Impact of a Web Resources Exposure Lesson (WREL) on Educational Internet Use in a Limited Resource Society

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Abstract

The researcher examined Internet use for educational purposes by undergraduate students in the department of Social Studies of the University of Education, Winneba, Ghana. 96 third year undergraduate students were purposively sampled. A demographic survey indicated that students' use of the internet for educational research was very low. 20% males and 9% females respectively that use the Internet do so mostly to check their e-mails. After exposing students to various search engines on the Internet and guiding them on how to use them efficiently as a learning resource, the post-WREL results showed that Internet use by students for academic purposes increased by 65%. The study revealed the gender differences of Internet use. This paper makes recommendations for orientation programmes, such as the WREL, for students to regularly update their knowledge in technology as a method for improving its use for educational purposes.

Keywords internet, world wide web (www), social studies students, web resource exposure lesson (WREL)

Introduction

The ever-increasing number of people accessing the Internet, coupled with recent explosion of information resources on the World Wide Web (www), may have considerable implications for teaching, learning and research. Today, teachers and students are depending more and more on the Internet for various educational purposes. According to Flake (1996) the World Wide Web can promote socially relevant development and student empowerment. The Internet can, therefore, be described as playing a vital role in teaching, learning and research processes. As well, the Internet offers a rich resource for information for students especially when they have limited access to books and other print materials. Considering the role of the Internet in our educational institutions today, it was assumed that Social Studies students in the University of Education, Winneba, Ghana, are more dependent on the Internet and use it extensively as a source of information for class assignments and other research purposes rather than relying solely on conventional printed resources for information.

The use of the Internet as an information source has been extensively studied and reported by several authors. Awoleye, Siyanbola and Oladipo (2008), conducted a study on the level of penetration of Internet usage among undergraduate students in Nigeria using Obafemi Awolowo University as a case study. They found out that about 92% of undergraduate students have embraced the Internet and are using it consistently mostly for e-mail, information search and online chatting.

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Bavakutty and Salih (1999) conducted a study at Calicut University and they found that students, research scholars, and teachers used the Internet for the purpose of study, research and teaching, respectively. Similarly, a survey of 406 graduate and undergraduate students by Laite (2000) from Shippensburg University revealed that 57.6% of the undergraduate students used the Internet 1-2 times per week and another 37.1% used it 1-2 times daily. Again, 54.7% of the graduate students used the Internet 1-2 times per week and 37.7% used it 1-2 times daily. The survey showed that the most used Internet service was e-mail, which was widely used by all the graduates and undergraduate students.

Hanauer (2004) surveyed a diverse community college to assess the use of the Internet by the students. The survey showed that all the students surveyed had free Internet access through their community college, with 97% of the students having access to the Internet. The survey revealed that 83% of Internet users had access to Internet at their home and 51% of the respondents accessed the Internet at their college or library. Eighty-one percent of the students reported accessing the Internet mostly for college work and 80% for e-mail/chat.

Mishra, Yadav and Bisht (2005) conducted research to learn the Internet utilization patterns of undergraduate students at the G B Pant University of Agriculture and Technology, Pantnagar. The findings of the study indicate that a majority of the students (85.7%) used the Internet. The findings of the study also showed that 61.5% of the males and 51.6% of the females used the Internet for preparing assignments. A majority of the respondents, i.e. 83.1% male and 61.3% female respondents indicated that they faced the problem of slow functioning of Internet connections. Robinson (2005) examined the Internet use among African-American college students. The respondents were surveyed by using a 43-item questionnaire to determine the frequency of Internet use. The results of the study indicated that most of the African-American college students (76%) had used the Internet more than three years. The use of the Internet for most African-American college students occurred at school or at the work place while 49% of it took place at home. Forty-seven percent of the respondents indicated they spent an average of two hours per day online. A small percentage of the students spent 5-6 hours per day on the Internet. Forty-three percent of the students used the Internet primarily to learn and find school resources. These types of studies have been conducted over the past several decades and demonstrate that, overall, Internet use is gradually expanding in both rich and limited environments, although, not at the same rates and not without unique challenges stemming from access to information technology resources.

Internet use in certain contexts might not be high not because students are unwilling to use it but because of unavailability of the facility. For instance, Jagboro (2003) conducted a case study of Internet usage in Nigerian universities with the objective of evaluating the level of utilization of the Internet for academic research at the Obafemi Awolowo University, Ile-Ife, Nigeria. The results from the analysis of the responses

showed that the respondents ranked the use of research materials on the Internet fourth (17.3%). However, respondents who used the Internet ranked research materials second (53.4%) to e-mail (69.9%). The study concluded that the use of the Internet for academic research would significantly improve through the provision of more access points at departmental and faculty levels.

On another note, Internet use for educational purposes is gendered. For instance Ono & Zavodny (2002), argue that gender is one of the frequently noted dimensions of inequality in Internet access and usage. Studies have found that women are less likely to use the Internet than men especially when the technology became accessible to the general public in the mid-1990s (Compaine, 2001 cited in Ono & Zavodny, 2002). Also, Bimber, 2000 reiterates that gender differences in rates of internet use may exist as a result of the disparity between men and women average socioeconomic status. This difference in socio economic status may in effect influence computer and Internet access and use.

Ono & Zavodny, 2002, argue that women continue to be less frequent and less intense users of the Internet. The authors' findings suggest that there is little reason for concern about the sex inequalities in Internet access and use. Nonetheless, gender differences in frequency and intensity of the Internet usage remain. Interestingly, Kominski, (1992), Kominski and Newburger, (1999), indicate that even though women were less likely to use personal computers than men during the 1980s the gender gap in computer usage has since disappeared. Similarly, Novak, and Schlosser (2001) reported that the gender gap in Internet access and use narrowed between the spring and fall of 1997 but stayed flat through the spring of 1998. These observations are context specific. In developing countries such as Ghana where gendered socio-economic gaps still exist with women at the lower end, the gender gap in internet use may exist. For instance, Kwapong, (2009) revealed a significant relationship between sex and knowledge of ICT. Her study revealed a greater number of male respondents answering "Yes" to knowledge to ICT as against a greater number of females who answered "No". On the issue of gendered "time" respondents stay on the Internet, Kwapong, (ibid) noted that;

> ... one could assume that since women have competing demands on their time for work, child, and home care, and probably with limited financial resources, they cannot afford to stay on the Internet for too long a time. But for men who do not have as much of a constraint in terms of time and finance, they could afford to stay longer on the Internet.

It is important to appreciate the fact that such gender inequalities tend to slow economic growth as indicated by Christian Poortman, the World Bank Vice President for the Middle East and North Africa. It is suggested that development policies and programmes that assist women and girls can have a major impact on a country's overall development (World Bank, 2004; Hafkin & Taggart, 2001; Liu & Wilson, 2001; cited in Mbarika, Okoli, Byrd, & Datta, 2005). The next section presents the theoretical underpinning of the study.

Theoretical framework

This study was based on the diffusion of innovation theory of change (Rogers 2003). The Diffusion of Innovation theory explains how innovations are taken up in populations. The theory views change as being an evolution or reinvention of products and behaviours so they (products) become a better fit for the need of individual groups instead of forcing or persuading individuals to change.

Five qualities are recognised by diffusion scholars that explain how people adopt new technologies. It includes; relative advantage, compatibility with existing values, simplicity and ease of use, trialability and observable results. The theory argues that based on their propensity to adopt a specific innovation a population can be divided into five different segments; innovators, early adopters, early majorities, late majorities and laggards. This theory, when applied to a change project such as Web Resource Exposure (WREL) on students' use of the Internet, can highlight the proportion of students who fall within the various segments. An understanding of how students fall along the continuum will inform which segment to address with the introduction of WREL.

Purpose of study

It is evident from the literature that the use of the Internet as a resource cannot be over emphasized. It is, however, worth noting that there seems to be a dearth of information grounded in empirical studies on the use of ICT in education in Africa and for that matter Ghana. This study, therefore, sought to contribute to the knowledge on the impact of Web Resources Exposure lesson in the Ghanaian context.

Internet use for educational information among Social Studies students of the University of Education has been viewed as a necessity considering the limited access to books and other print materials. This study investigates the impact of the Web Resource Exposure on students' use of the Internet. WREL is a lesson designed to equip students with the requisite information and skill to do effective web searches for educational purposes.

Based on the assumption that Social Studies students in the University of Education, Winneba could find the Internet useful for research and assignments, the researcher decided to investigate into the extent to which students adopt its use for that purpose as a result of an instructional intervention (WREL).

Research questions

The following research questions guided the study.

1. What do students know about the Internet as a resource for educational information before and after the WREL instructional intervention?
2. How do students access and use the Internet before and after the WREL instructional intervention?

3. Is/are there gender differential in Internet use among students for education purposes before and after the WREL instructional intervention? If so how is this manifested?

Methods

A mixed qualitative-quantitative model was used for the study. Mixed methods is used together to capture the richness, complexity, and interdependence of events, actions, and conditions in the real classroom (Tashakkori & Teddlie, 1998). Quantitatively, questionnaire items consisting of 18 questions was designed and submitted for review to 4 experts with a rich background in both quantitative and qualitative research approaches, as well as issues in ICT in education. Example questions include: Do you use the Internet? Where do you access the Internet? Which search engines do use to access websites? The constructs were compiled from the literature in connection with the research questions. After the reviewers' suggestions were incorporated, the questionnaire was pilot tested using sample of the level 200 Social Studies before being administered to respondents to complete. Since the study involved measurable quantities such as levels of knowledge regarding Internet use, a Likert's scale of 1 to 5 was employed.

Additionally, the researcher conducted a short interview (15 minutes long) with the female students to gather their views on Internet use and to follow up on the pre and post-WREL surveys, (McNamara, 1999). As indicated in the literature, women are less unlikely to use the Internet than men particularly when technology became accessible to the general public (Compaine, 2001) in some contexts. With particular reference to the diffusion innovation theory, segmentation levels, women fall within the late majority and laggards groups with their high propensity to resist any innovation (Rogers 2003), the researcher found the use of interviews useful to provide high levels of personal control as indicated with the innovation diffusion theory, although the purpose of the interviews was not part of the instructional intervention. The researcher also made it a point of letting the female students know that there are others, who fall into their categories and have successfully adopted innovation. The interview therefore augmented the quantitative data gathered from the survey.

Population and sample

The targeted population for the study was Social Studies students in resource limited countries. The sample was third year (final) Social Studies students from the University of Education, Winneba, Ghana. Out of 300 students in the department of social studies education during the 2008/9 academic year, a sample size of 96 students (60 males and 36 females) was selected purposively as a sample for the study. The sample was introduced to the Internet use (pre-WREL, WREL and post-WREL) by the researcher. According to Johnson (1995) purposive sampling is useful when the selected sample possesses peculiar characteristics. In this case, all the participants are final year students who are pursuing the same academic program.

Instrumentation

Questionnaire and interviews were the instruments used to collect data for the study. A total number of 96 pre-WREL and post-WREL questionnaires were administered to the respondents to complete. Out of these, 9 were unusable due to incomplete or duplicate responses. Thus, 87 usable questionnaires remained for use before and after the intervention lesson (WREL). The questionnaire was in three sections. Section A sought information on respondents' use of the Internet to search for educational information. Section B contained items measuring a five point Likert-scale ranging from strongly agree to strongly disagree. This section covered issues on their ICT knowledge/skills.

The last section (Section C) was an open-ended question requiring the respondents to indicate their access to Internet connectivity as well as their challenges and obstacles to Internet use. Both pre and post-WRELs had almost the same items except a few changes in the post-WREL questionnaire such as 'What specifically can you do now regarding Internet search, that you hitherto were unable to do?' Some of the items from the pre-WREL questionnaire were again included in the post-WREL questionnaire to determine whether there were any improvements. A semi-structured interview protocol was constructed as a follow up on the questionnaire and purpose was to understand clearly the female respondents' responses and also to validate the questionnaire items of the female respondents sampled. This confirms Fontana and Frey (1994) who postulate that face-to-face verbal interviewing is one of the most common ways to seek to understand people. To them, semi-structured interviews present an extensive understanding of a phenomenon.

Data collection procedure

The Head of Social Studies Department of the University of Education was contacted for this study. The students were briefed on the purpose of the study, and their consent was sought before the study began. The researcher assured respondents of confidentiality and the fact that their names were not going appear in the final report especially in the case of the interview respondents. Thus, no real names were mentioned in the study.

The 18 pre-WREL questionnaire items were administered to 96 respondents with 15 minutes allocated for response. The purpose was to elicit their depth of knowledge regarding Internet use. Students responded to the items after which the researchers collected.

Intervention-WREL

The Web Resource Exposure Lesson (WREL) was used as an intervention after the pre-WREL results. The intervention, which took the form of a treatment lesson, was designed and introduced to participants during the next class meeting (a week after the pre-WREL questionnaire was administered and collected). It was aimed at deepening students' knowledge on what the Internet is, what web browsers are, the

various web browsers, what search engines are and the types, as well as their relevance as a learning resource and so on. The areas covered in the lesson could be referred to as the basic Internet search skills.

First, the researchers asked participants a few questions on their previous knowledge on issues The lesson which took 45 minutes touched on how the respondents can effectively search for relevant information for studies on the Internet. The design of the intervention was very interactive using PowerPoint slides with various sounds and images. According to Pattern (2001), PowerPoint is a technology that is very beneficial for students on several levels such as allowing for connections between content and the presentation to be easily implemented. Patel (2007) confirms this by reporting a striking feature in the use of PowerPoint in teaching. To him there is better understanding of content and easy remembrance of content by trainees. This justifies the use of this tool (PowerPoint) for the intervention.

The use of the Camtasia software to create a simple tutorial using voice over to capturing the searching process was also employed, so students could actively respond and ask questions occasionally by following the various prompts in the tutorial to enable them do independent search. After the WREL lesson, the researcher gave respondents the opportunity to ask questions based on the lesson and their experiences which they did. These questions were then addressed by the researcher. Respondents were asked to perform a search activity as their take home assignment. The next class period (a week later), respondents were given the post-WREL questionnaire to complete. The WREL was intentionally designed to avoid an overreliance of any particular instructional method. Typicality of the instruction was the goal so that the content would be prominent instead of the instructional strategy.

The researchers, as a follow up to the questionnaire, conducted thirty-minute semi-structured interviews using the same criteria stated above with 10 female students who were randomly selected from the sample of 36 females (60%). This according to Rubbin & Rubbin, (1995:6) is to understand the knowledge and insights of respondents so that content, flow and choice of topic changes to match what respondents know and feel. Items of the semi-structured interview include;

a. Which search engines were you formally used to?
b. Where were you accessing the Internet from?
c. How were you hitherto keying in your requests for your search?
d. Why did you depend on your male colleagues to search for information on the Internet?
e. How do you feel after the intervention lesson? Among others.

It is important to note that the study was not designed to determine causation. (no control group was used). Thus the researcher did not attribute the changes solely to the WREL, but as an example of an intervention that could encourage change in behaviour.

Data analysis procedure

Descriptive statistics was used to analyse the data. The researcher used descriptive statistics to describe the data collected in simple terms with simple graphical representations. First pre-WREL and post-WREL results were coded, cleaned, entered into excel software and analysed. The result from the analysis was presented using charts. The data from the interview were also analysed thematically by sorting, sifting and searching for types, classes, sequences, processes, patterns or wholes and the objective was to assemble or reconstruct the data in a meaningful or comprehensible fashion (Jorgensen, 1989: 107). The main purpose for this type of data analysis is to organise the information so as to present a narrative that explains the meanings, feelings, opinions and so forth that underlie the behaviour of the participants in the study (Rubin & Rubin, 1995:229).

Findings and Discussion

Improvement in the students' ICT knowledge and skills and Internet access

The findings from this study, as shown in Figure 1 below, reveal that before the WREL intervention, 23 students representing 27.5% indicated that they had some basic knowledge of and use the Internet to search for information for their research work. Before the intervention 21 (24.5%) students again representing a small proportion indicated they had access to Internet connection with 16 (18.5%) students indicated they used it for educational information. This is a clear indication that most undergraduate students in the Department of Social Studies of the University of Education, Winneba were not benefiting from the Internet as a resource to learning. As revealed from the study, it can be said that students' inability to use the Internet for information was due to two major factors which are - lack of any coherent knowledge about simple features like browsers, URL and HTTP among others and, the lack of access to Internet connectivity.

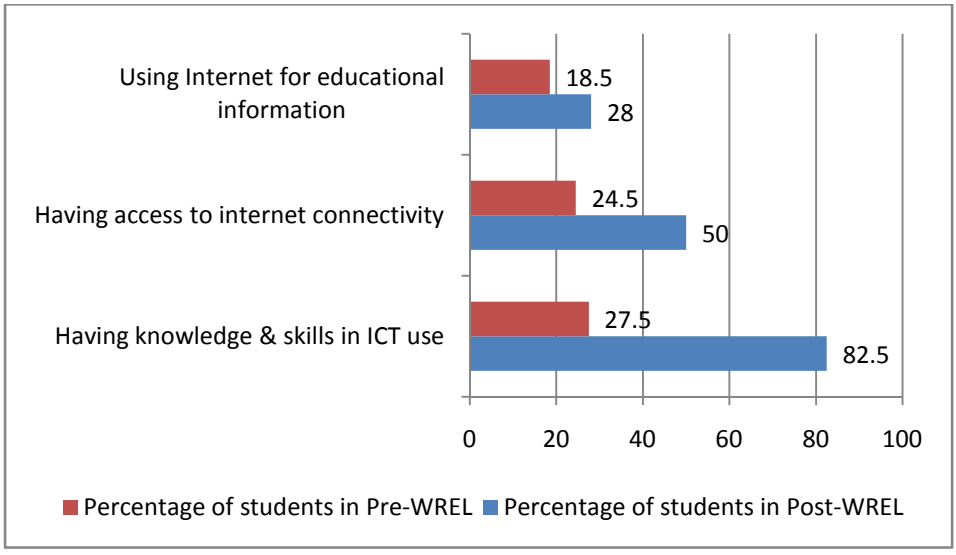

Figure 1 Percentage of students having knowledge and access

After the post-WREL, however, it was interesting to note that out of the total number of students interviewed in the class, the number of students who demonstrated knowledge about the Internet and used it for information improved dramatically. The post-WREL results indicated that 71 (82.5%) of students demonstrated knowledge about the Internet and its features. Considering the use of the Internet, it also emerged that 43 (50%) of the respondents indicated that they now use the Internet. It can be inferred from these findings that, an improvement of about 80% occurred in the update of knowledge and attitude students demonstrated after they had been taken through lessons on the use of the Internet as information source. Equally, an increase of about 40% occurred in the number of students that used the Internet. 24.5% indicated access to Internet connectivity with 50% who now showed they had access to the Internet. This increase in from 24% to 50% in access to Internet connectivity could be as a result of the interest they might have developed to search the Internet due to their exposure to the WREL, hence moving out to search points to access since the same Internet access points that existed at the pre-WREL (24.5%), were still present at the post-WREL (50%).

Gender differences in improvement in the students' ICT knowledge, Internet access and search for education

With particular reference to the gender differences on ICT knowledge, Internet access and search for information, the study (pre-WREL) reported 7%, 11% and 9% respectively for the female students as shown in figure 2 below.

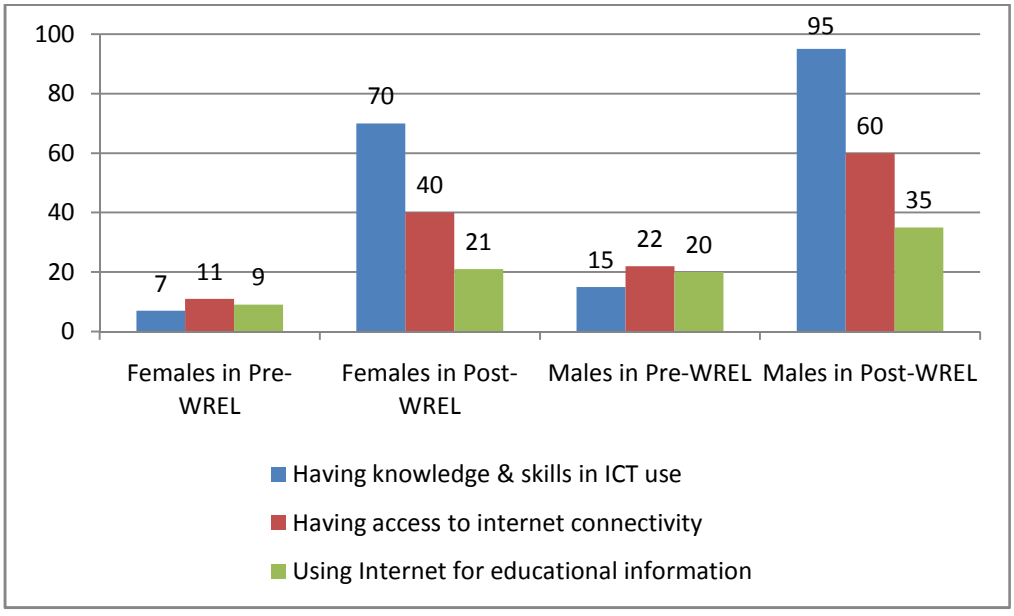

Figure 2 Percentage of male and female students having knowledge and Internet access

This could be attributed to their lack of interest and knowledge on the searching process. One female student mentioned that:

> "I always wasted time with irrelevant results anytime I went to the cafe to search for information for my studies".

Another interesting revelation was the fact that the 10 female students interviewed, confessed that they always relied on their male counterparts for information on assignments that required Internet use since they always wasted time without obtaining results. Again, one female student said:

> "I always paid for the browsing time as my colleagues (the males) did the searching all the time".

According to her, they shared the information after the process so she could use it for her assignments. This was confirmed by the other female colleagues interviewed. Further to this, the females revealed that they had very little knowledge and interest in the searching process and so they usually wasted much time and money, with little or no positive results. A female commented that:

> "The Internet is always slow and so I always leave the cafe not getting what I wanted, hence I am not interested in the whole process".

This perception seems to diminish their interest regarding the Internet use for academic purposes and thus they relied on their male counterparts to conduct searches for them on the Internet. However, this trend changed tremendously after the post-WREL studies. They now exhibited that they possessed the skill to search the Internet (70%). They possessed knowledge about the Internet and Internet searching (40%) which they hither to knew very little about. This includes knowledge about which search engines to use for which type of information for their assignments and projects as well. Much attention was paid to the female students in the class because they demonstrated very poor knowledge and use of the Internet for the pre-WREL (9% and 7% respectively), with 21% recorded for Internet connectivity. The results from the post-WREL indicated that the female students had become more knowledgeable on the use of the Internet for information searching and they used it with ease. For instance, one female student exclaimed that:

> "...now we will stop paying moneys to our male counterparts for assisting us on the use of the Internet as a tool for information searching".

This went to buttress the fact that the intervention made a positive impact on the female students' knowledge and skills in Internet searching.

However, the male students reported 15%, 22% and 20% on the pre-WREL test respectively regarding their ICT knowledge and skills, access to Internet connectivity and Internet use for educational information. Even though low, it could be seen from Figure 2 that they were better on the themes than their female counterparts who reported 7%, 11% and 9% respectively. After the post-WREL intervention, these figures increased tremendously to 95%, 60% and 35% respectively which was an incredible change in the figures, from 15% to 95% - knowledge and skills in ICT use, 22% to 60% - access to Internet connectivity and 20% to 35%.

It is important to note from Figure 2 above, that although majority, (95% for males and 70% females), demonstrated that they had acquired knowledge about the Internet as a resource and a tool for educational information, the number of students that actually translated what they had learnt into practice was less than the number who acquired the knowledge. This, just like in the pre-WREL, could be explained by the fact that the number of Internet connectivity points and computers available in the University Library for students to use was inadequate and far below the required number to meet the large student numbers. The Department does not have any Internet facility and connectivity point that students can access at any point. They depend on the few connectivity points at the general library of the University and the Institute of Educational Development and Extension (IEDE) Internet cafe.

Conclusion and Recommendation for Policy

The Internet has emerged as the single most powerful vehicle for providing access to unlimited information according to research. The dependency on the Internet and its services is increasing day by day and the users too are depending more and more on the Internet for their various educational purposes as indicated in the literature as discussed earlier.

The present study has concentrated on improving Social Studies students' use of the Internet through a teaching intervention. The study demonstrates that a small instructional intervention can enable the students in limited resource environments to enhance their academic excellence by providing them the latest information and access to the worldwide information. It appears that the threshold of knowledge required for improved use is small and yet can have large affects on adoption and perceptions of availability.

The use of the Internet is an evolving phenomenon at this stage and the use of it in the Department of Social Studies, University of Education, Winneba Ghana still seems to be in its early stages. This study has shown that the situation will improve tremendously when all undergraduate students are given opportunities such as those provided by the WREL to gain some knowledge about the Internet as a resource and get access to Internet connectivity.

It is therefore recommended that:

Some orientation programme whose content is similar to the WREL used in this study be organized by all the departments in the University at regular intervals so that the users can improve their excellence and/or proficiency in the use of the Internet for academic purposes.

Some training programmes should be organized by the various departments at regular intervals so that the maximum users can improve their excellence or proficiency in the use of the Internet for academic purposes.

Female students must be encouraged to use ICT tools/ the Internet for their studies since by so doing their confidence levels will increase and in effect become independent with Internet search. They should also be provided with access to

information and content that has been unavailable in the past and prevented them from fully engaging in their education.

This study reveals social studies students use of the Internet for educational purposes. It was revealed that students' scores during the pre-WREL was very low but increased after the intervention lesson was introduced. This became evident with the high scores during the post-WREL. More importantly, the study revealed the impact of the WREL on the female students who indicated a relatively positive change in using the Internet to search for information for their studies. This implies that as the university incorporates a wide range of ICT tools in the teaching and learning process, giving students orientations on how to do effective Internet search, and insisting that they use ICT tools, students' habits will change.

Efforts should be made by the Gender Mainstreaming Directorate of the university to encourage female students' frequent use of the Internet for educational purposes. Stakeholders of universities with particular reference to the University of Education, Winneba, Ghana, should not assume the levels of students' ICT skills. They should work alongside students to enhance internet search habits and positive attitude towards Internet search. Finally, appropriate policies are highly recommended for all higher institutions of learning in Ghana to facilitate diffusion and use of the Internet for educational purposes.

References

Awoleye, O. M, Siyanbola, W. O. & Oladipo, O. F. (2008). Adoption Assessment of Internet usage amongst undergraduates in Nigeria Universities: *A Case Study Approach*: Retrieved November 1, 2011 from: www.jotmi.org/index.php/GT/article/download/.../441

Bavakutty, M. & Muhamad T. K. (1999). Internet Services in Calicut University: *Academic Libraries in the Internet Era.* Ahemdabad, India: Proceedings of the 6th National Convention on Academic Libraries in the Internet Era. Pp.37- 44.

Bimber, B. (2000). Measuring the Gender Gap on the Internet: *Social Science Quarterly* 81: 868-876.

Fontana, A., & Frey, J. H. (1994). Interviewing the art of science: *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage Publishing.

Hanauer, D. (2004). Internet Use among Community College Students: *Implications in Designing Healthcare Interventions*. Journal of American College Health, v52, i5, pp197-202.

Hiroshi, O & Zavodny, M. (2002). Race, Internet Usage and E-commerce. Federal Reserve Bank of Atlanta, Working Paper 2002-01.

Jagboro, K. O. (2003). A Study of Internet Usage in Nigerian Universities: A Case Study of Obafemi Awolowo University. Ile-Ife, Nigeria: Retrieved June 26, 2009, from http://firstmonday.orgissues/issue82/jagboro/index.html.

Johnson, R.B. (1995). Establishing an evaluation utilisation model using conjoint measurement and analysis. Evaluation Review, 19(3), 313-338.

Jorgensen, D. L. (1989) Participant Observation: A Methodology for Human Studies, Newbury Park, CA: Sage Publications.

Kominski, R & Newburger R. (1999). Access Denied: *Changes in Computer Ownership and Use*: 1984-1997 Paper presented at the Annual Meeting of the American Sociological Association, Chicago.

Laite, B. (2000). Internet Use Survey: *Analysis*. Retrieved May 21, 2010 from: http://www.ship.edu/~bhl/survey/.

Mbarika, V., Okoli, C., Byrd, T., and Datta, P. (2005). The neglected continent of IS research : A research agenda for Sub-Saharan Africa. *Journal of the Association for Information Systems (JAIS)* 6(5):130–170.

Mishra, O. P., Neelam Y. & Kamini B. (2005). Internet Utilization Pattern of Undergraduate Students. University News, v43, i13, pp8-12.

Robinson, J. W. (2005). Internet Use among African-American College Students: An Exploratory Study. Retrieved 10 July, 2010.from: http://wwwlib.umi.com/dissertations/fullcit/3156015

Tashakkori, A. & Teddlie, C. (1998). Mixed methodology: *Combining Qualitative and Quantitative Approaches*. Sage: Thousand Oaks, CA.

Wallen E. N. & Fraenkel J. R (2000). How to design & evaluate research in education, 3rd ed. New York: McGraw-Hill.