USER EXPERIENCES AND PERCEPTIONS OF ONLINE INFORMATION RESOURCES IN LIBRARIES: A CASE OF SOKOINE NATIONAL AGRICULTURAL LIBRARY (SNAL), TANZANIA

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Abstract

This study was conducted at Sokoine National Agricultural Library (SNAL) to find out student experiences and perceptions towards the Internet in meeting their learning needs. A total of one hundred and two (102) students participated in this study. Convenience and purposive sampling techniques were used to select respondents. Data for this research was collected through a survey using self administered questionnaires supplemented by observations. Findings showed that most students have a positive attitude towards the Internet and use it for academic purposes. Research also revealed that most students perceive information from Internet as current and easier to retrieve compared to print resources. However, results showed that while students prefer the Internet, its effective use is hampered by several factors including low band width, few internet access points, and lack of skills. The study recommends that users should undergo basic training in Internet searching skills. It is also recommended that information literacy should be incorporated into the university curriculum. Moreover, there should be a deliberate effort to create awareness on the availability of electronic information resources, particularly in the library.

Introduction

Developments in Information and Communication Technology have made it possible to store information in various formats and media. Since its creation, the Internet has crossed national, regional and international borders creating challenges for slow-moving bureaucracies, both public and private, and has changed the way we act and think. According to Miniwatts International (2007) by 30 September, 2007, 1,244,449,601 people were using the Internet worldwide. By contrast during the same period, Africa had 43,995,700 users. In Tanzania data from the same source indicates that by September, 30, 2007 there were about 384,300 Internet users. Major Internet users in Tanzania include Universities, Banks and NGOs (Mercer, 2004; Esselaar and Associates, 2001). Because of this fast growth, the Internet revolution is viewed as important as the industrial revolution (Sandro, 2003). Initially, the Internet was used for military and university research. Today it is used for a variety of purposes including sending electronic mail, transferring data files or programs from one computer to another (through FTP), gaining

access to other computers which store information (using telnet) and to access USENET discussion groups (Large, et al., 1999: 65). The networking capabilities provided by the World Wide Web, user-friendly browsers and the proliferation of speedier search engines, has made it possible for the Internet to go beyond its initial purpose and is now accessible to students and ordinary consumers in their households (Large, et al., 1999: 65). In education the Internet is the preferred technology for improving instruction, access and productivity. College and University Instructors can now post their syllabi and course readings on the World Wide Web for students to access library holdings and digitized materials both on- and off-campus (Mutula, 2001).

Potential benefits and challenges that arise from the Internet have been realised by universities in Tanzania. For instance, Sokoine University of Agriculture (SUA) introduced Information and Communication Technology (ICT) services in order to adapt to flexible teaching, research and consultancy services. The University began to use computers in the 1990's and by 1993 SUA had its own Computer Centre. Between 1996/1997, with support from donors and the government SUA managed to lay a fibre optic LAN and in 1998 installed a Very Small Aperture Satellite Terminal (VSAT) dish for ground satellite connection to the Internet thus enabling students, lecturers and other staff to access the information super highway (SUA Computer Centre, 2002).

A majority of Internet users at SUA access the service from the library (SNAL). Currently the library is equipped with 97 computers which are connected to the Internet. Thus users access to several information resources online and a variety of bibliographic information from the library's online public access catalogue.

In Tanzania, Internet related studies have focused on levels of access, use patterns and problems associated with using ICT facilities (Mercer, 2004; Katunzi, 2003; Nnafie, 2002; Augustino, 2000). There are very few studies that examine how users perceive the Internet service in many learning institutions. The overall objective of this study was to find out the attitudes and perceptions of students toward the Internet in Tanzania. Specifically, the study sought to determine student's experiences and perceptions toward Internet usage in the learning process at Sokoine University.

Literature Review

The adoption of the Internet in institutions was initially associated with the need to enhance learning and teaching through coordinated communication, allowing users to access the wealth of data available over the network at their own discretion. Moreover, e-mail provided students, regardless of time or place, direct access to their tutors to report on progress, ask questions, and discuss other course-related issues. This is now successfully utilized in many higher learning institutions and most notably by Open Universities to support distance-learning activities. The Internet is also widely used to provide access to administrative data such as timetables, module content and assessment information, staff details, links to other (mainly textual) data sources, and so on (Jefferies and Hussain, 1998).

The Internet is also used more extensively to provide both un-coordinated and coordinated communications. For example, currently, teaching staff are constructing Web pages to help structure students' data gathering and to provide access to a variety of resources. Such pointers may contain links to other sites where lecture notes, research papers, discussion documents, virtual environments, program codes, images, sounds, icons, and buttons are available, or to other resources such as interactive tutorials (Jefferies and Hussain, 1998).

Studies by Marxen *et al.*, (1999) indicate that the primary reason for students connecting to the Internet is to access e-mail. For example, an online survey conducted at the university of Toronto revealed that out of the 505 students who were interviewed, 46 % used the Internet for personal use and only 14 percent used the WWW for research, while only eight percent used it to complete other course assignments. Graduate students reported a higher usage of the Internet for research compared to undergraduates. Another survey involving several hundred undergraduate students at the University of North Carolina at Chapel Hill found that 52 percent of the undergraduate students used the Internet. Of these 73 percent used the Internet for e-mail, while only 31 percent used the Internet for research. Similar findings have been reported in Tanzania (Luambano, 2004; Katunzi, 2003; Augustino, 2000). However, the more Internet experience students had, the more they are likely to use it for research.

The failure by most students to find information on the Internet and the predominance of e-mail usage suggests that there is a need to provide Internet search skills and training for students. For example, Cannon (1996) found that only six percent of students surveyed reported having had formal training in Internet use. Marxen et al., (1999) found that a majority of users (54%) learned the Internet by themselves, while only 14 percent had formal instruction on Internet use. Similarly, Lubans (1998) found that 88 percent of the students learned to use the Internet mainly by "surfing" on their own. Malone and Videon (1997) argue that there is a need to train students in information search techniques to enable them to find information on the Internet. For example, they examined citation patterns of undergraduate student papers and found that students who took Internet training classes referenced more electronic resources in their papers compared to students who had no training. This is an indication that training might increase students' utilization of Internet resources.

A need to train students in evaluating Internet information sources has been strongly advocated in the literature because much of the information on the Internet is not subject to quality peer review prior to publication (Marxen et al., 1999). Clausen (1997) suggests that a conceptual understanding of Internet by students is vital because of the rapidly changing ICT systems.

Previous research has shown that a wide variety of factors influence computer adoption and usage including: demographic characteristics, perceived ease of use, perceived usefulness, and perceived enjoyment or fun. By contrast, research on Internet user perceptions is relatively limited. For instance most researchers who have examined the Internet phenomenon have mainly focused on demographics and growth, strategic, commercial and functional use, adoption and diffusion, and gender differences (Wagner and Flannery, 2004).

In one of the few studies on factors influencing Internet usage, Atkinson and Kydd (1997) examined individual characteristics associated with WWW use. The results suggested that both intrinsic (defined as perceived ease of use and perceived enjoyment) and extrinsic (defined as perceived usefulness) factors influence WWW usage. Ease of use may depend on factors such as the speedy connection, which was listed as the factor creating the greatest

amount of dissatisfaction with the Internet, followed by the ease of finding information (Randall et al., 2002).

Recent studies such as one on University Students' Internet Attitudes and Internet Self-Efficacy by YING-TIEN, WU and CHIN-CHUNG TSAI (2006) have shown that students having more on-line hours per week, in general, display more positive Internet attitudes and Internet self-efficacy. In addition, students' grade level also played an important role in their Internet attitudes; graduate students tended to possess more positive Internet attitudes. More importantly, students' Internet attitudes were highly correlated with their Internet self-efficacy. The results in this study seemed to reveal that students' attitudes toward the Internet could be viewed as one of the important indicators for predicting their Internet self-efficacy. These authors also suggested that some training programs or courses may be helpful in improving university students' attitudes and self-efficacy toward the Internet.

With respect to distance education and Internet usage, studies show that access to computers determines student's attitude toward online learning experiences. Students who have computers at home or in their dorm, find distance-learning activities convenient than students who have to search for computers elsewhere. Also, an experienced computer user might be more comfortable with publicly available and unfamiliar hardware than an inexperienced user. In a longitudinal study involving more than 800 university students, McMahon, Gardner, Gray, and Mulhern (1999) reported that computer access accounts for 50% of the variance that exists among student attitudes toward online learning.

The level of a student's computer skills further shape responses. Students who use computers at home or in residence halls generally have less computer anxiety because they are familiar with the technology. Focus groups have indicated "students view their lack of training in computers as the strongest inhibitor to computer use" (McMahon et al., 1999: 302). Inexperienced computer users can be intimidated in a laboratory. According to Peters' (2001), most research findings conclude that the less experience people have with computers, the more computer anxiety they exhibit.

Apart from computer access and skill levels, students' responses also reflect concerns they have about hardware issues such as modem speed and available memory. Complaints about periodic slowness of Internet connections or server problems indicate that such difficulties frustrate students. Computer hardware problems increase students' concerns about computer access and the quality of their online learning experience. When the connection is too slow, the server is down, or the memory is full, the experience becomes a hindrance to learning. Also, students who may already lack confidence in computer equipment transfer their feelings of inadequacy to the learning experience (Peters, 2001).

Research Methodology

A cross-sectional survey design was used to collect both quantitative and qualitative data for this study. Data were collected in October, 2005.

The study population consisted of male and female postgraduate and undergraduate students. The sample units were drawn from Sokoine University of Agriculture Main Campus and Solomon Mahlangu Campus. Convenience and purposive sampling methods were used to select respondents who participated in this study. Self-administered questionnaires were distributed to 106 students out of who 78 (76.5%) were males and 24 (23.5%) were females. This is partly explained by a generally low female to male enrolment ratio in universities in Tanzania. The response rate was 96%. Data was organised, labelled, coded and analysed both quantitatively and qualitatively and findings were presented in tables, charts and figures. A Statistical Package for Social Sciences (SPSS) was used in data processing and analysis.

Presentation and Discussion of Findings

Socio-demographic characteristics of respondents

Table 1: Demographic Characteristics of Respondents

Total sample	Age Range	Frequency	Percent
N= 98	18-22	7	7.1
	23-26	42	42.9
	27-30	17	17.3
	31-34	8	8.2
	35-38	8	8.2
	39-42	8	8.2
	43-46	7	7.1
	47-50	1	1
	Total	98	100

Source: Field data 2005

Data on Table 1 above shows that 42 (42.9 percent) students were in the 23 to 26 age range. Respondents with lowest age range (18-22) were 7 (7.1 percent). Only one respondent was in the age category 47 to 50.

Internet access points

Table 2. Student Internet Access Points

Total sample	Access Point	Frequency	Percent
N= 101	Cafe	74	72.5
	SNAL	39	38.2
	Computer centre	29	28.4
	Dept. Laboratory	14	13.7
	Total	156	152.8

Source: Field data 2005

Results on Table 2 above show that the majority (72%) of students use internet cafes. The detailed findings revealed that 74 (72 percent) student use Internet cafes, 39 (38.2 percent) SNAL Internet services, 29 (28.4 percent) use the Computer Centre and 14 (13.7 percent) use departmental Computer Laboratories. Therefore, what these findings show is that students have a variety of Internet access points from which to choose. Students were observed using Internet café services outside campus during field work for this study partly because campus Internet services (SMC) were not available or due to poor connectivity.

Internet search experience

Generally, Internet use experience varies among the respondents. Data on Table 3, show that 41 (40.6 percent) students have used the Internet for more than two years, 29 (28.7 percent) for less than one year, 14 (13.9 percent) for a year, 11 (10.9 percent) for two years, and 6 (5.9 percent) for one and a half years.

Table 3. Internet Search Experience of Respondents

Total sample N= 101	Search experience	Frequency	Percent	Sex of Respondent (Percent)	
				Male	Female
	< one year	29	28.7	29.9	25
	One year	14	13.9	15.6	8.3
	One and half	6	5.9	6.5	4.2
	Two years	11	10.9	11.7	8.3
	> two years	41	40.6	36.4	54.2
	Total	101	100	100	100

Source: Field data 2005

It was further revealed that students at SUA are taught IT courses starting from their second year. Therefore, there is a potential positive relationship between using the internet and the number of years the student has spent at SUA.

Internet use by students

Most of the respondents in this study indicated that they use the Internet for academic purposes as indicated in Table 4 below.

Table 4. Internet Use by Students

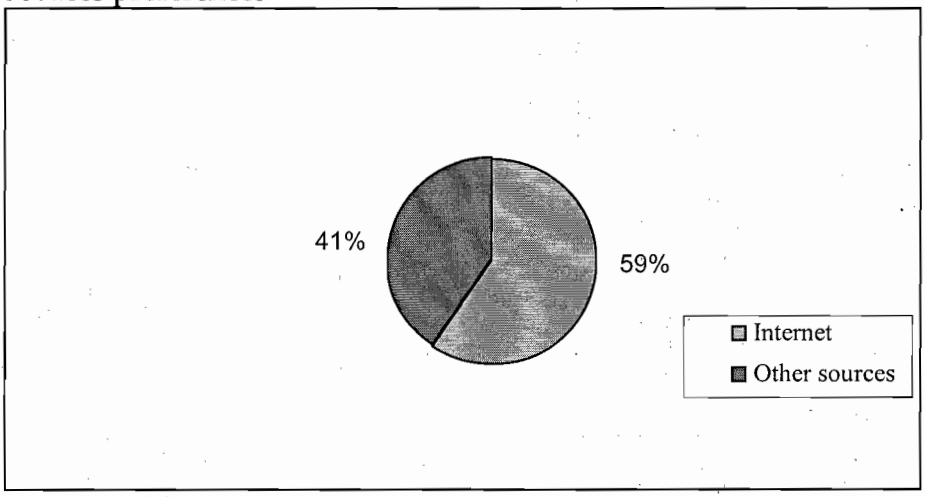
Total sample N= 102	Category	Frequency	Percent
	Searching Online Databases	69	67.6
	Sending E-Mail for Personal Use	57	55.9
	Downloading reference sources	49	48.0
	Sending assignments to the lecturer by E-Mail	28	27.5
	Downloading Software	26	25.5
	Using Internet for Recreation	26	25.5
	Looking for Employment/ related Information	22	21.6
	Total	277	271.6

Source: Field data 2005

Data on Table 4 above show that the majority of respondents 69 (67.6 percent) use the Internet to search for information in online data bases. Fifty seven (55.9 percent) use internet to send E-mail for personal communications, 49 (48.0 percent) download reference sources, 28 (27.5 percent) use it to e-mail assignments to their lecturers, 26 (25.5 percent) to download software, 26 (25.5 percent) for entertainment and 22 (21.6 percent) to search for employment and other carrier related information.

These findings support earlier studies on Internet use by students (Luambano, 2004; Augustino, 2000; Marxen et al., 1999). What is significant about these findings are the changing preference and Internet use patterns. Students realize the value of the Internet in supporting learning and for searching information than E-mail or personal purposes.

Figure 1. Percent distribution of Internet and other Information sources preferences



Source: Field data 2005

The majority of students 58 (59 percent) said they prefer the Internet as opposed to other information sources compared to 40 (40.8 percent) who said they prefer other sources other than Internet.

The reasons given for their preference of the Internet over other sources of information are presented in Table 5 below.

Table 5. Reasons for Internet Preference

Total sample N= 102	Category	Frequency	Percent
	Internet contains current information	42	72.4
	Internet facilitates easy retrieval	36	62.1
	Internet is faster	33	56.9
	Internet is more comprehensive	18	31.0
	Internet is more enjoyable	14	24.1
	Total	143	246.5

Source: Field data 2005.

Students' perceptions of the Internet

Findings indicate a positive perception by students regarding the Internet as a learning tool. Respondents' opinions regarding the usefulness of the Internet in the learning process were found to be positive as revealed by data on Table 6.

Table 6. Perceived Ease of Use of Internet by Students

Total sample N= 101	Category	Strongly agree		Agree		Strongly disagree		Disagree		DON'T KNOW	
		F	%	F	%	F	%	F	%	F	%
	Learning to use the Internet would be easy for me	32	31.7	50	49.5	2	2	4	4	13	12.9
	I would find it easy to use the Internet to do what I want to do	35	35	50	50	2	2	6	6	7	7
	It would be easy for me to become skilful at using the Internet	46	45.5	43	42.6	2	2	4	4	6	5.9
	I would find the Internet easy to use	27	26.7	50	49.5	7	6.9	1	1	17	16.8
	Total	140	138.9	19.3	191.6	13	12.9	15	15	43	42.6

Source: Field data 2005

Past research reports (Ying-Tien, Wu and Chin-Chung, Tsai, 2006; Marxen, et al., 1999) have revealed that students with more Internet experiences tended to express more positive Internet attitudes. Results on Table 7 below reveal that most students perceive the Internet usefulness positively. As observed previously most students involved in the present study at SUA have used the Internet for more than two years. They thus have a fairy good experience which might explain the favourable attitude about the internet. This might provide an explanation for their level of satisfaction and preference of online versus print information resources.

Table 7. Perceived Usefulness of Internet by Students

Total sample N= 101	Category	Strongly agree		Agree		Strongly disagree		Disagree		Neutral	
		F	%	F	%	F	%	F	%	F	%
	Internet improves my performance	28	28	41	41	1	1	9	9	21	21
	Internet is useful for my project	45	45.9	40	40.8	1	1	4	4.1	8	8.2
	Internet enable me to do assignments effectively	48	48	34	34	1	1	3	3	15	15
	Internet enables me to access information other than print sources	53	54.6	37	38.1	2	2.1	2	2.1	3	3.1
	Internet is a critical resource	55	55	41	41	1	1	2	2	3	3
	Total	229	231.5	193	154.9	6	6.1	20	20.2	51	50.3

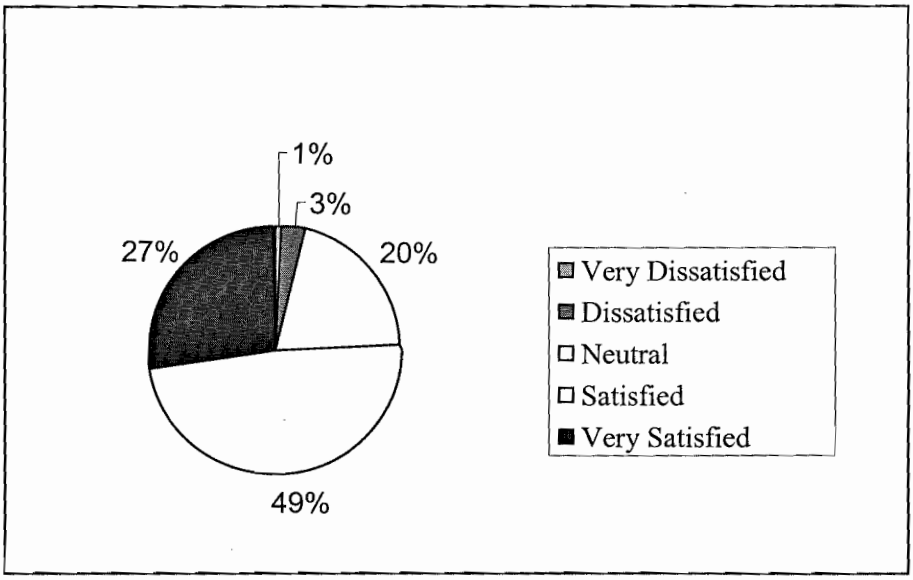
Source: Field data 2005

Level of satisfaction with Internet and print sources

Respondents were asked to rate their level of satisfaction with Internet resources in relation to print resources. As shown in Figure 2 below, almost half of respondents were satisfied with Internet resources, 27% were very satisfied and 3% were very dissatisfied while one percent

was dissatisfied. Twenty percent were neutral and expressed no opinion. The Internet as a communication tool enables students to access course materials, syllabi, online assignments, reference materials et cetera any time, from any location and at their convenience. There is thus a shift from print sources towards online information resources. This shifting paradigm is being perceived differently in the academic community.

Figure 2. Level of Satisfaction with Internet resources



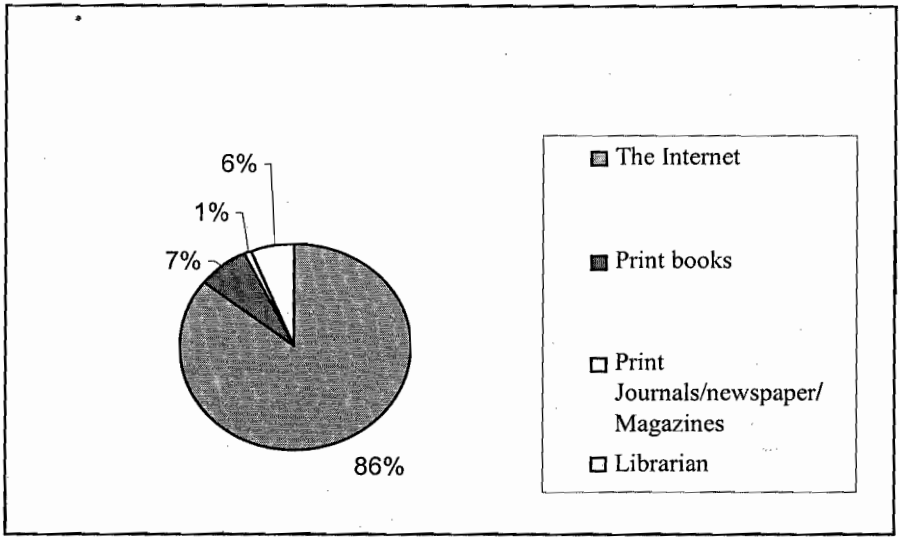
Source: Field data 2005

However students also expressed negative comments on the internet. For example, some of the students observed that downloading speed was slow and there was greater likelihood of retrieving irrelevant materials. This can be attributed to several factors including the embedded images, animation, audio, and (in some cases) video within home pages, as well as due to limited bandwidth. To alleviate this situation, students usually opt for print journals and books to meet assignment deadlines.

Students also reported that they cannot cope with data overload given their academic demands. This however could be explained by inadequate skills in formulating search strategies that would allow them to retrieve only relevant information. The study found no differences in levels of satisfaction between undergraduate and

postgraduate students. The reason for the uniform level of satisfaction between the undergraduate and the postgraduate students indicates that students welcome the accessibility and convenience offered by the Internet and will continue to utilize it in the future.

Figure 3. Format Preference



Source: Field data 2005

In terms of format preference data on Figure 3, show that the majority (86%) reported to prefer Internet resources compared to 7 percent and 6 percent who prefer print books or print journals respectively.

Conclusions

The Internet is increasingly being recognized as a useful tool in the learning process as opposed to earlier studies which found that the Internet was used primarily by students to send personal e-mails. In general students have a positive perception on Internet technology in the university and library in particular. However many of them are lacking in essential skills to use this technology to its fullest potential. In view of this academic institutions should integrate Information Literacy skills in the curriculum to ensure students have the needed skills that would allow them to use Internet resources more effectively. Past studies such as one by Kaczor and Jacobson (1996) support this assertion too.

Recommendations

Findings of this study recommend a proactive approach in establishing Internet training at Sokoine University of Agriculture and other universities in Tanzania. Therefore, it is recommended that the following be done:

The Universities and SUA in particular should incorporate formal training programs in the curriculum on Internet use, Internet searching basics, online database search skills, e-mail document delivery and many other skills.

The University should acquire more computers to expand access to the Internet to more students.

SUA should increase band width to facilitate fast connectivity to the Internet.

Internet connectivity at Solomon Mahlangu Campus should resume as soon as possible so that students and staff residing on campus can access it. That will reduce the current congestion often experienced at the Main University Campus.

The SNAL Library should conduct weekly training sessions to create awareness among undergraduate and postgraduate students on various search tools and search engines to enhance effective retrieval of relevant information. This will however, require a strong support and commitment from the university in terms of increased facilities and resources.

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