



PROCEEDINGS OF THE
11th ANNUAL CONFERENCE
ON WORLD WIDE WEB APPLICATIONS

2-4 September 2009
Port Elizabeth
South Africa

Editor:
P.A. van Brakel

Publisher:
Cape Peninsula University of Technology
PO Box 652
Cape Town
8000

Proceedings published at
<http://www.zaw3.co.za>

ISBN: 978-0-620-45215-1

TO WHOM IT MAY CONCERN

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Usability of Internet among academics: gender differences in Internet competencies among lecturers at the University of Lagos, Nigeria

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Abstract

Educational institutions around the world are beginning to recognize the potential of the Internet in pedagogy. Some university and college professors use the Internet mostly to post their syllabi and to refer students to appropriate web sites while some develop e-learning or websites for certain courses. As the whole world of the "Information Super Highway" is in constant transition, so is the rule of the Internet on education, still being formatted, evaluated and in constant transition. Given the mounting pressure the Internet has placed on the educational community, there is a dramatic surge in the Information Technology competencies expected of academicians in many universities in Nigeria. For instance, all academic staffs in the University of Lagos are, therefore, expected to use and integrate new technologies into their instruction, communication and research. However, findings from previous studies have suggested that gender differences exist in relation to the use of Internet among teachers; this issue is beginning to gain the attention of researchers. This paper reports on a descriptive study that was conducted to assess existing levels of Internet usage and competencies among the academic staff of University of Lagos in Nigeria according to gender. Specifically, it seeks to investigate if differences exist between females and males in terms of five components (e-learning, e-commerce, e-portfolio, e-communication, and virtual class applications) related to the usability of the Internet. A quantitative research design was used for this study. It was selected for implementation within the study because of the potential it offers in producing a formal, objective, systematic process for gathering information regarding the variables under investigation. A total of 300 academic staff participated in this study. The participants were randomly selected from various departments and faculty within the University. Data collected was analyzed using SPSS. Demographic data were presented with some frequency analysis. Also t-tests were conducted for each item to determine if differences existed between females and males lecturers in terms of their Internet competencies according to the five components mentioned earlier. The results of the study show that there exists a gap between female and male academicians in certain cases such as e-learning, e-commerce, e-portfolio, multimedia and virtual class applications. The study concluded with various possible reasons attributed to lack of usage and disparity of usage in some areas. The Internet holds a lot of potential for lecturers' professional developments, teaching and research; therefore, the lecturers must wake up and take the initiative of empowering themselves for the challenges ahead; more investment has to be made in the training, usability, and accessibility of Internet across our university campuses. Also, subsidies have to be introduced by the universities to reduce the exorbitant cost of

acquisition and implementation of Internet in Nigeria universities.

Keywords: Usability of Internet, Gender differences in Internet in usage, Internet competencies.

1. Introduction

Educational institutions around the world are beginning to recognize the potential of the Internet in pedagogy. Some university and college professors use the Internet mostly to post their syllabi and to refer students to appropriate web sites while some develop e-learning or websites for certain courses. As the whole world of the "Information Super Highway" is in constant transition, so is the role of the Internet on education, still being formatted, evaluated and in constant transition. Given the mounting pressure the Internet has placed on the educational community, there is a dramatic surge in the Information Technology competencies expected of academics in many universities in Nigeria. For instance, all academic staffs in the University of Lagos are, therefore, expected to use and integrate new technologies into their instruction, communication and research.

Some years ago, computers were slowly introduced to the academic environments. At the time, many teachers were somewhat apprehensive, afraid that with an incorrect click, the computer might break down. How would the students learn if the teachers felt so inadequate? This was an area of great interest, as in this information age the roles are not always as traditional as in the past. It is not "here I am; let me teach you something new", but rather, let's try and do this together. Academics collaborate in various ways with the help of this new technology and the horizons of learners and teachers have become so much greater. The uses of Internet to communicate, download and upload papers, conduct research and so on are increasing among lecturers in most universities in our country.

In recent years, the gender gap issue in technology has caught many scholars' attentions; as a result, many studies have been conducted internationally to study this gap. Researchers' opinions differ when it comes to gender gap issues in technology. For instance, Luan, Aziz, Yunus, Sidek, Bakar, Meseran, and Atan (2005), assessed existing levels of information and communication technology competencies among the academic staff of Universiti Putra Malaysia according to gender and found a gap between female and male academicians; in certain cases, the competencies of female academicians have even surpassed those possessed by males. However, Luan, Fung, and Atan, (2008) investigated the gender disparity in Internet usage and the attitudes among 152 student teachers (80 females and 72 males) at a public Malaysian university and found no gender disparity in Internet usage; the female student teachers were found to spend as much time using the Internet as their male counterparts. In activities such as using the Internet, gender gap is narrowing but it is still significant. For other activities, the gap seems to be remaining the same or even reversing in direction; men and women are becoming more similar in self-perceptions of familiarity with computer technology, yet their attitudes toward the technology do not seem to be converging (Sherman, End, Kraan, Cole, Campbell, Birchmeier, & Cohara, 1999).

Ono and Zavodyn (2002) examined whether there are differences in men's and women's use of the Internet and whether any such gender gaps have changed in recent years. The authors use data from several surveys during the period 1997 to 2001 to show trends in Internet usage and to estimate regression models of Internet usage that control for individuals' socioeconomic characteristics. They reported that women were significantly less likely than men to use the Internet at all in the mid-1990s, but the gender gap in usage disappeared by 2000. However, differences in frequency and intensity of Internet usage remain. Gender differences in Internet access and usage are important because groups that have lower usage rates risk being excluded from job and educational opportunities as well as losing political influence as the Internet becomes increasingly important to how people live and work (Norris, 2001). It is therefore important to explore the use of the Internet and competencies among the academic staff by gender.

1.1 Purpose of the study

Although the potential impact of computer technologies on teaching and learning goes far beyond the Internet, the Internet's rapid growth in the last two to five years suggested that this study focuses on the usage of the Internet use by lecturers. The purpose of this study is to assess existing levels of Internet usage and competencies among the academic staff of University of Lagos according to gender. The following research questions guided the study:

1.2 Research questions

1. What is the status of Internet usage for academic work among the lecturers?
2. Is there a relationship between gender and use of the Internet?
3. What are the consequences of not using the Internet for academic work?

2.0 Research methodology

A quantitative research design was used to investigate gender differences in Internet competencies among lecturers at University of Lagos. The instrument used by Luan, Aziz, Yunus, Sidek, Bakar, Meseran and Atan (2005) in a similar study was modified and replicated in this study. This current study uses the following five components of Internet skills: e-learning, e-commerce, e-portfolio, e-communication, and virtual class applications. The items were measured in a 4-point Likert scale ranging from "no skill" to "very skilful".

3.0 Data Analysis and Findings

Data collected was analyzed using SPSS. Demographic data were presented with

some frequency analysis. Also ANOVA, t-tests were conducted for each item to determine if differences existed between females and males lecturers in terms of their Internet competencies according to the five components mentioned earlier. Details are presented below.

3.1 Demographic

The participants consist of 300 academic staff in the Faculty of Education at the University of Lagos. Three hundred surveys were sent out and only 262 were completed and returned. The majority of them were male (72%) compared to females (28%). According to the data collected, there is an indication that male use the Internet more than female. In regards to the participants' ages, the majority of them were between 35 and 48 years old. The age reported in this study may not be reliable as many participants refused to reveal their ages while some were not specific for unknown reasons. However, based on the data collected, the young academic staff use the Internet more than the older ones. This is in agreement with Jennings and Onwuegbuzie, (2001) who found that younger age has been found to be associated with more positive attitudes towards Information and Communication Technologies. The levels and designations of the participants are: 18% assistant lecturers, 24% lecturers II, 26% lecturers I, 21% senior lecturers, 2% professors, and the rest (9%) are graduate assistants.

This section answers the research questions 1 - What is the status of Internet usage for academic work among the lecturers?

When participants were asked, where they often use the Internet, 19.1% indicate equally at home and outside home, 4.6% indicate mostly at home, 72.5% indicate mostly outside their homes, while 10% skipped this question. Concerning time spent on the Internet per week, 10.7% spent more than 20 hours in a week, 26% indicate 10 to 20 hours in a week, 22.1% indicate 5 to 10 hours in a week, 14.5% indicate 1 to 5 hours a week, the rest of them did not indicate the hours spent on the Internet per week.

3.2 Competency between genders in terms of e-learning

This section answers the research question 2 - Is there a relationship between gender and use of the Internet?

The use of e-learning varies among the users. Below is the summary from frequency analysis.

- 26.7 indicate they are very skillful with teaching online, 24.4% indicate they are moderately skillful, 18% indicate that they are not skillful, while 21% indicate this was not applicable to them.

- 56% indicate they are very skillful with reading online, 16% indicate they are moderately skillful, 10% indicate that they are not skillful, while 14% indicate this was not applicable to them.
- Participants' responses on giving and receiving homework online are the same. 26% indicate they are very skillful in giving and receiving assignments online, 22% indicate that they are moderately skillful, 23% indicate that they are not skillful, while 26% indicate this was not applicable to them.

ANOVA, t-test and frequency analysis were conducted for each item to determine differences between genders in terms of usage of the Internet for e-learning (see tables 1-5). The data analysis showed that reading online and downloading lecture materials online were statistically significant. The mean values of male for reading online were statistically higher than that of female whereas the mean for both genders in downloading lecture materials were about the same. One can infer that male staff read online documents more than female staff. However, the mean scores for all five items were less than 3.0 which shows that both female and male participants use the Internet mostly for reading online, giving homework to students online, receiving assignments online from students, uploading and downloading lecture materials online. These findings are consistent with those by Silong et al. (2001) who found high levels of competency among online learners in word processing, the Internet and e-mail as these are highly utilised applications for educational purposes.

Table 1: Competency between Genders in Terms of e-learning

e-Learning		Male		Female		t	Sig
		M	SD	M	SD		
1	Reading Online	2.8	0.76	2.5	0.89	9.2	0.003*
3	Giving Homework to students online	2.6	1.0	2.3	1.1	2.7	0.099
4	Receiving assignments online from students	2.7	1.0	2.6	0.99	0.65	0.42
5	Upload lecture materials	2.7	0.97	2.6	0.85	0.14	0.70
6	Download lecture materials	2.9	0.77	2.9	0.64	0.61	0.43

*significant at $p < .05$

3.3 Competency between genders in terms of e-Commerce

With the use of e-Commerce, frequency analysis revealed the following findings:

- 29% indicate they are very skillful in buying things online, 19% are moderately skillful, 29% indicate they are not skillful, while 29% indicate that buying things online was not applicable to them.
- 16.8% indicate they are very skillful with banking online, 13% are moderately skillful, 37.4 indicate they are not skillful, while 29% indicate that banking online was not applicable to them.

- 7.6% indicate they are very skillful with selling something online, 14% are moderately skillful, 39% indicate that they are not skillful, while 35% indicate this was not applicable to them.
- 13% indicate they are very skillful with receiving money online, 15% indicate they are moderately skillful, 33% indicate they are not skillful, while 37% indicate that they do not receive money online.

Overall data analyses show that buying online is statistically significant; however, the mean scores for both male and female genders were less than 3.0. Also, with the information presented in the frequency analysis above, it could be assumed that both females and males perceived themselves not very skillful in e-Commerce.

Table 2: Competency between Genders in Terms of e-Commerce

e-Commerce		Male		Female		t	Sig
		M	SD	M	SD		
1	Buying things online	2.5	1.1	2.5	1.2	0.99	0.00*
2	Banking online	2.4	1.1	2.3	1.3	0.10	0.74
3	Selling things online	3.8	7.5	2.2	1.4	2.9	0.08
4	Making payment online	2.4	1.1	2.2	1.2	2.1	0.14
5	Receiving money online	2.5	1.2	2.4	1.3	0.4	0.66

*significant at $p < .05$

3.4 Competency between genders in terms of e-Portfolio

- 16% indicate they are very skillful with e-portfolio especially with imputing sound online, 13% indicate they are moderately skillful, 42% indicate they are not skillful, while 19% indicate this was not applicable to them.
- 11.5% indicate that they are very skillful with creating linear multimedia online, 47% indicate that they are moderately skillful, 50% indicate they are not skillful, while 22 indicate this was not applicable to them.
- 59.5% indicate they are very skillful with uploading CV online, 17% indicate they are moderately skillful, 12% indicate they are not skillful, while 8% indicate this was not applicable to them.
- 50% indicate they are very skillful with uploading articles online, 21% indicate they are moderately skillful, 15% indicate they are not skillful, while 8% indicate this was not applicable to them.
- 37% indicate they are very skillful with uploading teaching materials, 17% indicate moderately skillful, 28% indicate they are not skillful, while 16 indicate this was not applicable to them.

ANOVA and t-tests revealed that all the five variables in table 3 were statistically significant. The mean values of male for all the variables were also statistically higher than that of female. Base on this data, it can be assumed that male staff perceived

themselves more skillful in the inputting sound from microphone online, creating linear multimedia products, non-linear multimedia products, uploading articles and CV online. As indicated by the low means (<2.0), the two least favoured activities for both females were imputing sound from microphone online, creating linear multimedia products, and creating non-linear multimedia products online. The results seemed to suggest that female and male participants tended to use the Internet to upload articles CV online. These findings are consistent with those by Silong et al. (2001) who found high levels of competency among online learners in word processing, the Internet and e-mail as these are highly utilised applications for educational purposes. Uploading articles and CV online are considered essential tools among academicians to enable them to showcase their potentials. However, both male and female may not be very skillful with other e-Commerce activities because those activities were not directly related to academic work.

Table 3 presents how participants implement e-portfolio. Specifically, how they input sound from microphone online, create linear multimedia products, non-linear multimedia products, uploading articles online and CV online.

Table 3: Competency between Genders in Terms of e-Portfolio

e-Portfolio		Male		Female		t	Sig
		M	SD	M	SD		
1	Input sound from microphone	2.3	1.2	1.6	1.1	14.6	0.00*
2	Create linear multimedia products	2.3	1.3	1.6	1.1	14.8	0.00*
3	Create non-linear multimedia products	2.3	1.2	1.8	1.1	8.1	0.01*
4	Upload articles online	2.6	.91	2.3	.73	4.8	0.03*
5	Upload CV online	2.8	.79	2.4	.83	8.2	0.00*

*significant at $p < .05$

3.5 Competency between genders in terms of e-Communication

Participants use email to communicate in different ways. The following is a summary of frequency analysis on e-Communication.

- Majority (78%) indicate they are very skillful with composing email messages, 16% are moderately skillful, 2% indicate that they are not skillful, while 2% indicate this was not applicable to them. This....
- Majority (86%) indicate they are very skillful with communicating through email, 12% are moderately skillful, 1% indicate that they are not skillful, while 1% indicate this was not applicable to them.
- Majority (77%) indicate they are very skillful with sending attachment, 14% are moderately skillful, 5% indicate that they are not skillful, while 4% indicate this was not applicable to them.

- 42% indicate they are very skillful with chatting online, 36% are moderately skillful, 15% indicate that they are not skillful, while 4% indicate this was not applicable to them.
- 72% indicate they are very skillful with forwarding messages, 19% are moderately skillful, 5% indicate that they are not skillful, while 2% indicate this was not applicable to them.

The comparative analysis Table 4 shows that there is no significant difference between female and male competencies in terms of their composing messages, sending messages, replying messages, sending attachments, chatting, and forwarding messages. This suggests that female and male skills are almost at the same level for these online communication activities. This finding corroborates with Ono and Zavodyn, (2002) who find that women were significantly less likely than men to use the Internet at all in the mid-1990s, but the gender gap in usage disappeared by 2000. However, women continue to be less frequent and less intense users of the Internet. Some reasons for this finding may be the fact that the University of Lagos pushes her lecturers to be ICT competent and also use ICT to enhance teaching.

Table 4: Competency between Genders in Terms of e-Communication

e-Communication		Male		Female		f	Sig
		M	SD	M	SD		
1	Composing messages	2.8	.52	2.8	.41	0.21	0.64
2	Sending messages	2.9	.39	2.9	.32	0.028	0.87
3	Replying messages	2.8	.40	2.9	.38	0.76	0.38
4	Sending attachments	2.8	.52	2.8	.64	0.23	0.63
5	Chatting	2.4	.79	2.2	.71	3.8	0.05
6	Forwarding messages	2.7	.58	2.6	.57	2.1	0.15

*significant at $p < .05$

3.6 Competency between genders in terms of virtual applications

As this study looked at competency between genders in terms of Virtual Applications frequency analysis revealed the following:

- 40% indicate they are very skillful with updating teaching materials online, 19% indicate that they are moderately skillful, 19% indicate they are not skillful, while 16 indicate this was not applicable to them.
- 29% indicate they are very skillful with managing teaching materials online, 20% indicate they are moderately skillful, 26% indicate they are not skillful, while 18 indicate this was not applicable to them.
- 17% indicate they are very skillful with participating in online seminars, 21% indicate they are moderately skillful, 34% indicate they are not skillful, while 22 indicate this was not applicable to them.

- 11% indicate they are very skillful with developing e-learning programs, 21% indicate they are moderately skillful, 40% indicate they are not skillful, while 22 indicate this was not applicable to them.
- Participants' responses on uploading and downloading lecture online are very close same. 60% indicate they are very skillful in giving and receiving home online to their students, 20% moderately skillful, 5% indicate that they are not skillful, while 14% indicate this was not applicable to them.

ANOVA and t-tests also revealed that two variables (uploading teaching materials and developing e-learning programs) were statistically significant (see Table 5). The mean values of male for all the variables were also statistically higher than that of female. Since the differences were not much and all the means are (<3.0), we can infer that male staff perceived themselves skillful in virtual applications. It also showed that both genders treated the Internet as useful for uploading teaching materials, updating teaching materials, managing teaching materials online, participating in online seminar, and developing e-learning programmes. Even though both genders were positive about their technological ability, males rated themselves higher than females in virtual applications.

Table 5: Competency between Genders in Terms of Virtual Applications

Virtual Applications		Male		Female		f	Sig
		M	SD	M	SD		
1	Upload teaching materials	2.5	1.0	2.1	1.0	5.0	0.025*
2	Update teaching materials	2.6	1.0	2.4	0.9	1.9	0.165
3	Manage teaching materials online	2.5	1.5	2.3	1.0	1.4	0.241
4	Participates in online seminar	2.3	1.1	2.0	1.2	3.1	0.081
5	Develop e-learning program	2.2	1.1	1.9	1.2	4.9	0.028*

*significant at $p < .05$

4.0 Discussion

The study revealed that participants (both males and females) perceived themselves to be skillful in downloading lecture materials online (mean = 2.9), selling things online (male only with the mean of 3.8), uploading CV online (male only with the mean of 2.8), composing messages, sending messages, replying messages, sending attachments for

both males and females (means 2.8 and 2.9 respectively). A majority of lecturers use the Internet in their efforts to find information to support their academic work, and more than one-quarter of them report doing this on a weekly basis or more often. Those who use the Internet in this way typically have Internet access at home or school. Despite the findings in this study, it is true that even among lecturers with both home and school Internet access; many do not use the Internet for teaching, but for other academic work. These findings are consistent with those by Silong et al. (2001) who found high levels of competency among online learners in word processing, the Internet and e-mail as these are highly utilised applications for educational purposes. The findings do not represent the final word on determinants of lecturer's Internet use in at the University of Lagos, or even the final word for this study. Further analysis will show, for example, how the level of support for technology provided by the University (e.g., provision of laptops, Internet services, regular supply of electricity, and instructional support) relates to lecturers' use of the Internet. The results suggest that there is little reason for concern about gender inequalities in Internet access and usage now, but gender differences in frequency and intensity of Internet usage remain.

The Internet holds a lot of potential for lecturers' professional developments, teaching and research; therefore, the lecturers must wake up and take the initiative of empowering themselves for the challenges ahead; more investment has to be made in the training, usability, and accessibility of Internet across our university campuses. Also, subsidies have to be introduced by the universities to reduce the exorbitant cost of acquisition and implementation of Internet in Nigeria universities.

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Acknowledgement

I would like to acknowledge Wong Su Luan, Sidek Abdul Aziz, Aida Suraya Mohd Yunus, Zakaria Sidek, Kamariah Abu Bakar, Hamidah Meseran & Hanafi Atan from the Institute of Multimedia and Software, Universiti Putra Malaysia 43400 UPM Serdang, Selangor, Malaysia for the use of their instrument and model for this work.