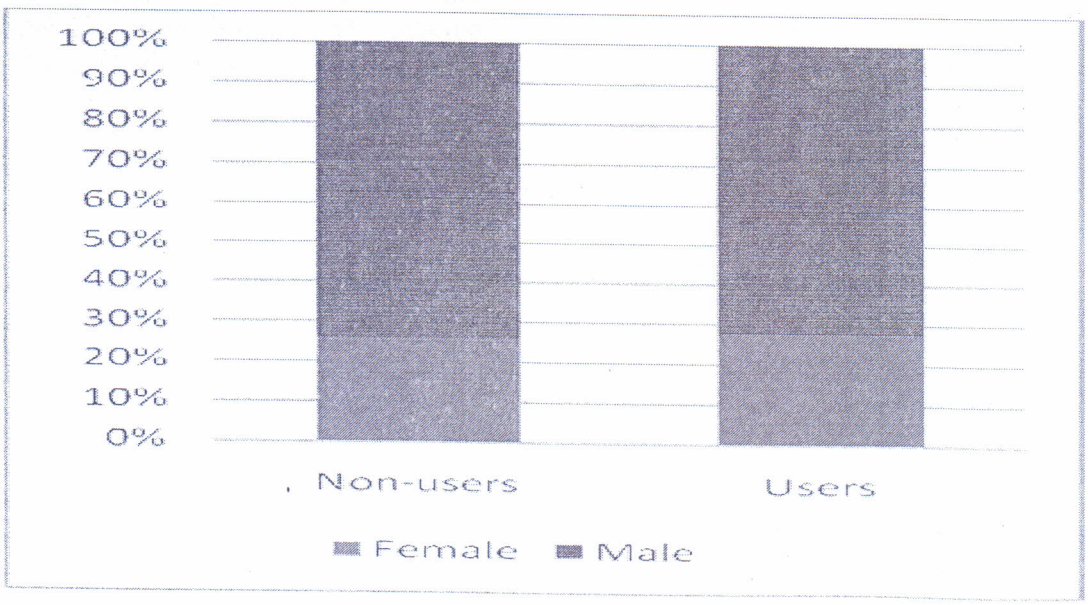


Figure 3 above is a stacked bar chart (combined percentages of Fig.1 and Fig.2) of responses of students' (male and female) utilization of the Internet. While female students have about 25%, male students' showed dominance with75% as depicted in the chart above. Figures 4 and 5 below showed the responses on utilization of Internet by Science Education students with respect to their level of study. An average of 88 at upper level and 44 at lower level agreed with the utilization. While, less than 20 respondents of both levels disagreed. Upper level students did not show any extreme position while lower level students strongly agree with items.

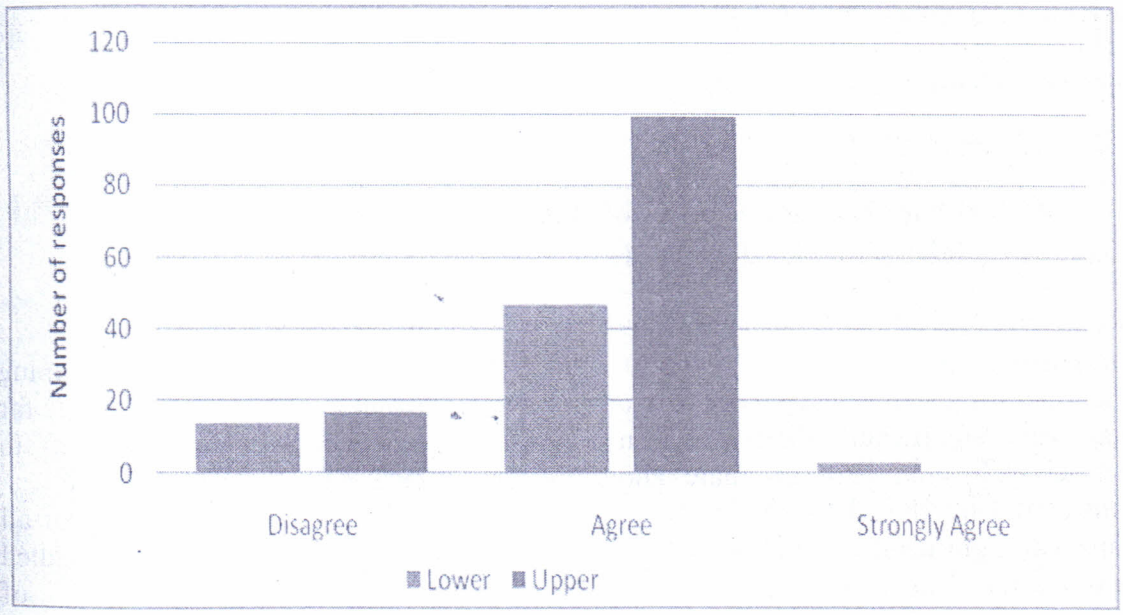


Fig 4: Pie chart of frequency of responses of students' utilization of Internet at lower and upper levels of study.

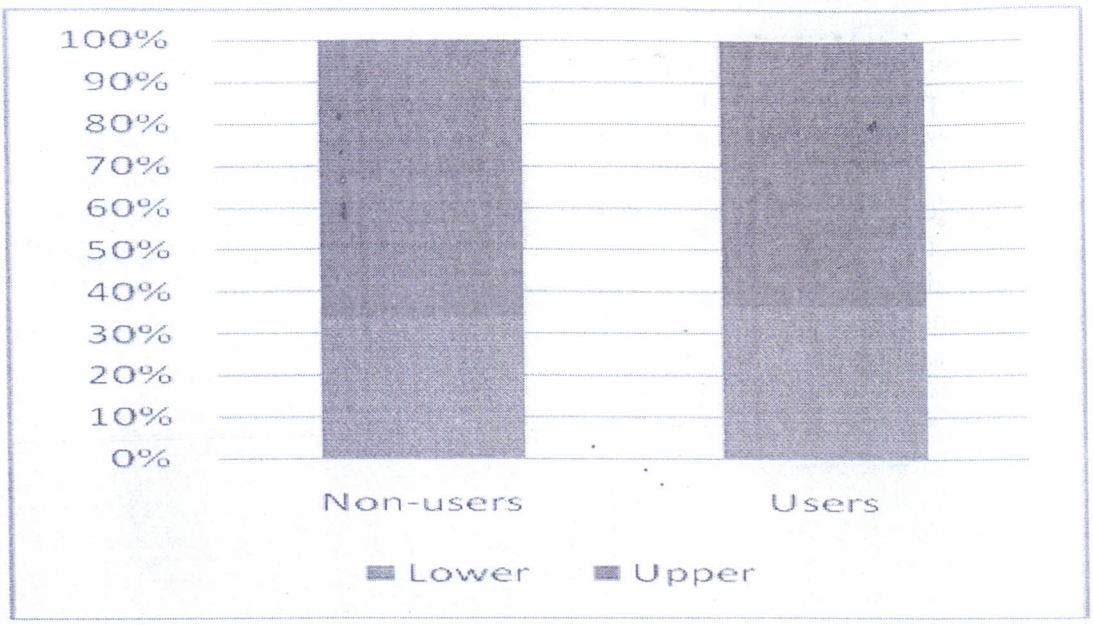


Fig 5: A Stacked bar chart of responses of students' utilization/non-utilization of internet classified by levels of study.

Conclusion

The findings of this study revealed a statistical significant difference in Internet utilization between male and female students drawn for the study. A statistical significant difference existed between the Upper level and Lower level of study in the utilization of Internet.

Recommendations

And based on the findings, the study made the following recommendations:

I. That the university should partner with ISP to fast tract Internet availability and usage in Bosso and Gidankwano campuses.

II. That Lecturers should give project works and assignments that will encourage students to use the Internet.

III. ICT special courses/training should be organized for lecturers, students and staff to ensure ICT compliance

IV. The study further stress that all universities in Nigeria saddled with the responsibility of providing teacher education programme should be made to teach Computer application, as a core course.

V. A similar study should be carried out in other Universities. The result of this study is limited; hence generalization cannot be contemplated based on the study sample.

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