Research Article

Exploring User Attitudes towards Internet Use: The Role of Gender and Age Difference

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Abstract- This study was conducted in Kyambogo University (KYU), Uganda to assess the impact of gender and age difference on students' attitudes towards use of internet. Stratified random sampling technique was used to select 350 students were randomly selected to constitute the sample. Data was collected using a questionnaire, and analyzed descriptively using SPSS for frequencies, means, standard deviation and cross tabulation. The results indicated that there were no significant relationships between gender and age difference of undergraduate students' attitudes towards the academic use of Internet. It was recommended, that; free Internet access be provided to students at the university, students taking ICT classes be helped to purchase personal computers at subsidized prices, KYU encouraged to devise more strategies of maintaining gender balance into the students' curricula.

Keyword: Attitudes, Internet Use, Gender, Age Difference

Introduction

1.0 Background

Kyambogo University (KYU) is a Public University, established in Uganda. The University's vision is: "To be a center of academic and professional excellence," while her Mission is: "To advance and to promote knowledge and development of skills in Science, Technology and Education, and in such other fields having regard to quality, equity, progress and transformation of society" (www.kyambogo.ac.ug). The diffusion of ICT into the training programs at KYU gained more emphasis with the inception of the Connectivity for Educators (Connect-ED) in 1998 (Connect-ED Annual Report, 2006)

KYU trains some students from different departments in the skills required to use computer applications. Computer laboratories with Internet providers have been established to assist in students' training and Internet connectivity within the university and some affiliated Primary Teachers' Colleges (PTC). As a multi-faceted strategy to increase the access to and use of Internet connectivity by education stakeholders in Uganda, Connect-ED has introduced the integration of computers into the teaching methods (Connect-ED, 2006). The Internet comes to the point that reflects discovery of data instantly to adapt the changes (Grabe, et al., 2001). Therefore, Internet is the main medium for searching information necessary for academic success. Similarly, KYU is committed to continue providing computer, training and completing the digitization of the online curriculum (Connect-ed, 2004).

Educational Media at universities in general have advanced greatly in the last decade. Without Internet, learning is bound to be largely passive and the students will be rated low in creativity, critical thinking and problem solving. This study utilized two attributes for assessing students' attitudes towards using Internet as shown below.

Many researchers agree that the gender gap in Internet use has narrowed significantly among the undergraduates (Goodson et al., 2001; Odell et al., 2000. Investigations of student Internet use have proven especially insightful, as research on this group allows for an examination of gender differences within an institution in which the male and the female generally have equal access to the Internet (Odell et al., 2000).

Jackson et al. (2001) found that females in general tend to exhibit less favorable computer attitudes. Zhang (2002) asserts that female students possess more positive attitudes than their male peers. Several investigations have reported that gender has no significant effect on user attitude (Jennings et al., 2001; Shaw et al, 2002). The inconsistencies in these findings reveal how the increasing number of female Internet users is altering women's attitudes regarding computers and the Internet as well.

Bimber (2000) and Ono & Zavodny (2003) argue that the gender gap in the Internet usage is larger where more intensive Internet use is concerned. Women are substantially less likely to be frequent users, equally likely to be infrequent users, and more likely to be intermediate users. In short, females are less intensive Internet users than males. Such a scenario is attributed to a combination of gendered technology embodying male values, content that favor men and sex differences in cognition and communication.

Age difference is a major factor that could be used to predicate end-users' level of using the Internet for academic purposes. It is commonly believed that age difference impacts on students' attitudes towards use of technology. Several studies have examined these differences (Luan, et al 2005; Colley et al., 2003). It has been observed that there are age effects for the dimensions of comfort and efficacy with older people

generally bearing less comfort and efficacy over the technology than the youth.On the other hand, Chu et al., (2009) reports that older users tend to show decreased anxiety, increased confidence, and increased self-efficacy in using the Internet, as well as an increased interest in information retrieval on websites. An environment appropriate for Internet use, coupled with regular computer use can make older users more knowledgeable about the web information, services, and resources available to them.

However, Ramayah et al., (2003) argue that age is negatively related to Internet and computer usage where younger students were more likely to use these facilities. Never the less, cases of some previous findings regarding age differences in Internet usage tended to be mixed. Cuban (2001) reports that university students as young users in America usually utilized ICT for searching the Internet and for using email, while old users (teachers) used Internet for research purposes rather than for teaching in the classroom. This study is therefore timely since it assesses the impact of gender and age difference on students' attitudes towards use of internet.

1.1 Statement of the Problem

Although KYU has established **several computer laboratories with Internet services to enable students search academic information for complementing the traditional sources** (Katusabe, 2006), little research has been done concerning the role of gender and age difference on attitudes. It is important to assess students' attitudes towards use of the Internet media because their feelings towards these technologies have an influence on their effective use in education (Aytekin, 2004). Attitudinal concerns to any new technology need to be established since it is difficult for universities to know if they are meeting the needs of students effectively (OECD, 2005).

1.2 Study Hypotheses

This study employed the following hypotheses.

i. $H0_1$ There is no significant relationship between gender gap and undergraduate students' attitudes towards the academic use of Internet.

ii. $H0_2$ There is no significant relationship between age difference and undergraduate students' attitudes towards academic use of the Internet.

2.0 Methodology

2.1 The Research Design

A descriptive survey of an exploratory nature was deemed most appropriate for studying users' attitudes, values and beliefs (Wikipedia, 2008). It was predominantly quantitative though with some qualitative techniques, providing an opportunity to corroborate findings across different approaches (Onwuegbuzie et al., 2004). With a survey design, a careful investigation of the phenomena through a collection of a large amount of data from a variety of students from different faculties in a relatively short period of time was possible, hence being relatively inexpensive especially with self-administered tools (Colorado State, 2008; Cano, 2008 and Sarantakos, 1997).

2.1.1 Study Population

Students' belonging to ICT class was at least one common characteristic shared in the population. The study population was strictly final year students from all the six faculties in KYU. However, by the time of data collection (2009), it was discovered that in the Faculty of Special Needs none of the students was doing ICT as a compulsory subject. The study thus considered one thousand one hundred sixty five (1165) students taking ICT as a compulsory subject from the rest of the five faculties to constitute the population as indicated in table 1.0. The five faculties are; Arts, Education, Engineering, Science, and Vocational Studies.

2.1.2 Sample

This study was confined to final year students because in KYU, it is at the final year level that the students have fully covered the ICT / Internet academic tasks; and also final year students were found to have had longer experience working with the Internet in the academia than any other academic years (KYU, 2007).

2.1.3 The Sampling Technique

Three hundred and fifty (350) participants out of one thousand one hundred sixty five (1165) were thus regarded as appropriate number of respondents chosen from the final year students across KYU to constitute the sample. This sample was deemed accurate and desirable for the study, using a self-administered questionnaire. The study assumed stratified sampling and simple random sampling techniques. The two techniques were deemed most relevant for the study because they reduce sampling errors (stat Pac, 2008). The researcher identified relevant strata and their actual representation in the population. The five faculties of Arts, Science, Education, Engineering and Vocational studies were the strata. Thirty percent (30%) of participants were then selected from each stratum. These were regarded as sufficient. "Sufficient" here refers to a sample size large enough to be reasonably confident that the stratum represents the population (stat Pac, 2008). Each of the five faculties was represented in the study as indicated in Table 1.0

Simple random sampling was then used to select participants from each stratum. A total of three hundred and fifty students (350) who were randomly selected constituted a sample for the entire study.

Table 1.0 Respondents per Faculty

Faculty	Number of ICT students (N)	30% of N
Arts	270	81
Education	240	72
Engineering	180	54
Science	220	66
Vocational	255	77
Total	1165	350

2.1.3 Validity and Reliability of Research Instruments

The study used questionnaires, interviews and an observation schedule. Prior to pilot testing, the students' questionnaire was reviewed by four lecturers from KYU. The lecturers were knowledgeable in the field of information technology and teacher education. At first the questionnaire had twenty (20) items meant to solicit information, utilized to assess the impact of gender and age difference on students' attitudes towards use of internet. The four raters to the instrument gave specific suggestions on how to improve each of the items. Items were reviewed employing the analytical pattern matching to address concerns of internal validity (Yin, 1991). The Content Validity Index (CVI) of 0.8333 was reached and considered to be appropriate as suggested by Amin (2005) and DeVellis (1991). Later, the instrument was critically and extensively discussed by the researchers' colleagues at the place of work to approve its suitability and relevance to the objectives; and necessary further amendments were made. Six more items were supplemented to the questionnaire to make a total of twenty four (24). A final questionnaire was made where all items were deemed suitable for the study context prior to the actual data collection process. The interview guide was pilot tested on a group of final year undergraduate twenty students taking the same course from Makerere University in Uganda for refinement. This was done to improve the instrument's reliability as well as familiarization with the research situation (González et al., 2002). .

2.1.4 Procedure for Data Collection

The researcher sought permission from the office of the Academic Registrar, KYU for data collection from the university. Documented permission was granted through an official letter. The researcher identified some research assistants within KYU to help in data collection on the criteria of having experience in information technology; they had been instructors of ICT in KYU for long. A brief guidance of which included descriptions of what the study was all about was carried out to the research assistants. Research assistants were made to understand the purpose of the research and what was to be done with the data once it had been collected. In collaboration with the research assistants, the researcher prepared specifications to clarify the handling of difficult, intricate or mystifying situations that could occur with regard to conditions of data collection with the questionnaire.

3.0 Results and Discussion

Assessing the Relationship between Gender gap and Students' attitudes towards the academic use of Internet

According to Goodson et al. (2001) and Odell et al. (2000), there is an obscuring picture of the relationship between the gender gap and the Internet user attitudes regarding the gender gap in Internet use among the students. Investigations of gender gap and attitudes toward intensity of Internet use have proven especially insightful, as research on the male and females' access to the Internet is studied. Null hypothesis one ($H0_2$) is therefore intended to establish the relationship between gender gap and attitudes towards the academic use of Internet.

Hypothesis 1($H_0$1):
There is no statistically significant relationship between gender gap and attitudes towards the academic use of Internet.

To test this hypothesis, data was collected basing on section one of the questionnaire. The survey contained 12 items concerning the relationship between the gender gap and attitudes towards the academic use of the Internet. The respondents' views in relation to the questionnaire items concerning the influence of gender gap on attitudes towards academic use of Internet are shown in Appendix

The findings are summarized in Table 1.4 show that the average score of female students was slightly higher (17.1695), with a mean difference of 0.76. An independent sample t-test was used to establish whether there were significant differences in the means. Accordingly the computed value of the t-statistic (-1.478) was insignificant at 0.05 level of significance (i.e. 0.141> 0.05). The finding therefore implies that although female attitudes are slightly higher than that of males, the difference in the means is not statistically significant. No significant difference was found in the subscales ($p > 0.05$); therefore, the null hypothesis was not rejected.

Table 1.3 Gender gap and Attitude towards the use of Internet

Gender	N	Mean	Std. Deviation	t-statistic	df	p-value
Male	177	17.1695	4.04022	-1.478	278	0.141
Female	103	17.932	4.36847			

Therefore, as far as this study is concerned, attitude towards use of Internet is not dependent on the gender gap. The male as well as female students of KYU have similar attitudes towards use of the Internet for academic purposes.

3.1 The Results from the Observation

One hundred students were found carrying out ICT classes. The classes had almost the same number of male 52(52%) and female 48(48%) students. And both sexes were participating in surfing. This observation shows that user attitudes are not significantly related to gender gap. It was also observed that to navigate the content of the Internet efficiently and the length of time it takes students to learn how to browse the Web is not dependant on the gender gap. Both female and male students were seen spending similar durations to browse, to open and send messages in their e-mail boxes. As also observed by Wilson (2000) whatever the reason, women as well as men can report the same frequencies in electronic communication as the most important function of the Internet.

It can therefore be concluded that there is no significant relationship between gender and students' attitudes towards academic use of the Internet. This conclusion provides further evidence supporting previous studies by Gulbahar, et al. (2008), Wong, et al. (2007) and Hargittai (2002) who also argue that there is no significant relationship between users' gender gap and attitudes towards use of the Internet.

3.2 Interview Findings about Impact of Gender

Twenty four students participated in face to face interviews which lasted approximately half an hour for each participant. The interviews were generally used to contact students by word of mouth. The interviews provided details related to the undergraduates' general views towards use of the Internet. The students interviewed included both males and females. This decision was made in order to capture a wide range of thoughts from the males and females related to the medium and experiences with the medium. This distribution was quite even. In the interviews open questions were used, where the respondents were encouraged to tell more or specify their answers (Lundahl et al., 1999).

The students who were interviewed unanimously were users of the Internet facilities available at KYU. These students expressed that the Internet has the potential to make studying at the university more enjoyable, particularly with respect to supplementing lecture notes and accessing information for research project. When asked whether gender gap influences students' attitudes towards academic use of the Internet, they felt that since both sexes face equal challenges of limited access to Internet facilities, then gender gap has no effect. While looking down on the role of gender gap, one male student was quite explicit and in his own expressions he has this to say:

Not really, it depends on my access to Internet facilities; but not being a boy or girl! The gender gap doesn't get you positive or negative attitudes; because you are boy or girl. The computers in the lab are very few. They cannot be enough for all of us. By the time I come to surf, I find other classes going on and using the same computers.

Majority of the male and female students interviewed held a less positive opinion about surfing the Internet for academic purposes. Interviews with students revealed that negative student attitudes could also be attributed to the fact that the computers themselves were few. Some students reported sharing computers among themselves if they were to find out content needed to attempt assignments and research. Students said that most of the course work is needed to be done and submitted on time. Regardless of gender gap, students who used the Internet generally faced the same limitations about the use of the Internet. On average, the respondents were not as fond of searching the Internet, as they did not think they could find enough computers in the laboratories, and therefore searches could take too much time. There were, however, a few respondents who said that they preferred searching information on the Internet to using the hard text books.

All the above findings show that attitudes towards use of Internet are not gender-based as surfing itself did not assume different patterns for female and male students. In other words, in KYU sufficiency of computers is the key determining factor to cause confidence or fear during the academic use of the Internet. These results also run parallel to the findings of Hargittai (2002) and Jackson et al. (2001) which found that users' gender gap has no significant relationship with the anxiety level when using the Internet.

3.3 Assessing the Relationship between Age Difference and Attitudes towards Academic Use of the Internet

To answer the second hypothesis, data was collected basing on items in section two of the questionnaire. Section Two on the survey tool contained 12 items concerning the relationship between age and students' the attitudes towards the academic use of Internet. The students' views in relation to the questionnaire items concerning the influence of age difference on attitudes towards academic use of internet are shown in Appendix.

3.4 Testing the Second Null Hypothesis: There Is No Significant Relationship between Age and Attitudes towards the Academic Use of Internet

The hypothesis ($H_0 2$) sought to establish a relationship between two sets of undergraduate students' age differences, that is, 25 and below; and the >25. A t-test was used to find out the relationship between age difference of the respondents and their attitudes towards use of Internet and the findings are presented in Table 1.5

Table 1.4: Relationship between age difference and attitudes towards the academic use of Internet

	N	Mean	Std. Deviation	t-statistic		
25 and below	206	19.432	5.08683	-0.65	0.278	0.516
>25 yrs	74	19.8784	5.01492			

Table 1.5 illustrates the results of the relationship between the undergraduate students' age difference and attitude towards the academic use of Internet. In the table, respondents of age 25 and below have a mean of 19.4320, while the mean of respondents whose age is above 25 is 19.8784. The difference in the mean scores of attitudes of these two age groups is slight. Respondents whose age is below 25 and those of 25 and above do not differ much in attitudes towards the use of the Internet.

By use of t-test statistics, the analyzed data show that respondents whose age is $\leq$ 25 and their counterparts of whose >25 do not differ significantly in attitudes towards the academic use of Internet. The p-value (.516) is higher than the (*alpha*) level (0.05) which is the level of significance. The study therefore fails to reject the null hypothesis, and this means that there is no significant relationship between age difference and undergraduate students' attitudes towards the academic use of Internet. Therefore it can be concluded that KYU undergraduate students' attitudes towards the academic use of Internet is not dependent on the age difference.

The findings are in agreement with Tapscott's (1997) assertion that there is no difference between boys' and girls' attitudes towards use the Internet. This was after Tapscott's (1997) study of users he refers to as the Net generation (N-Gen). Users called the N-Geners as those born after 1977. Since most of the students in KYU are N-Geners and have grown up in the digital age, there is equality between the 25 and below and the age of above 25 attitudes towards use of the Internet.

3.5 Findings from Observations about Impact of Age

The observation schedules were carried out on one hundred (100) students viewed while surfing, revealed that most of the undergraduates irrespective of their age difference, expressed similar degree of anxiety. Many students who were seen while downloading information from the Web were expressing fear over using the computer for long hours. Another observed issue was the skill level at which many students were operating irrespective of their age differences. Most of the students observed expressed more less the same pace thus expressing a low comfort level.

In line with the findings from the observation, Eastman et al. (2004) contend that the old users, as well as young ones have similar attitudes towards using the Internet. The researcher also viewed students' interactions with Internet technology. The students worked in cooperative groups to search information. Students, irrespective of the age variations provided assistance to each other during classes.

3.6 Interview Results about Impact of Age Differences

Interviews with students also emphasized the findings from the questionnaire that age difference among students has no significant relationship to users' attitudes. The age differences studied were 25 and below, and that of above 25. Students felt that they were at an equal disadvantage irrespective of their age differences. Some respondents said that it was hard for them to find relevant academic materials, as a search engine can produce thousands of results. This was because all were not fully competent to search academic information on the Internet. Students also said that they prefer to read their lecture notes in paper format, whether obtained from the Internet or not. That unlike text books, Internet materials require printing out large amounts of paper that it gets too hard to keep track of the most important paragraphs. In support of these findings from the interviews, Balarabe (2006) also observes that whichever the case, attitudes of Internet users are not necessarily influenced by age differences.

3.7 Summary of the Findings

The following are the findings from the study:

i.   There is no significant relationship between gender and undergraduate students' attitudes towards the academic use of Internet.

ii.   There is no significant relationship between age difference and undergraduate students' attitudes towards the academic use of Internet.

4.0 Recommendations

This study, as the first of its kind in KYU, is considered an important contribution, especially as it provides baseline evidence to monitor circumstances surrounding searching e-academic information in universities. Basing on the findings of this study, the following recommendations are made:

i.   Since the study illustrated no significant difference in attitudes between how male and female attitudes towards the use of the Internet. Drawing upon Hargittai's (2002) findings about gender mentioned earlier, this finding demonstrates that both the female and male can adopt the technology in a manner that fits their everyday practice. With the increasing diffusion of technology, some of the differences between genders can disappear. KYU is therefore encouraged to devise more strategies to maintain gender balance in which ICT; particularly the Internet expertise is inserted into the learning process of the undergraduate students' curricula.

ii.   Similarly, more Internet access which is free should be provided at the university. It is the researcher's belief that this policy is an excellent initiative that might yield positive contribution in the students' Internet attitude, as a result of usage, computer experience, and software familiarity.

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