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Internet Use Among Academic Librarians in the Universities of Zimbabwe and Zululand

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The purpose of the study was to examine Internet use, trends by academics and librarians at the Universities of Zimbabwe and Zululand, with specific reference to the use of resources for research and teaching. A survey by means of a questionnaire was conducted among the study population at the two institutions. Preliminary results indicate high computer and Internet skills among librarians from both institutions. The results also indicate that e-mail and the Web were used most for work and personal use, while telnet, other library OPACs and electronic journals were used most for work purposes. The study also highlighted rather similar problems facing the two institutions in terms of Internet accessibility. Access was a major concern, due to inadequate provision of computers and the existing connection to the Internet. Inadequate training in the use of Internet resources and lack of awareness among academics and other potential users were also highlighted. Despite these problems, the study revealed that there is a great potential for Internet use and appreciation among academic librarians and users in the two institutions. This paper reports on findings received from librarians; a report on both librarians and academics will appear in a future publication.

Introduction and background

The Internet has been described as the "premier network of networks", as "everyone's computers connected" or, most graphically, as an "unmanaged web of computer plasma" (Bane & Milheim 1995, 1).

The origin of the Internet is normally associated with the United States Department of Defence Advanced Research Projects Agency (ARPA) or DARPA, the Department of Advanced Research Projects and their concern about the possible effects of a nuclear attack on its computing facilities (Perry & Schneider 1999, WEB 1.7). Lazinger et al. (1997, 508) divides studies on the use of the Internet in research in three categories: firstly, studies on Internet use by information professionals; secondly, studies on Internet use by the general population and, finally, studies on Internet use among college or university faculty members such as that conducted in Australia (Applebee et al. 2000). Another important category that needs to be listed is the student category. While some studies have covered all aspects of the Internet, others have highlighted its individual aspects. For example, studies by Bell (1997) and Harter (1998) focus on electronic journals, while Johnston (2001, 3) looks at the implications of "e-learning" for the custodians of the information resources required to support teaching and learning among other studies. Abdoulaye & Majid (2000) look at use of the Internet for reference services in Malaysian academic libraries, concluding that the Internet has contributed positively to reference work although it could not completely replace traditional reference tools. Scholarly communication has been

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a major beneficiary of Internet development both in terms of finding resources and communicating results. As Neuman (2000, 462) points out, searching a vast quantity of information electronically has always been easier than manual search and the Internet greatly expands the amount and variety of source materials. Zhang (2001), Garoufallou (1999) and Bell (1997) have shown that among academics, there was consistent evidence of the use of e-mail, the World Wide Web and discussion groups in order to communicate and disseminate research results. Studies by Bell (1997), Harter and Kim (1996), and Harter (1998) indicate a positive development among academics towards greater acceptance of electronic publishing and electronic journals.

African scholars and their institutions have been embracing these new technological developments either through their individual efforts or through participating in regional and international projects. The International Network for the Availability of Scientific Publications (INASP) and Continuing Education: Libraries and the Internet (CELI) funded by INASP and the Swedish International Development Agency (SIDA) respectively are two such projects that have supported the introduction of Internet resources in academic libraries in Africa. The potential role and use of the Internet in providing information services for both research and study in South Africa's tertiary institutions are no longer debatable issues (Mgobozi and Ocholla 2002, Kaniki 1999). In Kaniki's study, the author looked at the Internet usage among professional academic librarians of the Universities of Durban-Westville, Natal and Zululand. Unlike studies such as that reported by Ocholla (1999) on information seeking behaviour of academics, the study looks at, among other things, resource usage of the Internet and online databases for research and teaching purposes. Current literature largely, covers studies in Europe, Australia, Israel and the United States. This study, however, looks at the role of the Internet in teaching and research in the African context, with specific reference to the Universities of Zimbabwe and Zululand.

The University of Zimbabwe has ten faculties (Agriculture, Arts, Commerce, Education, Engineering, Law, Medicine, Science, Social Studies and Veterinary Science). There are 1268 academic posts, of which only 944 are filled. The current student enrolment stands at 10,500. The University Library consists of the main library and six branch libraries, five of which are on the main campus. These are the Law Library, the Map Library, the Education Library, the Veterinary Science Library and the Institute of Development Studies Library. The sixth is the Medical Library, which is housed at the Medical School at the Parirenyatwa Hospital complex, about 8 km off the main campus.

The main library contains about 75% of the total collection of nearly 510,000 volumes. The library has a staff complement of 92, of whom 26 are professional librarians and three are professionals in the library's information technology (IT) division – one information and communications technology (ICT) manager and two systems analysts. The library is automated, using the INNOPAC library management system. Retrospective conversion of records is currently a major exercise for the main library and its branches. Other modules like Acquisitions, Serials and Circulation are being implemented. A Web-based OPAC is available (http://uzlibsys.uz.ac.zw) with access to subject gateways.

The University of Zimbabwe provides computing services to students and staff through computer labs in the Computer Centre, departmental labs, the library, and administrative offices. The Computer Centre is responsible for the network infrastructure and computer labs, although it does not have direct control of some of the departmental labs. The university as an institution is an Internet service provider and pays lower rates than commercial services. The Internet access bandwidth was 512 Kbps, upgraded to 2 MB in March 2002. All labs in the Computer Centre have access to email and the Internet. Approximately 2 100 workstations are connected to the Internet in the whole university system. The University of Zimbabwe Library can be accessed on the Internet (http://uzlibsys.uz.ac.zw/).

The University of Zululand Library grew from an initial collection of over 6000 (University of Zululand Calendar 1978, as cited by Biyela 1988, 39) to the current 250,000 volumes. There is a staff complement of 33, of which 13 are professional librarians, including subject librarians (University of Zululand 2000a). The library is fully automated, using the URICA integrated system. Recent developments have been a Web-based OPAC and

access to online databases via Sabinet, Nexus and EbscoHost. The library can be accessed on the Internet (http://www.uzulu.ac.za/library). The University of Zululand provides computer services to staff and students in different locations on campus. The Network Services Unit is responsible for the overall computing services, which include computer labs, Internet access and network infrastructure. The university also has a strategic partnership with Hewlett Packard (South Africa), established in 2000 with the donation of equipment for two labs with several Pentium III500, 64MB RAM, 19-inch monitor computers, plus a server room containing NetServer LH4, two NetServer E60s and a management server (University of Zululand 2000c). Computing facilities are found in five students' labs, administrative staff offices and subject librarians' offices. Developments in the library should, however, see two labs with a capacity of 80 PCs operational in the near future.

The university has a 128 Kbps access to the Internet via the TENET/Uninet hub router located at the University of Natal. This is due to be replaced with 786 Kbps access to the TENEX/SAIX backbone (University of Zululand 2000b). All staff members have their own e-mail address and access to the Internet. While all students used to have access to an email address, access to the Internet was subject to usage quotas based on traffic volumes and time-of-day discounts. Students were given a usage quota per registered module that required use of the Internet. This changed when the university offered Internet access to all registered students as from August 2002, on a prepaid "pay as you go" system.

Methodology

Both qualitative and quantitative approaches were used in the study. The survey method was largely used in this research. Questionnaires, interviews, observation and existing records were employed for data collection within both institutions. Only professional librarians were included in the study: 10 from the University of Zululand and 26 from the University of Zimbabwe. Questionnaires were distributed and collected through colleagues in both institutions. Interviews were conducted with IT personnel in the libraries and university computing services in order to solicit their views on, and the institutional policies for, use of the Internet in the two universities. It was also observed that libraries created records with information, which can be analysed. This information includes searches conducted through online databases by either librarians or users. This information is important for establishing the use trends of the different resources covered in this study. These were analysed for both two universities. The study was also supported by existing statistics. Periodic reports (daily, weekly, monthly and annual) produced in libraries provide valuable statistics for such research. These include the total number of users by service in the library, e.g. Internet users or trends of users and issues by subject. Automated library systems like INNOPAC provide various statistical options for the use of library resources. In order to ensure that data collected was valid and reliable, the research instrument (the questionnaire) was pre-tested in the pilot study. Validity is concerned with the soundness and effectiveness of measuring instruments (Leedy 1997, 32). The necessary amendments and changes were made before going into the field. Opinions were also sought from colleagues on how best the questions could be designed. With regard to institutional information available on the university's web pages, its validity was cross-checked during interviews and through the use of printed sources (annual reports and calendars) and data from academic registry offices. Data were organised according to specified categories to establish the total number of returned questionnaires. The SAS System and Microsoft Excel were used to analyse quantitative data. Non-quantitative data were analysed by means of qualitative techniques.

Results and discussions

This research has investigated Internet use and trends among academic librarians and also looked at problems librarians experience and the recommendations they propose for effective Internet accessibility.

The respondents provided information on institutional affiliation, designation, qualifications, department and length of service in the library. The overall response rate on institutional affiliation was 25 (69%), including nine (90%) from UZ and 16 (74%) from UZim. Analysis by Depart-

Table 1: Internet services used and purpose

Services	Work purpose				Personal use				Work & Personal				Never				Total			
	Uzimb		Unizul		Uzimb		Unizul		Uzimb		Unizul		Uzimb		Unizul		Uzimb		Unizul	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
E-mail	1	6	3	33	1	6	-	-	14	88	6	67	-	-	-	-	16	100	9	100
World-Wide-Web	4	25	4	44	-	-	-	-	12	75	5	56	-	-	-	-	16	100	9	100
Telnet	13	81	6	67	-	-	-	-	1	6	1	11	2	13	2	22	16	100	9	100
File transfer Protocol	8	50	5	56	2	13	-	-	3	19	2	22	3	19	2	22	16	100	9	100
Discussion lists/newsgroups	5	31	3	33	1	6	-	-	7	44	1	11	3	19	5	56	16	100	9	100
Other Library OPACs	13	81	7	78	-	-	-	-	3	19	2	22	-	-	-	-	16	100	9	100
Electronic journals	11	68	6	67	2	13	-	-	3	19	3	33	-	-	-	-	16	100	9	100
Others, please specify	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

mental affiliation indicates that all the major departments of the two libraries were represented. The highest responses were from faculty/subject librarians in both institutions, with three (34%) for UZ and four (25%) for UZim. Coming to the length of service in the library, it emerged that the majority of respondents held their current positions for less than five years, with 10 (67%) UZim respondents and seven (88%) from UZ. Four categories of qualifications emerged from the survey: a Master's or honours in Library (and Information) Science, a bachelor degree in Library and Information Science (LIS) or a postgraduate diploma in LIS and an undergraduate diploma. Majority of the respondents (62.5%) had honours in LIS at UZ, which is equivalent to the first year of a master's degree, or had either a degree in LIS or a postgraduate diploma in LIS (63%) in the case of the University of Zimbabwe. Less than 25% of the respondents in both institutions had obtained masters qualification. The authors established that the gender composition of the population under study was in favour of female (68%) staff as against eight (32%) male respondents.

The study revealed that all the librarians in the sample had access to a computer and the Internet from their offices. Some 6% and 11% had access at home in addition to at the office. Librarians' use of the Internet was therefore generally restricted to the time they were in their offices when they were also performing other duties. However, the respondents showed a great deal of computer and Internet skills, with none indicating "poor" skills. The majority, 75% (UZim) and 78% (UZ), have learnt Internet use through self-study. In-house courses seem to have played a significant role in skills development. Length of use (e.g. 68%) of the Internet could also have contributed to the high level of skills. These results undoubtedly show that the librarians were experienced both in terms of computer and Internet skills, which were necessary in assisting users.

E-mail was the most-used service for "work and personal use" (see Table 1).

These observations concur with earlier studies (Garoufallou 1999) on Greek academic libraries. Telnet, "other library OPACs" and electronic journals were used most for work purposes (see Table 2).

Librarians, especially those who performed cataloguing duties, frequently connected to remote databases in order to download records. With automated library systems, original cataloguing is becoming insignificant. This could be the major reason for the high level of use of telnet and other library catalogues.

EbscoHost and AVU, followed by the Library of Congress, were used most by UZim respondents, while Sabinet, FirstSearch and EbscoHost were used most by UZ librarians (Table 3).

Disparities in the use of databases mostly depend on who is funding and the availability. For example, EbscoHost and AVU are donor-supported at the University of Zimbabwe, while in South Africa, EbscoHost is government subsidised. While Sabinet is a locally available database in South Africa, Zimbabwean institutions wanting access require additional funds for subscriptions.

The results indicate that both libraries have access to near sufficient sources of electronic information, in both abstracts and full text. Subject-based information gateways were not popular among librarians from the University of Zululand, as shown by the responses in Table 4.

Table 2: Frequency of use of Internet services

	Daily				Weekly				Monthly				Sometimes				Never				Total			
	Uzimb		Unizul		Uzimb		Unizul		Uzimb		Unizul		Uzimb		Unizul		Uzimb		Unizul		Uzimb		Unizul	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
E-mail	16	100	9	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	100	9	100
World-Wide-Web	16	100	9	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	100	9	100
Telnet	2	13	5	56	5	31	1	11	-	-	-	-	7	44	1	11	2	13	2	22	16	100	9	100
File transfer Protocol	1	6	1	11	5	31	1	11	2	13	-	-	5	31	5	56	3	19	2	22	16	100	9	100
Discussion lists/ newsgroups	4	25	-	-	4	25	1	11	-	-	-	-	5	31	3	33	3	19	5	56	16	100	9	100
Other Library OPACs	6	38	3	33	6	38	1	11	-	-	1	11	4	25	4	44	-	-	-	-	16	100	9	100
Electronic journals	3	19	3	33	5	31	3	33	3	19	-	-	5	31	3	33	-	-	-	-	16	100	9	100
Others, please specify	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-

Table 3: Online databases used

Database/Host	Frequency					
	Univ. of Zimbabwe (N = 16)		Univ. of Zululand (N = 9)		Overall total (N = 25)	
	N	**%**	**N**	**%**	**N**	**%**
EbscoHost**	16	100	9	100	25	100
Sabinet	4	25	8	89	24	96
First-Search	3	19	8	89	11	44
Africa Virtual University (AVU)**	16	100			16	64
LISA	1	6			1	4
DATAD	2	13			2	8
Britannica	1	6			1	4
AJOL**	4	25			4	16
Cab Abstracts	1	6			1	4
National Library of Medicine	2	13			2	8
World Health Organisation	1	6			1	4
Medical student.com**	1	6			1	4
Eric	1	6			1	4
Ingenta**	3	19			3	13
Synergy**	1	6			1	4
Library of Congress Catalogues	8	50			8	32
PERI**	2	13			2	8
Butterworth law**	1	6			1	4
Nexus			2	22	2	8
Emerald**			3	33	3	12
OCLC			1	11	1	4
INCH			1	11	1	4
SA Media & Govt Gazettes**			1	11	1	4

** Denotes full text and abstracts.

Only one respondent indicated using gateways from professional organisations. By contrast, librarians from the University of Zimbabwe used subject gateways, mainly because they are available and can be accessed via the library's OPAC.

The creation and use of subject gateways have also been the focus of in-house courses. Subject gateways provide a more specific and focused starting point when searching the Internet. As the name suggests, these gateways are subject ori-

Table 4: Other electronic resources used

Resource	Institution				Location (URL)
	Univ. of Zimbabwe (N = 8)		Univ. of Zululand (N = 1)		
	N	%	N	%	
Sosig	6	75			http://www.sosig.ac.uk
Edlis	1	13			http://www.nt1.ids.ac.uk/edlis
Agrigate	1	13			http://www.agrigate.edu.au
Agrifor	1	13			http://agrifor.ac.uk
Engineering Science	1	13			http://www.eevl.ac.uk
Humbl	1	13			http://www.humbl.ac.uk
Lawlinks	1	13			http://library.ukc.ac.uk/library/lawlinks
Bubllink	1	14			http://www.bubl.ac.uk/link
Pinakes	4	50			http://www.hw.ac.uk/lib/
Omni	2	25			http://omni.ac.uk
Other (professional organisations)			1	100	

Table 5: Search engines used

Search engine	Frequency					
	University of Zimbabwe (N = 16)		University of Zululand (N = 8)		Overall total (N = 24)	
	N	%	N	%	N	%
Google	16	100	6	75	22	92
AltaVista	9	56	3	38	12	50
Yahoo	7	44	3	38	10	42
Dogpile	2	13	2	25	4	17
Northern Light	3	19	1	13	4	17
Lycos	3	19	1	13	4	17
Hotbot	3	19	2	25	5	21
Excite	3	19	1	13	4	17
Infoseek	2	13			2	8
Aardvark			1	13	1	4
Jeeves			1	13	1	4
Metacrawler	3	19	1	13	4	17

ented. Given that users at the two universities have less time on the Internet due to a lack of computers and other factors, subject gateways provide a positive alternative. Librarians could therefore play a meaningful role, but only if they start using the resource themselves. There was also a clear indication of the use of search engines by the librarians, as shown in Table 5.

Google and Yahoo were the most popular, used by 92% of the respondents (100% UZim and 75% UZ).

The Internet has had a significant impact on librarians and the way in which they carry out their duties. This is evident, firstly, from their preference in answering reference queries – 69% UZim and 55% UZ librarians preferred the Internet to printed sources. Secondly, the Internet had changed the way in which librarians handled different tasks, saving on time. This ranged from performing reference duties to communicating with colleagues and lecturers. The availability of resources has necessitated librarians to provide current awareness activities in keeping users abreast of new sources and other developments. This was being done through a variety of methods, including the use of electronic media, e-mail and Internet tutorials, some of them contributing towards students' term papers. Information literacy programmes were also offered, as was evident from responses from both institutions.

Factors affecting Internet use were similar at the two universities, despite the geographical difference. Training was considered inadequate both among librarians and the academic users. More training programmes in the Internet and computer use were required. Secondly, Internet facilities

were seen as too few to sustain the increased demands from Internet users. Some of the available PCs were too old to support certain computer software and Internet files. This was made more difficult by the speed of the Internet, which was considered too slow. Librarians called for rigorous marketing of Internet services to the academic community, but the cost of maintaining subscriptions and licence fees was seen as a major hindrance. University managers were called upon to realise the importance of Internet resources in the education system by allocating adequate funds to this end.

Conclusions

Due to financial constraints on resource support, experiences by both institutions show that the popularisation of Internet resources can be achieved through individual, institutional, government and international support. Experiences of such support, e.g. EbscoHost, AVU and INASP subsidies, are encouraging examples. An extended version of this paper can be accessed at the URL: http://www.dissanet.com.

Note

The original version of this paper was presented at the Dissanet/ProLISSA 2 Conference in Pretoria on 24–26 October 2002.

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