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Utilisation of Communities of Practice in the Humanities at the Universities of KwaZulu-Natal Zululand, South Africa

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Abstract

Higher education institutions need to value and nurture the knowledge of, and support social interactions among, academics if they are to maintain a competitive edge. The utilization of communities of practice is one strategy that may be used to foster social interaction and enhance performance of an institution through collaboration and knowledge sharing. A study was conducted to establish the extent to which communities of practice were defined and utilised to facilitate the sharing of knowledge among academics in the humanities at the University of KwaZulu-Natal and the University of Zululand. Questionnaires, focus groups and a semi-structured interview were used to collect data. The study revealed that some academics at the two institutions utilised communities of practice to share knowledge. Lack of support from the institutions and organizational culture prevented some academics from belonging to communities of practice. The study also established that both institutions did not have a policy on communities of practice.

Keywords

Communities of practice, higher education institutions, knowledge management, knowledge communities

Introduction and Background

Higher education institutions (HEIs) world-wide are expected to address national needs and problems. The quality of knowledge generated within HEIs is becoming increasingly critical to national goals (Brennam and Shah, 2000; Welsh Higher Education and Economic Development Task and Finishing Group, 2004). However, HEIs are confronted with many changes and challenges driven by the unprecedented global, social and economic forces of the knowledge economy (Guruz, 2003; UNESCO, 2004). These changes and challenges are, in one way or another, motivating HEIs to rethink the ways in which they operate and do business. In turn, academics in HEIs are being challenged by their institutions to share good practice and continuously learn to improve the quality and content of their knowledge.

Organisations have found that it is the expertise,

know-how and skills of their staff that give them the edge to succeed in highly complex and demanding environments (Van Wyk, 2005). Knowledge is considered as a key resource that can enable organisations, including academic institutions, to enhance performance. There has always been increasing pressure on academic staff to keep up with new trends and developments within their fields of specialisation and to become more knowledgeable and creative (Abrahams and Melody, 2004). Thus, the knowledge that academic staff possess needs to be nurtured and valued, because it is through paying attention to their collective knowledge that institutions of higher learning can improve their teaching, research and community service.

Communities of Practice (CoPs) have been defined as self-organising groups of people connected by a shared interest in a task, problem, job or practice (O'Hara, Alani and Shadbolt, 2002). CoPs may create an environment conducive to the transfer and sharing of tacit knowledge among individuals in an institution through social interaction (Denning, 2000; Hildreth and Kimble, 2004; Hildreth, Kimble and Wright, 2000; Maponya, 2005; Mosia and Ngulube, 2005). Knowledge is embodied, embedded, encultured and encoded, to use Blackler's (1995) terms, and its transfer is largely through social interaction and learning among individuals. Put differently, CoPs constitute the foundation of knowledge management because it is through them that knowledge is created and turned into action (Smith and McKeen, 2003). Knowledge communities are probably one of the best practical means of developing and leveraging tacit knowledge, and many commentators see them as a way forward (Sallis and Jones, 2002). That partly explains why CoPs are increasingly becoming popular in many organisations. Organisations can decide on which CoPs to develop and nurture after identifying them and determining their scope and vision.

Ever since the concept of CoPs was first proposed by Jean Lave and Etienne Wenger (Lave and Wenger, 1991), it has attracted a lot of interest from organisations and academics alike. Many organisations have made CoPs a key component of their KM strategy (Hildreth and Kimble, 2004) because they regard them as a means of developing social capital, nurturing new knowledge, stimulating innovation and sharing knowledge within an organisation (King, 2002; Tight, 2004; Wenger, 1998a). If the importance of CoPs is accepted, it then becomes crucial for institutions of higher learning to create, support and sustain an environment that would encourage academics to have a shared vision and build mutual relationships and partnerships, for instance around issues of teaching, research and community service across departments, schools and faculties. It is the view of Wenger (1998a) that "knowing what others know, what they can do, and how they can contribute is key to improving performance among individuals and the institution."

Nature and Benefits of Communities of Practice

A Community of Practice (CoP) is seen as a group of people with a common interest who work together informally in a responsible, independent way to promote learning, solve problems or develop new ideas (Storck and Hill, 2000; Wenger and Snyder, 2000). For the purpose of this discussion, CoPs will be described as groups of like-minded people who regularly work together, developing collective knowledge and shared "sense making" of what they do and how they do it (Weick, 1979 cited in Mosia and Ngulube, 2005). In communities of practice, knowledge is often shared through what Hildreth, Kimble and Wright (1998) referred to as an "apprenticeship system", that is, through shared practice and situated learning. Many organisations support and develop CoPs as part of their KM strategy due to the benefits they provide in facilitating knowledge processes such as knowledge creation, transfer, sharing and dissemination.

The foregoing characterisation of CoPs distinguishes them from teams. CoPs are different from teams in that they are informal and voluntary, and they are not initiated by the organisation's management. CoPs function outside formal organisational boundaries and hierarchies (Smith and McKeen, 2003). On the other hand, teams are formed at the behest of the organisation in order to accomplish given tasks, and their life span does not normally go beyond a given project. Informal networks that develop in most organisations should not be confused with CoPs, as they have different characteristics (Allee, 2000; Wenger, McDermott and Snyder, 2002). According to these authors, members of informal networks collect and pass information as compared to CoPs that build and exchange knowledge. Furthermore, informal

networks comprise friends and business acquaintances with mutual interests, whereas members of CoPs are self-selected volunteers who identify with a subject matter and a given expertise (see Wenger, 1998b).

CoPs can confer immense benefits to individuals or organisations. Some of the benefits that have been highlighted include (Fontaine and Millen, 2004; Hislop, 2005; Lesser and Storck, 2001; Newell et al., 2002; Smith and McKeen, 2003):

- improving the performance of organisations;
- helping organisations to develop new ideas;
- fostering innovation in organisations; that is, knowledge is exchanged and combined in new ways;
- encouraging and facilitating learning, collaboration and knowledge-sharing within organisations;
- increasing and developing social capital among individuals;
- finding and locating best practices in organisations;
- increasing individual skill and know-how;
- improving the exchange and flow of knowledge in an organisation;
- improving the individual's sense of belonging in organisations; and
- sharing of expertise and knowledge between members.

Communities of Practice in Higher Education Institutions

As explained above, CoPs have the potential of enhancing performance and stimulating growth and innovation. In that regard, CoPs have been widely used by many organisations and higher education institutions worldwide (King, 2002; Hildreth, Kimble and Wright, 1998). There are a number of CoPs that have been formed within the context of higher education. For instance, Illinois State University formed CoPs to foster scholarship of teaching and learning (Illinois State University, 2005). Another instance where a CoP has been established is at Rockhurst University, where a CoP is concerned with mentoring new academics (Rockhurst University, 2005). In addition, the University Continuing Education Association in the United States formed thirteen CoPs organised around a professional function or critical issue of quality assurance (University Continuing Education Association, 2006). The members of the CoPs are concerned with evaluating programmes and preparing for accreditation.

In the case of South Africa, there are a few examples of CoPs in higher education institutions, but only two cases are discussed here for illustrative purposes. There is a collaborative project that involves the Cape Peninsula University of Technology, the Western Cape Education Development, the University of York, the University of Cape Town, and a number of schools in the Cape Town area called Critical Research and Development. The project members formed a CoP in which educators, curriculum developers, researchers and educator advisors work together to provide educators with the skills and insights necessary for them to develop their learners. The focus of this CoP is the shared responsibilities for the development of learning and teaching materials to support critical thinking in educators (Cape Peninsula University of Technology, 2006). Academics at the University of KwaZulu-Natal (UKZN) within the School of Sociology and Social Studies formed the Writing Initiative to Support Academics (WISA) (Maponya, 2006). WISA was initiated by academics in 2005 as a community of practice to support each other in terms of writing and publishing research articles. WISA enables academics to share their experiences and ideas on ways to get articles published in reputable journals.

Some groupings that exist in the institutions of higher learning in South Africa are not labelled as "communities of practice", but they do have characteristics of CoPs. Some groupings or forums that already exist can be transformed or supplemented to establish communities of practice if they are identified and clearly defined.

Research Objectives

The present study aimed at identifying and establishing the extent to which communities of practice were defined and utilised within higher education institutions to advance teaching, research and community service. Despite the growing body of research on CoPs, little is known about how CoPs

are utilised in the humanities disciplines in South African universities. Unlike their counterparts in the natural sciences, humanities scholars tend to be loners and they work in isolation (Katz, 2007; Rieder, n. d). Research collaborations, knowledge-sharing, intellectual debate and exchange are limited in the humanities. In that regard, this study chose the humanities for investigation to find out if there was structured or unstructured collaboration between researchers in the humanities through the utilisation of communities of practice. The study focused on the humanities at the University of Kwazulu-Natal (UKZN) and the University of Zululand (Unizul) as a case study. To address the central research problem, the following questions were formulated:

- Do communities of practice exist within the humanities at the two institutions? If so, how are they defined and utilised?
- What role do communities of practice play within the humanities at the two institutions?
- Are they recognised and supported within various levels of the institution?
- How can communities of practice be fostered in the humanities?

Data Collection Methods

This section presents the research story. The assumption is that the production of valid knowledge hinges upon the method of research used (Ngulube, 2005). However, many researchers have tended to focus on the findings and implications of their studies without giving details of the methods used (Hernon and Schwartz, 2002). The consumers of the research products have a right to know how the study was conducted.

Using the survey research design, this study assessed the extent to which communities of practice were defined and utilised within higher education institutions to foster learning and facilitate the sharing of knowledge among academics in the humanities at UKZN and Unizul. The study used questionnaires, focus groups and a semi-structured interview as data collection methods. The use of two or more methods in a single study is called triangulation (Aina, 2002; Babbie and Mouton, 2001; Botes, 2003; Kelly, 1999). The rationale for using multiple methods is that, although no single method is perfect, if different methods lead to the same answer, then greater confidence can be placed in the validity of the conclusions (Ngulube, 2005). The use of questionnaires in conjunction with interviews was identified as useful methods of gathering data on knowledge management activities in organisations (Webb, 1998).

The study population comprised 442 academics in the humanities at UKZN and 114 at Unizul. The humanities were defined as those branches of knowledge that concern themselves with human beings and their culture (New Encyclopaedia Britannica, 2005). A sample of the population was studied. The academic staff databases at the two institutions constituted the sampling frame for the study. Proportional stratified sampling was used to ensure that each institution was equally represented according to its population of academic staff as advised by Leedy and Ormrod (2005).

The survey data should be treated with some caution. The sample that was studied was quite small as a result of a low response rate of 33%. According to Babbie and Mouton (2001), the consensus in survey research was that a response rate of 50% was considered adequate for analysis, while 60% was good and 70% was considered to be very good. However, authorities are not agreed on what constitutes an adequate response rate. Shipman (1997) argued that, although Hite (1994) used a response rate of 4.5% in his study, the normal figure is between 20% and 30%. On the other hand, Payne and Payne (2004) pointed out that the typical response rate for self-completion surveys was 33%. Our response rate was within the margins stipulated by the literature.

The fact that the characteristics of the respondents who participated in the study resembled those of the original sample provided confidence in analysing the data to make some generalisations of the findings. The fact that the data from the questionnaire was corroborated by data from interviews also provided more confidence that the recommendations of the study were going to be sound and reasonable. Item non-response was not observed in the current study.

Data from the questionnaires was supplemented by focus group discussions and an interview. Focus

groups discussions were considered important for this study, in order to obtain shared viewpoints on issues related to communities of practice, their formation and the way they were understood and used in academia. Focus group participants were purposely selected based on their experiences and involvement in communities of practice. Two focus group interviews were conducted: one at Unizul, and the other at the Pietermaritzburg campus of UKZN. Each focus group comprised 10 participants as advised in the literature (Krueger, 1994; Mosia and Ngulube, 2005), with each discussion lasting about one and half hours.

A semi-structured interview was conducted with the Deputy Vice- Chancellor (DVC) for Research, Knowledge Production and Partnerships at UKZN, to get his views on communities of practice in institutions of higher learning. An initially planned interview with the Research Director at Unizul had to be abandoned because she was on sabbatical leave.

Results and Discussion

This section presents the major findings of the study. Results from data collection procedures were treated in aggregate, as the data collection tools complemented each other. The combined results gave the researchers an insight into the extent to which communities of practice were defined and utilised in the humanities at UKZN and Unizul.

Understanding of Communities of Practice

Communities of practice are described as a "network of people who share a common interest in a specific area of knowledge or competence and are willing to work and learn together over a period of time to develop and share that knowledge" (Wenger and Snyder, 2000). Only 24 (46.2%) respondents at UKZN and seven (18.4%) at Unizul understood a CoP 'correctly' as a "group of people with common interest" (Table 1).

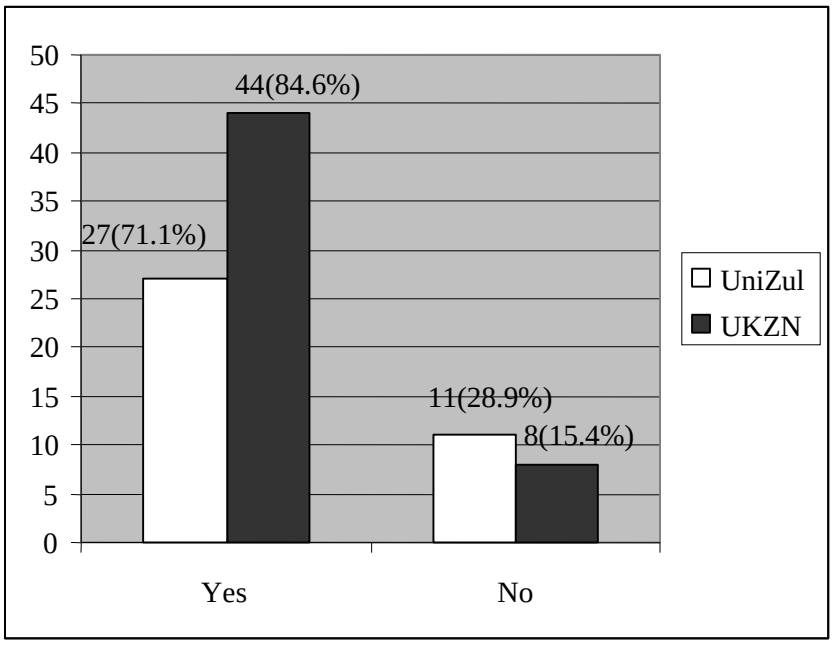
Table 1 shows further that about 10% and 20% of the respondents from Unizul and UKZN respectively considered CoPs to be support groups, a notion that can probably be reconciled with the notion of a group set up to pursue a common interest. Furthermore, nearly 90% of the respondents from Unizul understood or perceived CoPs as groups comprising 'academics in a team set up to accomplish a task', and as many as 25% of those from UKZN shared the same viewpoint. It can be argued that this task-oriented understanding of CoPs is related to the 'common interest' view, and experiences gained as task group members. However, one may also argue that there is a fundamental difference between 'a common interest' that may persist and motivate a group over a long period of time and 'a task' that may drive a group for only a short period. Finally, it is also clear from the table that very few respondents (7.9% and 7.7% from Unizul and UKZN respectively) considered CoPs to be merely social groups (which often have common interests) or as groups wherein members have 'respect for each another'.

The above results show that the concept of CoPs was understood differently and variously by the respondents. The focus group discussions also revealed that there were a number of CoPs at both institutions, but that they were defined differently. This is not surprising, however. In fact, Wenger (1998b) argued that "Communities of Practice are everywhere." What may differ is the way people define and utilise them.

Table 1: Definitions of Communities of Practice by the Respondents

Participation in Communities of Practice

The researchers defined to the respondents what a community of practice was and asked them if they belonged to a community of practice both within and



outside the organisation. Most respondents at UKZN and Unizul indicated that they belonged to communities of practice. Figure 1 depicts the results.

Figure 1: Respondents Participating in Communities of Practice.

Wenger, McDermott and Snyder (2002) provided a five-stage framework that may be used for determining the level of growth and evolution of CoPs (see CoP levels of maturity, Lee and Neff, 2004). The five stages that represent the lifecycle of a CoP are potential, coalescing, maturing, stewardship and transformation. The formation of the community occurs at Stage 1 (potential) and Stage 2 (coalescing). At this point, the scope of the domain of interest to the members is defined, common ground is established, the value of sharing domain knowledge is recognised and trust to discuss practice problems is developed. Integration takes place during Stage 3 (maturing) and Stage 4 (stewardship). The boundary of the community is defined, and the community establishes a unique identity and gets recognition from the organisation. The transformation of the community happens at Stage 5. At this point, some communities disappear or split into distinct communities or merge with others, or become fully recognized as part of the organisation (Chua, 2002).

Data from focus group discussions at both institutions was used to gauge the level of growth of the existing CoPs using the lifecycle of a CoP framework of Wenger, McDermott and Snyder (2002). It is evident that most CoPs at the two institutions were between Stage 1 and Stage 2 because some of them did not have names. That means they were still working towards establishing common ground and building relationships. Focus group participants also highlighted that they lacked space to build social networks, and that institutional support was limited. Most social networks were at the level of a discipline. Participants at both institutions indicated that they were reluctant to share knowledge or to participate in communities of practice because of the system and organizational culture that promoted individualism.

The semi-structured interview with the Deputy Vice-Chancellor (DVC) for Research, Knowledge Production and Partnerships at UKZN, which covered institutional policy on communities of practice, support of academics by the institutions and forms of support, knowledge sharing and means of sharing knowledge made available to academics, confirmed the results of the focus group discussions. The interview also revealed that the university did not have a policy on CoPs. One wonders how CoPs may develop and get defined if the organisation is not fully committed to them. Indeed, at Unizul, focus group participants indicated that CoPs needed to be cultivated by designing a policy on communities of practice. Information on Unizul policy issues relating to CoPs was not available, as the Research Director was on sabbatical leave.

The literature reveals that CoPs can take different forms depending on the structure of an organisation (Wenger, 1998a; Van Wyk, 2005). At UKZN, most respondents 27 (51.9%) indicated that they belonged to CoPs within their institution; whereas at Unizul, 13 (34.2%) respondents indicated that they belonged to CoPs outside their organisation. Six (11.5%) respondents at UKZN indicated that they belonged to CoPs both within and outside the

organisation.

Although CoPs can function within an organisational unit, they can span across organisational units, or even span different companies or organisations (Wenger, 1998a; Van Wyk, 2005). Effective CoPs are generally restricted to a certain locality (Teigland and Wasko, 2006). That is the case because members of a CoP continually communicate directly in face-to-face situations, and their knowledge sharing processes involve mutual engagement, collaboration, and sharing stories and experiences. The use of information and communication technologies such as electronic mail and the Internet has witnessed the emergence of virtual communities of practice. It is more difficult to establish relationships and develop trust in a virtual space than in face-to-face circumstances. Thus, the effectiveness of virtual communities of practice as a knowledge sharing mechanism remains to be seen. It is our contention that "warm bodies" establish better social networks through face-to-face contact than technology-based interaction. The focus group discussions revealed that the majority of the participants preferred a face-to face mode of interaction to a technology-based one.

Purposes and Value of Communities of Practice

Communities of practice are powerful both for sharing and achieving organisational results (Allee, 2000). As discussed above, they provide employees with a sense of belonging to the organisation and a collective social context in which they can develop and utilise their knowledge in serving the organisation. Furthermore, Hislop (2005) pointed out that CoPs provide a vital source of innovation in the organisations. In that regard, it was important to find out the purpose of CoPs that the respondents belonged to.

Twenty four (46.2%) respondents at UKZN and 17 (44.7%) at Unizul indicated that the purpose of their CoPs was to improve their research outputs. Table 2 presents the rest of the results. The fact that the observed total value on the utility of CoPs to the organisation and individual is lower than the expected total may seem to suggest that the respondents did not perceive CoPs as valuable, but the difference between the observed and the expected values may be partly explained by the fact that some respondents were not familiar with CoPs and were not aware of the benefits of belonging to a CoP.

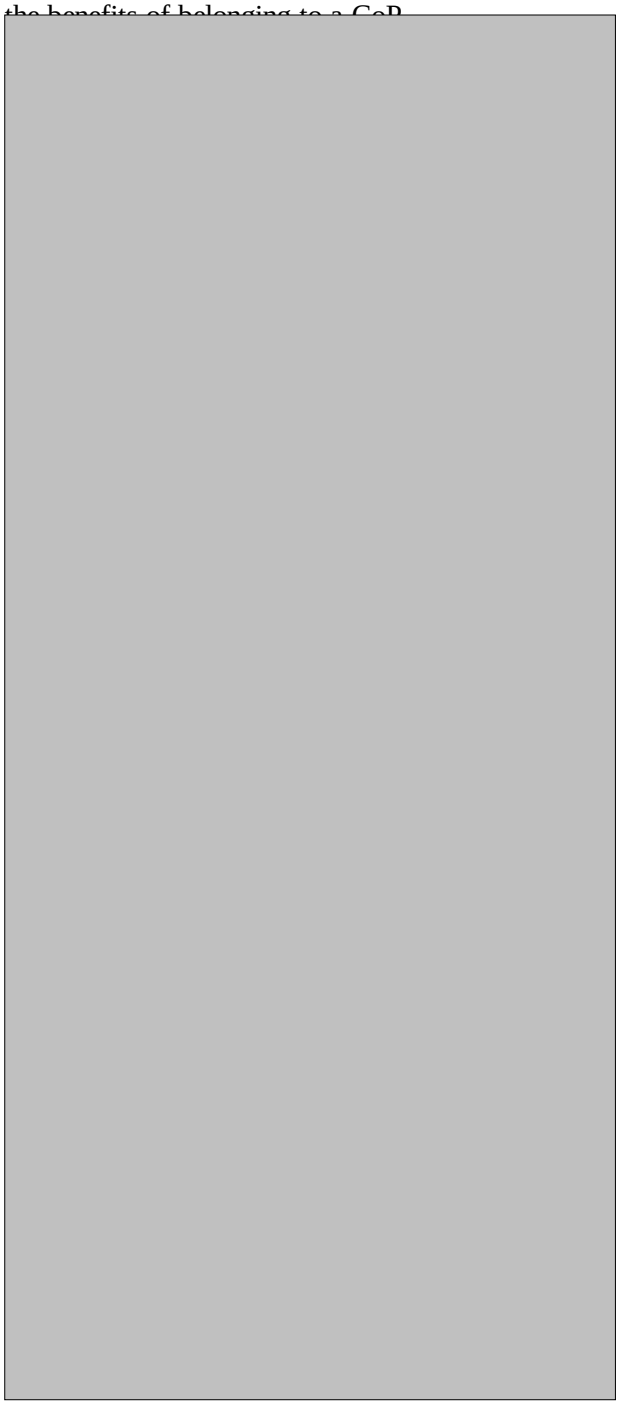


Table 2: Purposes and Value of Communities of Practice

The literature shows that communities of practice provide value for the organisation in which

they operate, the community and the individuals that are part of them (Fontaine and Millen, 2004). The researchers wanted to discover the value of these communities to the two universities under study, the respondents and the communities they belonged to. In order to identify these values, respondents were asked if they had benefited from belonging to a CoP.

Although the results given in Table 2 do not seem to be positive, it is evident that among other things the respondents gained new knowledge and skills by belonging to CoPs. The literature has also demonstrated that belonging to a CoP is beneficial. Fontaine and Millen (2004) conducted a study of 10 global organisations in 2001 and 2002 and discovered that individuals gained from participating in CoPs as they helped them to perform the organisational tasks more easily, and individuals were useful to the communities they belonged to.

The study also wanted to find out if these CoPs were work-related. Respondents were asked about the issues they discussed in their CoPs. Most respondents at UKZN 36 (69.2%) and Unizul 29 (76.3%) indicated that they discussed issues relating to how to conduct research and how to improve research outputs. This confirms that although they only indicated the individual's benefits, the institutions were also benefiting from their involvement in CoPs. For instance, if research outputs were increased the institution would gain recognition and financial support from the Department of Education. The results confirmed that the CoPs were a source of competitive advantage and a source of learning at the two institutions because academics shared knowledge around work-related issues or a specific practice (Brown and Duguid, 2000; Teigland and Wasko, 2006).

Institutional Promotion of Communities of Practice

Management needs to understand CoPs and foster their development. According to Wenger and Snyder (2000), "Although Communities of Practice are fundamentally informal and self-organising, they benefit from cultivation." CoPs need to be cultivated rather than to be controlled (Newell *et al*., 2002). Management facilitation is, "the first factor of a viable CoP" (Frost and Schoen, 2004). The majority of the respondents at UKZN 50 (96.2%) and Unizul 37 (97.4%) thought that CoPs need to be cultivated and promoted. Management should facilitate CoPs' activities without creating formal management structures to support them. The first step is for management to determine the communities that need to be developed and sustained. The CoPs that add value to the activities of an organisation should receive the first priority. Activities such as workshops, conferences and a shared space in the virtual platform may facilitate the cultivation and sustainability of CoPs. The results on ways that the respondents thought needed to be adopted by their institutions in order to cultivate and support CoPs are summarised in Table 3.

Table 3: Ways of Cultivating and Supporting Communities of Practice

The respondents were requested to suggest ways that they thought the institutions could foster CoPs and encourage learning and sharing of knowledge. Most respondents at Unizul felt that CoPs could be fostered if the institution designed a policy on CoPs. At UKZN, most respondents indicated that the work that CoPs were doing needs to be valued by the organisation. Not a single respondent at UKZN indicated that the institution needed to design a policy on CoPs, although it seems that the absence of policy for CoPs partly explained why the work of CoPs was not highly regarded at the institution.

Most participants claimed that they were involved in CoPs, and that their CoPs met face-to-face and used e-mails and the Internet to

communicate. However, they indicated that there were no platforms for knowledge sharing in their institutions, as they were only supported by their departments. The results also showed that some participants were reluctant to share knowledge because of the organisational culture. They stated that the organisational culture encouraged individualism, as people were rewarded individually.

Conclusions and Recommendations

The survey of academic staff in the humanities at UKZN and Unizul, the focus group discussions and the interviews with the DVC at UKZN resulted in several significant findings. Some respondents at the two institutions had an understanding of CoPs. Some respondents at both institutions indicated that they gained new knowledge and new skills by belonging to communities of practice. The literature reveals that newly gained skills can assist individuals to do their work with ease in the organisations and communities.

Almost all respondents at UKZN 50 (96.2%) and Unizul 37 (97.4%) felt that communities of practice need to be cultivated and promoted. Focus group discussions at Unizul revealed that communities of practice may be fostered if the institution designed a policy. At UKZN 15 (28.8%) indicated that the work that communities of practice were doing needed to be valued by the organization. Further, heavy workloads, family responsibilities, lack of support from the institution and time constraints limited the participation of academics in CoPs at the two institutions. Both institutions should support communities of practice by recognising the work they are doing, giving members the time to participate in activities and by creating an environment in which the value communities bring is acknowledged. Limited resources and organisational support and workload pressure were also identified by Garnett and Pelser (2007) as organisational barriers to creativity in South African institutions of higher education. The study found that neither UKZN nor Unizul had a policy on communities of practice; that academics were not rewarded for belonging to communities of practice; and that most CoPs existed at discipline level. Thus, one of the major constraints that inhibited academics from participating in CoPs was that both universities did not encourage knowledge sharing and collaboration.

The findings of this study support the following recommendations. Both universities need to cultivate and support CoPs in order to enhance their institutional productivity and competitive edge. Both institutions should draft a policy on communities of practice. Such policy should aim to provide incentives for participation in communities of practice by academics, and recognise and reward such participation in performance evaluation. Academics should also be encouraged to form inter-disciplinary CoPs. Finally, there is need for strategies to transform university institutions, culture and policies in the two universities, in order to encourage knowledge-sharing amongst academics in the country. Other HEIs in South Africa and elsewhere should take a cue from the findings and recommendations of this study and promote CoPs to enhance their institutional performance and innovation.

During this study, certain areas were identified that can provide opportunities for further research. Firstly, the emergence of communities of practice and knowledge sharing in higher education institutions (HEIs) is a relatively recent development, which is expected to evolve quickly over time. Due to this, and also because of the low response rate experienced in this study, it is suggested that a follow-up study be done at either or both universities after a few years. Secondly, other faculties or institutions than those covered by this study may have different perspectives and experiences on communities of practice. It is suggested, therefore, that similar studies should be considered for other faculties in the surveyed universities, or in other HEIs in the country. Thirdly, studies of the nature and effectiveness of inter-disciplinary or technology-based CoPs may also be useful.

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Author Collaboration and Productivity at the University of Zambia, 2002-2007

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Abstract

This paper is an informetric analysis of 220 papers published by academic faculty at the University of Zambia from 2002 to June 2007, downloaded from the Thomson Scientific database. The papers were analysed for authorship patterns and collaboration. The highest number of papers published in a year was 63 in 2006. The average number of publications per year was 36.7, and the highest collaboration coefficient of 0.91 was found in the year 2004. The degree of collaboration varied from one discipline to another. Collaboration was more intensified in the applied sciences. Fifty-four countries collaborated with UNZA faculty in research. The top ten most collaborating countries were USA, England, Japan, Belgium, South Africa, Zimbabwe, Denmark, Norway, Australia, and Sweden. The results confirm that the patterns of collaboration between UNZA researchers and foreign researchers fit the Lotka Law of distribution. The study also established a positive relationship between author productivity and author collaboration. The more collaborative an author is, the more productive that author is. Finally, the study observed a growing collaboration between University of Zambia researchers and other researchers in the Southern African universities.

Keywords

Collaboration, co-authorship, research productivity, universities, Lotka's law, Zambia

Introduction

The University of Zambia (UNZA), established in 1965 by an Act of Parliament, is the largest public university in Zambia. It has nine schools, namely: Agriculture, Education, Mines, Natural Sciences, Engineering, Humanities and Social Sciences, Veterinary Medicine, and Medicine. It also has two directorates and a research institute: the Directorate of Distance Education, the Directorate of Research and Graduate Studies, and the Institute of Economic and Social Research. The University offers both undergraduate and graduate programmes.

Like most universities the world over, UNZA places emphasis on research and publishing, and a long term vision of UNZA has been to be a centre of excellence in research and graduate programmes that would greatly contribute to the dissemination of new knowledge in Zambia. In turn, academics at UNZA are increasingly getting more involved in collaborative research and publishing in local and international journals.

An important research issue in this regard is the nature of the current and evolving patterns of collaborative research and publishing by academics at UNZA. Accordingly, the main objective of this study is to assess the level of partnerships between University of Zambia authors and other scholars in the other institutions in Zambia and abroad.

The specific objectives of this study are to:

1. identify the level of publication productivity of academic faculty at the university.

2. determine levels of collaboration between UNZA and other authors of the publications.
3. determine whether a relationship exists between author collaboration and productivity.
4. verify if Lotka's Law of author productivity applies to Zambian publications.

Literature Review

Lotka's Law of Author Productivity

Lotka investigated the literature output of a sample of chemists, and found that the number of authors who had published a specific number of papers was approximately equal to the inverse square of that number multiplied by the number of authors who had published one paper only, that is:

$$f(n) = \frac{c}{n^{\alpha}}$$

where $f(n)$ denotes the number of authors with n publications (Egghe, 2005). More generally, $f(n)$ can denote the number of sources (authors, journals, word types, etc.) with n items (publications, articles, word occurrences, respectively). C, $\alpha > 0$ are constants. Hence, the equation is a decreasing power law. A purely illustrative example: if 1,000 authors published one paper each on a subject, then c.250 published two papers each, c.111 published three papers each, and so on.

The law has been found to be robust and universal in its applicability, extending beyond the world of scholarly publishing to even describe the productivity of software developers in open source systems (Newby, Greenberg and Jones, 2003). With the isolated exception of a study on Dutch high-energy physics (Kretschmer and Rousseau, 2001), where typically more than 100 authors are recorded on each paper, Lotka's law appears to be a highly resilient and structural feature of intellectual productivity across many different fields.

There is good evidence that frequency of publication correlates significantly with frequency of citation and professional reputation (Merton, 1988); and that being part of a stimulating, privileged intellectual environment is a necessary condition for being productive. This line of argument stresses that, independent of talent, authors require the right conditions to become productive: they need the confidence that feeds on success, access to research grants, freedom from teaching and administration, the esteem of their peers, access to specialist equipment, the stimulation of teams of fellow researchers, and a supportive and well managed research culture (David, 1994; Bozeman and Lee, 2003). These resources are all in scarce supply, and because publishing itself carries certain rewards (like credibility, standing), then there is a virtuous circle whereby these necessary resources flow disproportionately to those that publish more. But since competition for resources is so tough, only a few manage to break away from the rest of the pack.

Collaboration and Collaborative Coefficient

Multiple-authorship is widely considered as an indication of research collaboration. The underlying assumption is that the authors involved carried out the research leading to the paper in collaboration. Furthermore, author collaboration can be regarded as an indication of communication among scientists. The research process includes active communication among scientists through conversation, exchange of ideas through e-mail and letters, sharing equipment, writing articles, communicating research results or information, co-publishing, and joint-presentation of papers at conferences and seminars.

Collaboration is a significant factor in scholarly productivity. Just as the format of publication and the number of publications vary by discipline, so do collaborations and co-authorships (Bordons and Gomez, 2000; Meadows, 1998). Solo research is the norm in some disciplines, particularly in the humanities and in mathematics, while collaborative research is typical of most scientific disciplines.

Informetric studies of collaboration generally conclude that the amount of collaboration between scholars, as evidenced by the number of co-authors, is growing, and that the degree of collaboration continues to vary greatly by field (Arunachalam, 2000; Bordons and Gomez, 2000; Meadows, 1998; Pao, 1992; Russell, 2000). Borgman and Furner (2001) observe that the reasons for the growth in collaboration are many. One is the increasing specialization within disciplines such that multiple partners are often needed to tackle complex research

problems. Another is economics, given the need to amortize expensive laboratory equipment, computers, data, and other resources across multiple researchers and projects. Yet, another is sources of funding that encourage larger projects (Bordons and Gomez, 2000). Higher rates of collaboration are usually associated with higher productivity, although counts will vary based on the method of allocating authorship (e.g. one credit for each publication vs partial credit based on number of authors, etc.).

Yitzhaki (1990) observes that the phenomenon of multiple authorship has drawn a considerable amount of attention among students of the sociology of science. De Solla Price (1963) states that the phenomenon of collaborative authorship has been increasing steadily and ever more rapidly since the beginning of the century. He notes that more than 80% of all papers published in 1900 had a single author, and predicted that, at the then current rate, the single author paper would be extinct by 1980.

Hou, Kretschmer and Liu (2006) report that since the pioneering work of De Solla Price (1963) and Beaver and Rosen (1978, 1979a, 1979b), a large number of scholars have stressed different forms and roles of scientific collaboration in different scientific fields. Glanzel (2002) and Kretschmer (2004) observe that the investigations of these researches were at micro level (individuals), meso level (institutions), and macro level (countries).

Subramanyam (1983) reported that collaboration has been found to affect the visibility and productivity of scientists. He also argues that the degree of collaboration varies from one discipline to another. It is high in the scientific and technical fields, but low in the humanities. The degree of collaboration was also found to be discipline-based. Stankiewicz (1976) observed that the propensity to work in groups seems to reflect the intrinsic requirements of the research process for Swedish scientists. Stankiewicz's study indicated the frequency of group membership was highest in the rapidly developing fields such as physics, chemistry and molecular biology. In these fields, more than 90% of the scientists were group members. Group frequency was lower in fields such as biology, geography and engineering. Smart and Bayer (1986) and Bayer and Smart (1988) similarly proposed that collaboration is most common in "data disciplines" such as physics or chemistry. Collaboration is less widely practised in "word disciplines" such as sociology or political science, and is rare in fields such as philosophy or literature.

The results of collaboration can be measured in terms of co-authored works. A scientific document is co-authored if it has more than one author. It is institutionally co-authored if it has more than one author address. Other types of outputs as a result of collaboration are patents and personal contacts. Data on co-authored articles can be obtained from bibliographic database, especially the *Science Citation Index* and *Social Science Citation Index*. The types of analysis usually comprise aggregating co-authored works based on countries, cities, organizations, individuals or groups (Melin and Persson, 1996).

Lawani (1972) has introduced the term collaborative index to describe the average number of authors per paper for a given set of papers. He states that the greater the collaborative index of a set of papers, the higher the proportion of quality papers in that set. Therefore, the collaborative index can be used to measure the quality in the aggregate. Collaborative coefficient is a simple indicator that is used to measure the collaborative research patterns of a given institution (Subramanyam, 1983). It is the number of collaborative papers divided by total number of papers. This measure does not take into account the number of co-authors per paper.

Methodology

Collaboration on a research project involves immediate and detailed communication of information. Collaborative research typically results in the publication of works that list authors from the various institutions involved. The researcher used data on the institutional affiliations of authors of the articles published in the journals indexed in the Thomson Scientific databases to describe collaborative activity. The data of each document includes author names, title, abstract, date, document type, addresses, and cited references. Author names were standardised because some authors may report their names differently in different papers. Each author was identified by his or her surname and first initial only. The following parameters were used in this study: Lotka's Law of author productivity and Collaborative Coefficient.

Findings

Collaboration and Collaboration Coefficient

Figure 1 and Tables 1 and 2 present the year wise publication productivity, authorship pattern (single and multi-author), publication productivity, collaboration trend among researchers, and cumulative growth of publications. The degree of collaboration varied from year to year. There were altogether 669 researchers who published 220 publications retrieved from the Thomson Scientific Indexes. Four hundred and forty-three (66.22%) were foreign authors, while 226 (33.78%) were UNZA authors. Table 1 reveals that 15% of the articles were of single authorship; 9.09% of the articles involved 2 authors; 10.0% were written by 3 authors; 11.82% by 4 authors; and the remaining 54.09% were written by more than 4 authors.

It is obvious that between 2002 and 2004, there has been an almost consistent, and sometimes sharp, increase in the proportion of multiple authored papers, from about 50% to 91%. The proportion of single authorship oscillated from 9.38% to 18.91% during the period under study. These results demonstrate very clearly that there has been a definite trend towards multiple authorship in publishing at the University of Zambia between 2002 and 2004. This is reflected in the proportion of single-authored papers among the total amount of the papers published.

The study indicates that collaboration within UNZA, internal co-authorship, was very minimal. Out of the 220 publications, UNZA researchers only collaborated amongst themselves in 14 publications. Eleven of these publications involved two authors per publication, while three publications involved three authors per publication.

To measure the collaborative research pattern, a simple indicator called collaborative coefficient (number of collaborative papers divided by total number of papers), (Subramanyam, 1983) is used. This measure does not take into account the number of co-authors per paper. Using Subramanyam's (1983) measure, we may say that the "ratio of collaboration" rose from 50% in 2002 to 85% in 2007.

Table 1: Number of Authors per Publication at UNZA 2002-2007

Figures in brackets are column percentages.

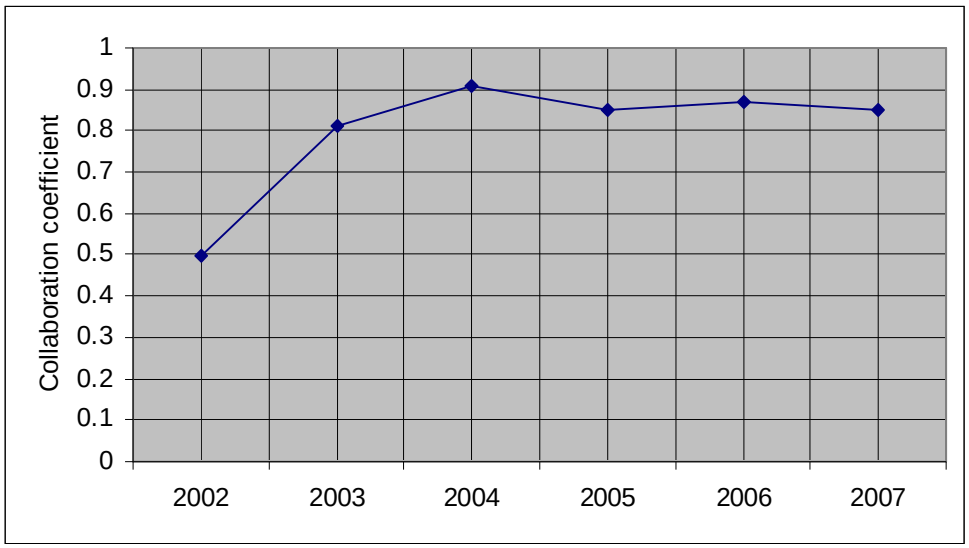


Fig. 1: Collaboration Coefficient of UNZA Researchers 2002-2007

There was a general increase from 2002 to 2004, and thereafter the collaboration coefficient tended to vary with a slight decline. The collaboration coefficient ranged from 0.50 and 0.91. The highest collaboration coefficient was 0.91 found in the year 2004. However, the general authorship trend is towards multi-authored papers. These findings are in conformity with earlier findings of several researchers such as De Solla Price (1963), Gupta and Karisiddappa (2000), and Kademani et al. (2005, 2006), who have conducted several studies in various disciplines, which show a trend towards multi-authorship papers.

Table 2 presents domain-wise authorship pattern and domain-wise collaboration coefficient. It is evident that the degree of collaboration varies from

Table 2: Number of Authors per Publication by Subject Category 2002-2007

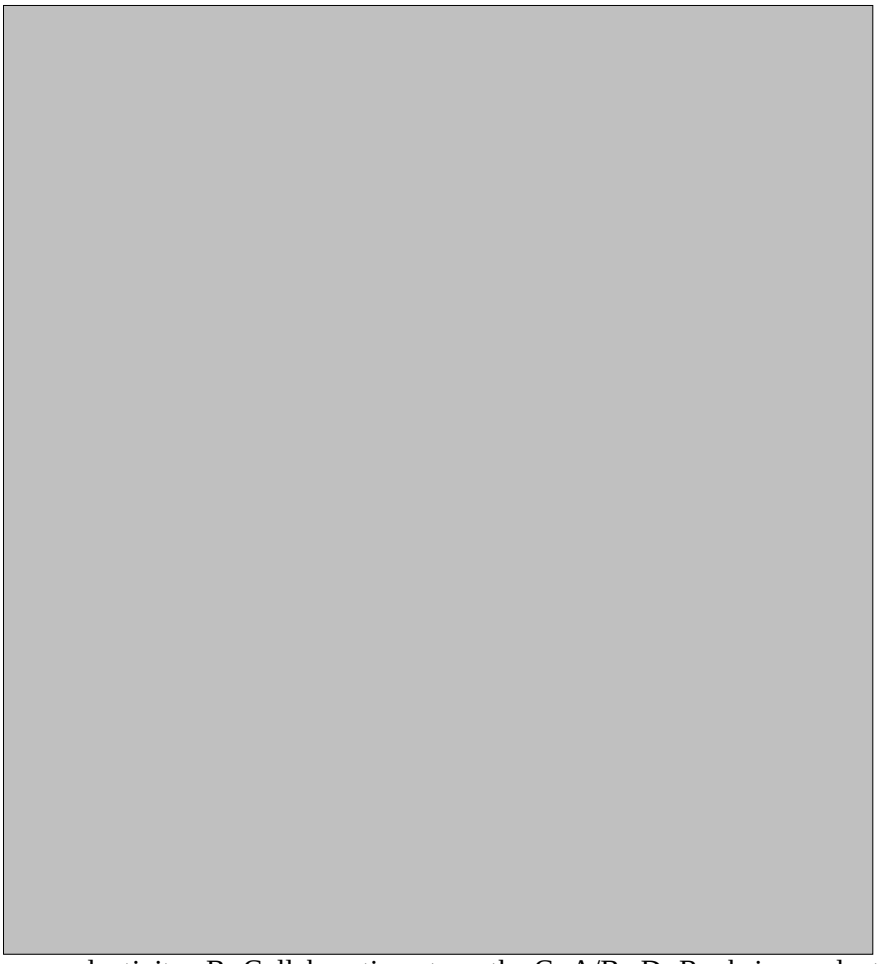
one discipline to another. However, the results above indicate that collaboration trend is more intensified in Medicine, Veterinary Medicine, Mines and Agricultural Sciences. It is generally low in Humanities and Social Sciences, Engineering,and Natural Sciences. The findings generally agree with Koganuramah, Angadi and Kademani's (2002) observation that collaboration coefficient is generally high in the intensely collaborative scientific and technical fields, but low in the humanities in which the lone scholar, working without the trapping of "big science", still produces much of the scholarly literature.

Relationship between Collaboration and Productivity

Further analyses were conducted to determine if there was any relationship between collaboration and author productivity. Table 3 summarises the data on the productivity of the most productive authors in relation to their collaborative strength. The collaborative strength of each author was calculated by counting the number of papers written with other authors in the data. The findings reveal that the most productive authors were also the most collaborative, i.e. their ranks tallied. All the three most productive authors, Moses Sinkala, I.K. Phiri, and C. Kankasa, were also the most collaborative authors, as they had all their publications jointly written with other authors.

Figure 2 shows that there is a positive relationship between author productivity and author collaboration. In order to assess the degree of association (correlation) between the variables, Pearson Product Moment Correlation Co-efficient was used. The resulting coefficient correlation of 0.97 (critical value is $p<0.01$) revealed a statistically

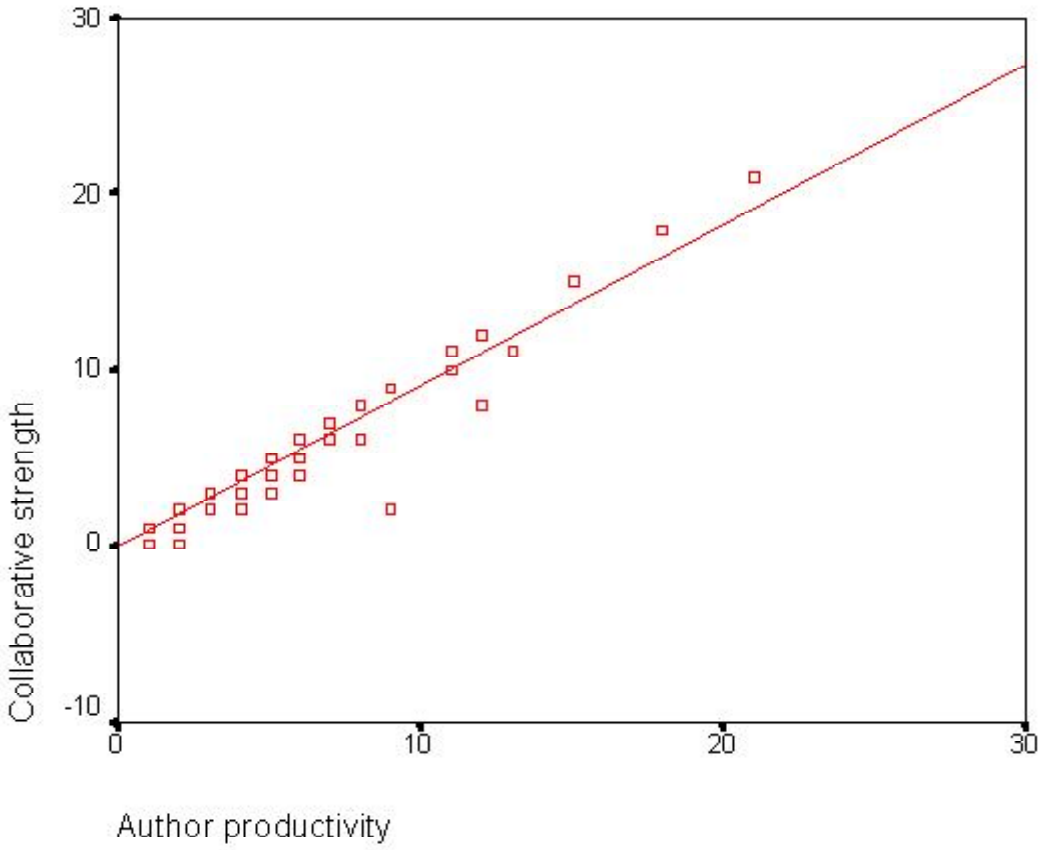
Table 3: Author Productivity versus Collaborative Strength



Key: A=Author productivity; B=Collaborative strength; C=A/B; D=Rank in productivity; E=Rank in collaboration

significant linear relationship between these two variables such that the more collaborative an author is, the more productive he or she is. These findings agree with the findings of Oyeniyi and Bozimo (2004), who observed that there was a positive correlation between author productivity and collaboration among authors of sorghum literature in Nigeria.

(4.56%). European countries comprised 34.33% of the collaborating partners. United States of America alone contributed 34.72% of the collaborating partners. There were 16 African countries that collaborated with UNZA researchers to publish articles. Two of these African countries (i.e. South Africa and Zimbabwe, ranking 5 and 6 respectively)



** Correlation is significant at the 0.01 level (2-tailed).

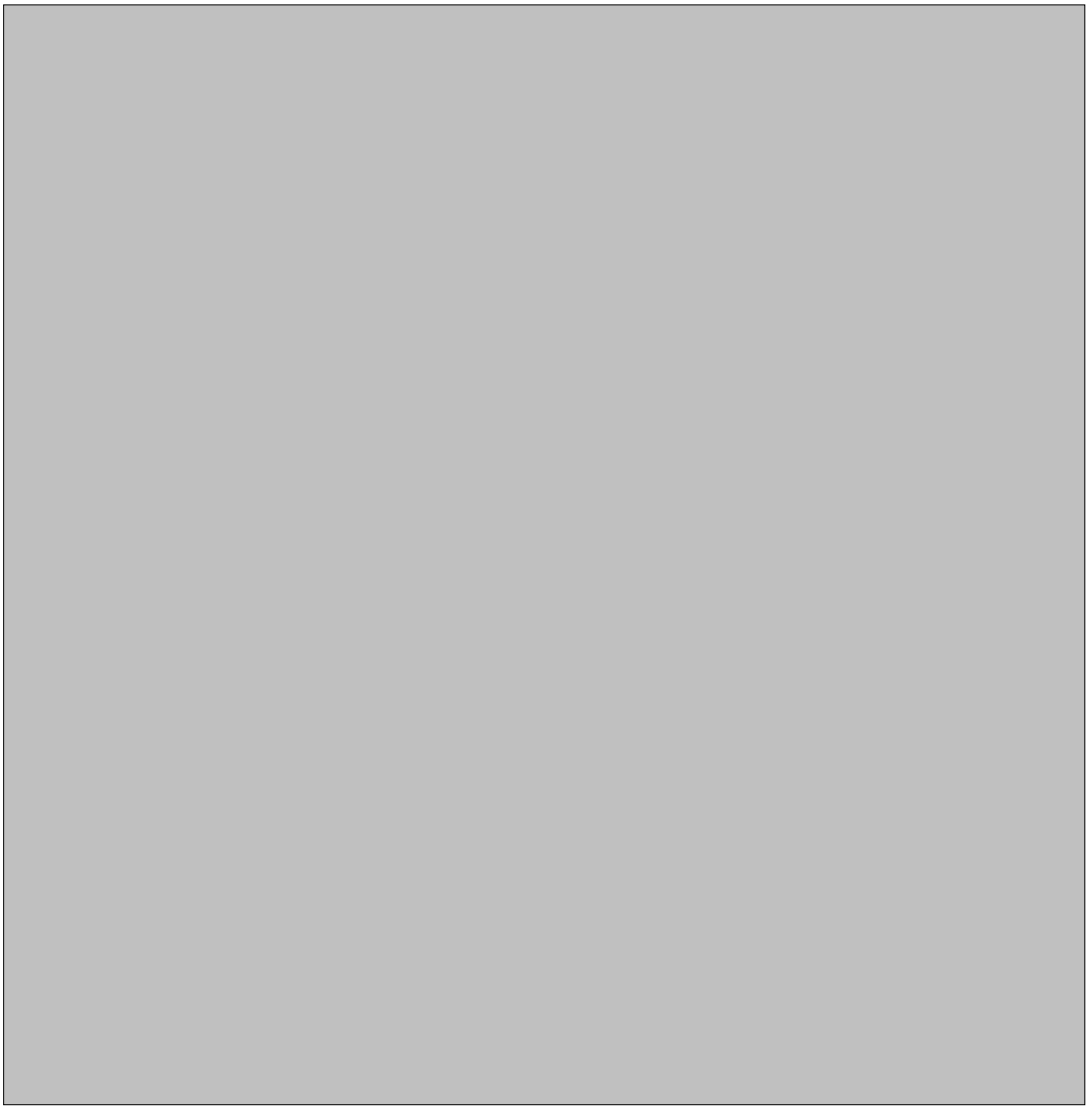
Fig. 2: Correlation between Collaboration and Productivity

Origin of Foreign Researchers Collaborating with UNZA Researchers

The origin of the foreign researchers collaborating with the University of Zambia in research and publishing is summarized in Table 4. Fifty-four countries collaborated with UNZA faculty in research. The top five most collaborating countries were USA (34.72%), England (11.11%), Japan (6.15%), Belgium (5.16%), and South Africa

are among the top ten most important collaborating partners. These findings suggest that there is a growing collaboration among UNZA scientists and the other scientists in the neighbouring countries. These findings show that journals represent a major outlet for disseminating collaborative research involving both UNZA researchers and researchers in developing and developed countries.

Table 4: Distribution of Collaborating Authors by Country



These findings seem to agree with Jacobs' (2001) observation that prestige, both personal and institutional, is considered an important aspect in research productivity. The above findings clearly indicate that scientists from developed countries collaborated with UNZA researchers more than scientists from other less developed countries. Although productivity is not directly proportional to the funding in all cases, there are reasons to believe that funding plays a major role in the overall productivity of the scientists, especially in the case of scientists in universities of developing countries like Zambia. An increased cooperation between national and international cooperation has opened doors to newer horizons for research and publication. Furthermore, collaboration can therefore be linked to universities with better and more expensive equipment. The findings of this study seem to agree with an unpublished study by Hirsch and Singleton, quoted by Yitzhaki and Ben-Tamar (1990), who observed that the prevalence of multiple authorship is closely related to the amount of financial support - government, foundation, or private - given to the research producing these papers. Furthermore, Subramanyam and Stephens (1982) argue that teams of researchers have a greater "pulling power" than individual ones in attracting external funding for research. Patel (1973) found a direct relationship between funded articles and multi-authorship. Heffner (1981) found that financial support for

research is associated with an increase in the total number of persons involved in the production of knowledge per journal article.

Validation of Lotka's Law

Lotka's law was fitted to the author productivity data, and the results were C = 0.4334 and á = 1.5921 (see details below). Lotka predicts that about 59% of the sources would produce one item.

C-Value: 0.4334

α : 1.5921

These results confirm that the patterns of collaboration between UNZA researchers and foreign researchers fit the Lotka's Law of distribution.

Implications of the Findings

The findings of this study have implications for library management. For instance, the increase in author-collaboration may lead to increased information needs. Consequently, libraries may have to purchase wide range of both local and foreign journals to meet the increasing needs of the authors. Local researchers have opportunities to publish in foreign journals, and this in turn may increase the number of journal titles required. Studying the relationships between the geographic distribution of authors and the journals they cite may help librarians to determine the geographic scope of influence of these journals. An increase in collaboration between Zambian and international researchers has opened doors to newer horizons for research and publication, and this has a corresponding effect on library and information resources and services. Finally, by collaborating with researchers in other institutions, local researchers have opportunities to have access to information resources in other institutions, and this in turn may reduce their dependence on local library resources.

Conclusion

This paper has attempted to analyze the University of Zambia academic faculty's research productivity during 2002-2007, downloaded from the Thomson databases (the Web of Knowledge). A noticeable increase in the number of multiple authored publications was observed, though at a somewhat slower pace than that predicted by De Solla Price (1963). Generally, single-authored publications seemed to fluctuate between 8 and 3 publications per year. Multiple-authored publications were significant in Veterinary Medicine (95.0%), Medicine (95.0%), and Mines (91.0%). The study has also established a positive relationship between author productivity and author collaboration. The more collaborative an author is, the more productive that author is. Finally, the study has observed a growing collaboration between University of Zambia researchers and other researchers in the Southern African universities.

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Information Needs and Seeking Behaviour of Nurses at the University College Hospital, Ibadan, Nigeria

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Abstract

The study investigated the information needs and seeking behaviour of nurses at the University College Hospital, Ibadan, Nigeria's first and largest teaching hospital. Using a questionnaire, data were collected from 240 nurses selected randomly from a population of 1,046. The questionnaire assessed the types of information needed by the nurses, how they met these needs, and the perceived relevance, availability and accessibility of the information sources. Almost all the nurses (94.0%) searched for information in order to improve their knowledge, while only 28.5% reported searching for information for patient care purposes. Colleagues topped the list of information sources most regularly used (88.1%), although only 59.3% reported finding the source adequate. The nurses reported lack of access as a major inhibitor of their use of the sources, and suggested that establishing information centres/libraries and enhancing their computer literacy skills would ameliorate their information-seeking problems. The study recommends that the hospital management should liaise with the library of the adjacent College of Medicine of the University of Ibadan to design appropriate information literacy and information and communication technology training programmes to improve the nurses' information seeking behaviour and use.

Keywords

Information sources, information needs, information seeking behaviour; nurses, Nigeria

Introduction

The assessment of the information needs and seeking behaviour of various professionals, such as nurses, is essential for assisting them to access and use information resources required for optimal work performance (Oyewo, 2006). Nurses constitute the majority of a hospital's clinical employees, and they are also the most frequently consulted resource persons in the health care system. Nurses are responsible for not only implementing physicians and surgeons' clinical orders or prescriptions, but also for maintaining a constant surveillance over their patients' health. Nurses care for the sick and provide them assistance with physical and psychosocial needs, until they achieve stability, regain their previous state of wellness, or achieve a new level of functioning. Nurses also gather and transmit information from patients and the patients' families to other health care providers, and sometimes serve as liaison resource persons between the patients and the patients' families. In addition, hospital nurses are responsible for coordinating all care activities for patients in their care. Information is therefore a very crucial tool for

nurses, and how they acquire and use the information are key determinants of their performance. This recognition underpins nurses' need for access to useful information and the necessary skills for using such information. Like most other professions, the information needs and seeking behaviour of nurses have been in a constant state of flux over the years, due to both rapid developments in the field, as well as the emergence of new information technologies (Corcoran-Perry and Graves, 1990).

Formal training of nurses started in Nigeria in 1957 at the University College Ibadan before its transformation to University of Ibadan in 1962. By the turn of the century, the institution had trained over 6000 nurses (Imomon, 2001). Akinyemi (2006) observed, however, that most of what is known about nurses' information practices comes from developed countries, and that most of the identifiable studies on information access and seeking practices of medical professionals in Nigeria focus on medical doctors. On the basis of this observation, the objective of this study was to understand the information needs and seeking behaviour of nurses at the University College Hospital, Ibadan, as well as identify the information sources available to them and the factors that facilitate or hinder access and use of the sources. Carrying out this study at the University College Hospital (UCH) Ibadan was considered most appropriate for gaining significant insight into the general information needs of nurses in Nigerian teaching hospitals, because UCH is both the largest and the oldest medical training institution in Nigeria, as well as the major supplier of nursing professionals to other similar institutions in Nigeria (Osuntokun, 1992).

Nursing-related information behaviour includes all the behaviours nurses manifest in relation to identifying, gathering, processing and managing information for optimal work performance (Pajarillo, 2001). Two important elements describe such information behaviour, namely: nurses' information needs and the sources of information that they prefer and use (Dorsch, 2000; Pajarillo, 2001). Accordingly, the questions that were addressed in this study are: Are nurses adequately aware of their information needs for the effective performance in their jobs? How do nurses seek for needed information? What are the information sources available? What is the pattern of use of the various sources of information available to the nurses? What are the factors which influence nurses' use of the information sources? Answering these questions is important for designing appropriate strategies for meeting the information needs of nurses at the UCH, and for promoting adequate information seeking behaviour among them.

Literature Review

Information Needs, Uses and Sources

Information could be defined in terms of tools, processes or knowledge (Bates, 2002). According to Krikelas (1983), information need is the recognition of the existence of uncertainty in decision making. Information need also refers to the extent to which information is required to solve problems, as well as the degree of expressed satisfaction or dissatisfaction with the information (Ehikhamenor, 1990). Ehikhamenor defined information seeking behaviour as any activity of an individual that is undertaken to identify a message that satisfies a perceived need. Information use occurs when information acquired by a person to satisfy an information need is actually put into use. Information is usually obtained from information sources, which are the carriers of information.

According to Wilson (2000), information needs are influenced by a variety of factors such as the range of information sources available; the uses to which the information will be put; the background, motivation, professional orientation and individual characteristics of the user. Other factors are the socio-political, economic, legal and regulatory systems surrounding the user, as well as the consequences of information use. The quality of sources of information available to the user is also important because relevant sources are most likely to beget useful information. Information sources are efficient if they provide relevant, useful, specific and accurate information that could help users solve their problems.

Nurses' Information Needs and Sources

Nurses need a wide variety of information to meet their clinical and educational needs (Cherly and Ellen, 2005). Generally, nurses need information to solve problems like supporting life long learning and

improving their knowledge on the practice of the profession. Furthermore, nurses in administrative positions in health care institutions need disciplinary, professional and administrative information for decision making. Nurses meet these needs through various sources, including:

- Human sources, including professional superiors, clinical supervisors, colleagues, physicians or other health care providers, clinical nurse specialists (Gorman, 1995);
- Local protocols and guidelines (Cherly, 2005);
- Print sources that include journals, textbooks, drug reference manuals, articles, nursing journals, electronic books, etc. (Lathey and Hodge, 2001);
- Electronic sources such as electronic databases, teleconferences, personal digital assistants, and computer access, etc. (Verhey 1999; McCannon and Neal, 2003; Cherly and Ellen, 2005), and,
- Other sources, including meetings, seminars, conferences, library facilities, and drug representatives (Urquhart and Davis, 1997; Verhey, 1999).

Of all the sources listed above, there is a general observation that health care professionals prefer to obtain information from sources that are convenient and easy to use, and reliable (Lathey and Hodge, 2001). Lathey and Hodge further showed that nursing professionals prefer superiors, colleagues, and other health care providers, especially physicians, as favourite sources of information. Conversely, print materials such as nursing textbooks, journals and other valuable forms of nursing literature have been reported to be under-utilized (Urquhart and Davis, 1997; Verhey, 1999). Lathey and Hodge (2001), Cherly (2005) and McCannon and Neal (2003) found in their studies that database searching was a critical skill for new nurses, but that nurses might not have the necessary skills to utilize such resources.

Why do Nurses Seek for Information?

Corcoran-Perry and Graves (1990) studied cardiovascular unit nurses and found that over three-quarters (76%) of the nurses' reasons for seeking information was patient care-related such as general nursing care, medication administration, nursing care planning, care management, doctor's orders, policies, and patient education. According to them, only 22% of the nurses sought information that pertained to unit and personnel management such as tracking people and equipment, conveying information, transferring data, admission, discharge or transfer, while the rest 2% searched for information for other reasons, such as a personal need to expand one's knowledge.

Lange (1992) advanced that, in addition to patient care, other reasons for seeking information pertained to agency or institution-specific factors, such as procedures and protocols relevant and applicable to the particular health care organization or setting. The study of Guise et al. (1994) on HIV clients in a clinic produced the same results in which patient care and treatment-related needs were found to be the major information-seeking drivers. They summarised the information drivers as follows: (1) treatment protocols/regimen, (2) diagnosis/etiology, (3) disease complication, (4) description of disease, and (5) adverse effects of drug therapy. Cheng and Lam (1996) found keeping oneself up-to-date, preparing for coursework, solving some work-related problems, explaining clinical problems, writing papers for conferences, preparing for lectures, undertaking research, and preparing talks or seminars as additional motivators. Spath and Buttlar (1996) also reported personal interest on a particular subject matter as an additional important motivator for nurses to seek for information.

Information Sources Preferred by Nurses

Perry and Graves (1990) reported that, 45% of the time, nurses used verbal sources from fellow nurses and other healthcare personnel, and another 45% relied on written media such as patient records and references. They, just like Lange (1992), found a small number of nurses (10%) who used technical sources such as information coming from computer terminals and monitors. In another study by Spath and Buttlar (1996), acute care nurses prioritized their choices for information sources in the following order: professional journals, "other nurses," card catalog, films or videos, conferences and CD-ROM databases. In their own study, Bunyan and Lutz (1991) showed that traditional sources of information, such as libraries, librarians and other information services, were not popular choices among nurses. Stephens et al. (1992) found that more than 50% of

nurses have not been to the library in six months, and were less confident in their library skills. Spath and Buttlar (1996) showed that, when nurses use the library, it was mainly to pursue personal interests on a subject matter.

Some of the reasons nurses use human sources were described by Blythe and Royle (1993) as "needing quick and precise directions from experienced authorities without having to leave their patients who need them physically nearby". Preference for human sources is not only true for nurses, but also for other health professionals, including physicians and allied medical professionals (Perley 2001). Health professionals frequently call on human sources of information because of a need for higher-order information, help-seeking to gain confirmation, and guidance or supervision (Gorman 1995).

In Nigeria, Ajayi (2005) recently studied the information-seeking behaviour and information needs of professional nurses at the Obafemi Awolowo University Teaching Hospital (OAUTH), Ile-Ife, Nigeria. The study found that nurses were aware of their need for current information for effective professional practice and that the sources the nurses considered capable of supplying most of their information needs were meetings, seminars, conferences and colleagues, whilst the library was not highly rated by the respondents. Electronic resources were not reported by the nurses as available and accessible, and were therefore not used. Although OAUTH and UCH are first generation tertiary-level health institutions in Nigeria, the relative older age of UCH, as well as its much larger size in terms of manpower and infrastructure, may dispose nurses in the institution to different patterns of information seeking behaviour than was found at OAUTH. This was an additional motivation for this study.

Methodology

The University College Hospital (UCH), Ibadan, was established in 1957, and this means that it is the oldest federal institution for tertiary health care, teaching and research in Nigeria. The hospital has 45 medical specialties and sub-specialties/disciplines and runs 75 consultative clinics weekly with 805 beds for admission (University of Ibadan Diary 2002). Apart from providing care, UCH is also a major training institution for diverse categories of health workers in the country. UCH has trained over 5,000 physicians and dentists and has produced approximately an equal number of scholarly publications of health-related researches as at 2002. During the same period, the hospital itself had trained more than 6,000 nurses and midwives and several hundreds other health professionals including medical laboratory scientists, teachers of community health, environmental health, medical records and radiography (University of Ibadan Diary 2002). The UCH is equipped with the oldest medical library in Nigeria that has Internet access, and that also has links with many international electronic databases. Internet access is available to senior and academic staff in the college, in addition to many cybercafés that exist in the community.

The target population for this study comprised nurses in the three major departments of nursing at the UCH, namely: Clinical Nursing, Public Health Nursing and Nursing Education. Using a questionnaire, data on the respondents' demographic characteristics, information needs, access to and use of information sources, motivators for choice of information and sources, and information-seeking problems were collected from the subjects.

To ensure that the study fulfilled ethical requirements, permission was sought from the authority of the Hospital after details of the objectives and methodology of the study were disclosed. A list of nurses was collected from the authorities and was further edited to construct the sampling frame, yielding a total of 1046 subjects. From this frame, a systematic sampling scheme that selected every fourth subject was used to draw 262 subjects, which is 25% of the population. The questionnaire was administered to these subjects and in the end, a total of 201 completed copies were retrieved, a response rate of 77%. The retrieved copies of the questionnaire were sorted and cleaned up, and the data were analysed using EPI-INFO software package. The main problem encountered in carrying out this study was the difficulty in securing participation of the sampled nurses, most of who reported being too busy at the time of the survey.

Results

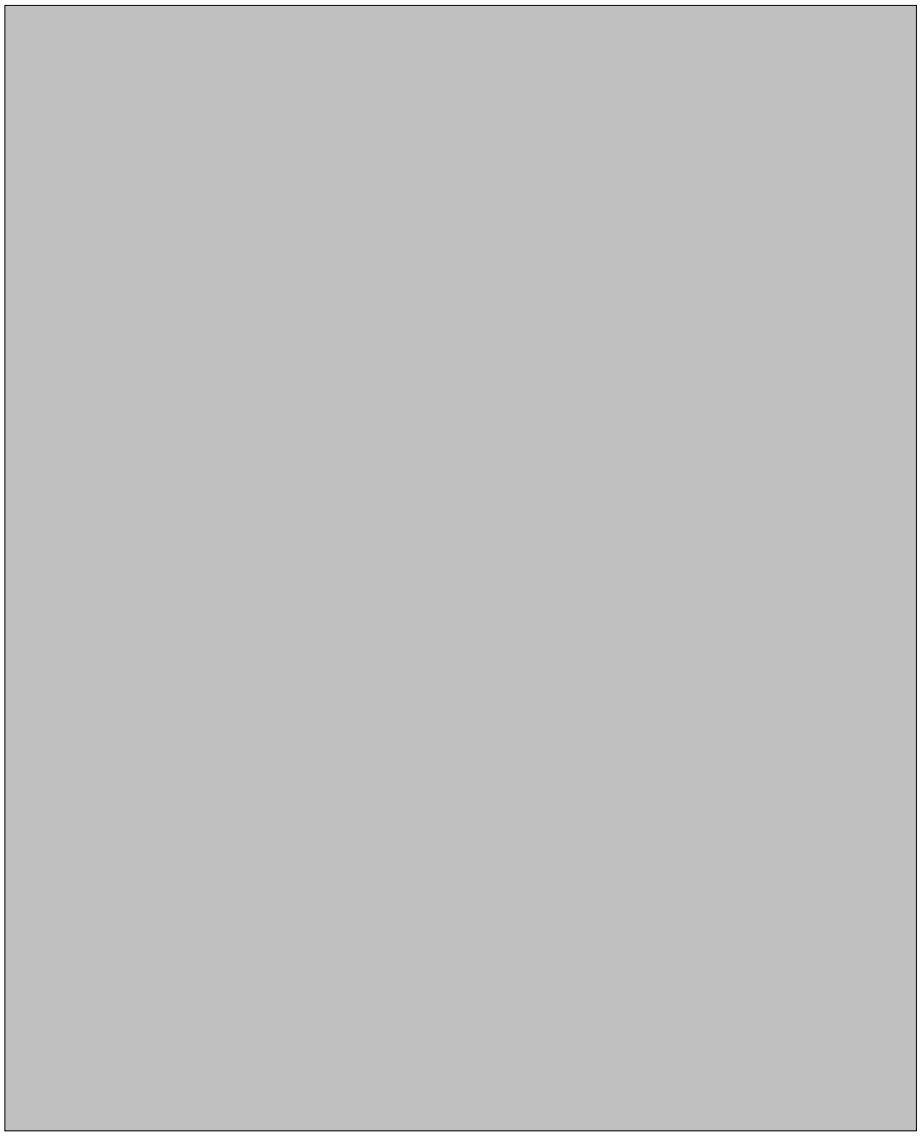
Demographic Characteristics of the Respondents

The demographic characteristics of the respondents are shown in Table 1, indicating that the overall mean age of the respondents is 37.63 years, while the overall mean number of years of experience is 11. As is the common case with nursing profession, there were a few males, about one in ten, and majority of the nurses (65.2%) reported that they were married. Table 1 shows further that some of the respondents reported possessing master's (8.0%) and doctorate (3.0%) degrees, and these were probably very senior nursing officers performing mainly administrative roles.

How Often and Why do Nurses Seek for Information?

The nurses were asked the question '*How often do you seek for information?* All the nurses (100%) indicated that they seek information very often. In view of Wilson's (2000) study which investigated the possible reasons for which nurses search for information, this study asked the nurses to select which of the following reasons motivated them to search for information: curiosity, keeping up to date, research purposes, acquire more information, better job performance, new ideas, better patients care, and academic purpose. Acquiring more information was the reason most indicated (94.0%), followed by better job performance (52.3%), keeping up to date (46.2%),

Table 1: Demographic characteristics of the respondents



new ideas (41.7%), academic purposes (37.2%), research purpose (34.7%) and better patient care (28.5%).

Types of Information Needed by the Nurses

The nurses were asked the extent to which they perceived their need for different types of information. Table 2 shows that each of the listed information types listed was reportedly needed by at least 90% of the nurses. But information related to new discovery in nursing (99.5 %), outbreak of diseases (99.5%) and happenings around the world (99.5 %) topped the list. The other types of information needed included new remedies (99.0%), nursing processes (99.0%) and results of scientific research (98.5%). General information (98.5) and information about how to avoid contracting HIV/AIDS from patients (98.0%) appeared to be of higher priority to nurses than economic/business information (97.5%), how to avoid contracting diseases from patients (97.0%) and information about patient care generally (97.5%), while Information about social activities come (94.5%) last in nurses' information priorities.

Frequency of Searching for Information

Also, the nurses were asked how often they searched for each of the information types. Table 3 shows that among the information types needed always, the three that topped the list included information related to patient care generally (91.5%), new discovery in the field (91.0%), and nursing process (88.6%), while social activities topped the information types that were sought only occasionally.

Table 2: Extent of nurses' need for different types of information

Table 3: Frequency of search for different types information

Nurses' Awareness of Information Sources in the Hospital Environment

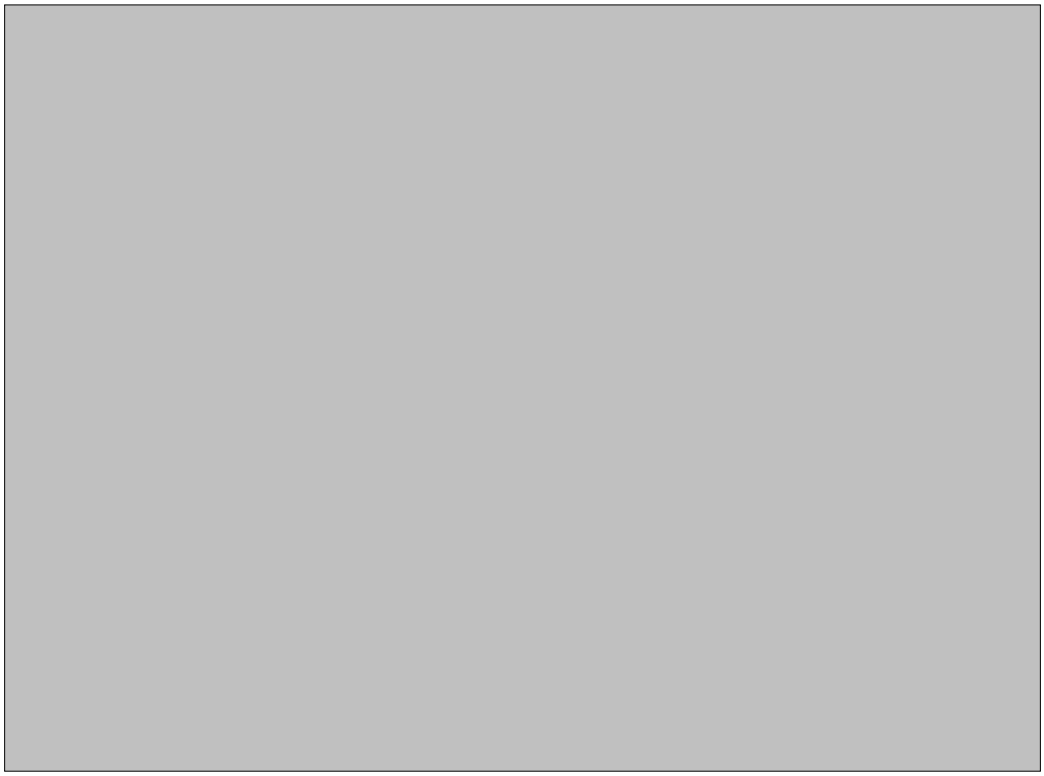
Nurses were asked whether they were aware of the following information sources that existed in the hospital environment: library, information centres, Internet services, workshops/seminars/conferences, nursing journals, and television. A total of 96.0% of the nurses indicated awareness of the library, whilst 94% and 85.5% indicated awareness of information centres and the Internet, respectively. Only three per cent indicated awareness of workshops/seminars/ conferences, whilst less than one per cent indicated awareness of television and nursing journals.

Nurses' Assessment of the Relevance of Information Sources to Nursing Practice

Do the nurses consider the sources of information available to them relevant to their work? To address this question, the nurses were asked to indicate the extent to which the information sources are relevant to their work. Table 4 shows the perceived levels of relevance of the sources. Among the sources that were perceived to be very relevant by at least 80% of the nurses were: lectures (91.5%), nursing journals (91.5%), seminars, conferences and workshops (89.6%), other medical journals (85.1%), books (85.1%), case notes (82.6%) and libraries (82.1%).

Bibliographies topped the list of the sources that were just relevant (33.3%). Fewer than 60% of the nurses considered magazines, television, newspapers, bibliographies and CD-ROM to be relevant to nursing practice.

Table 4: Nurses' perception of the relevance of sources of information to nursing practice



Factors Influencing Preferences for Information Sources

The data on the nurses' opinions regarding factors that influence their choice of information sources are summarised in Table 5. The table shows that a majority of them (86.1%) mentioned accessibility, while slightly more than half indicated availability (53.7%), reliability or credibility (53.2%) and relevance (52.7%) of the information source.

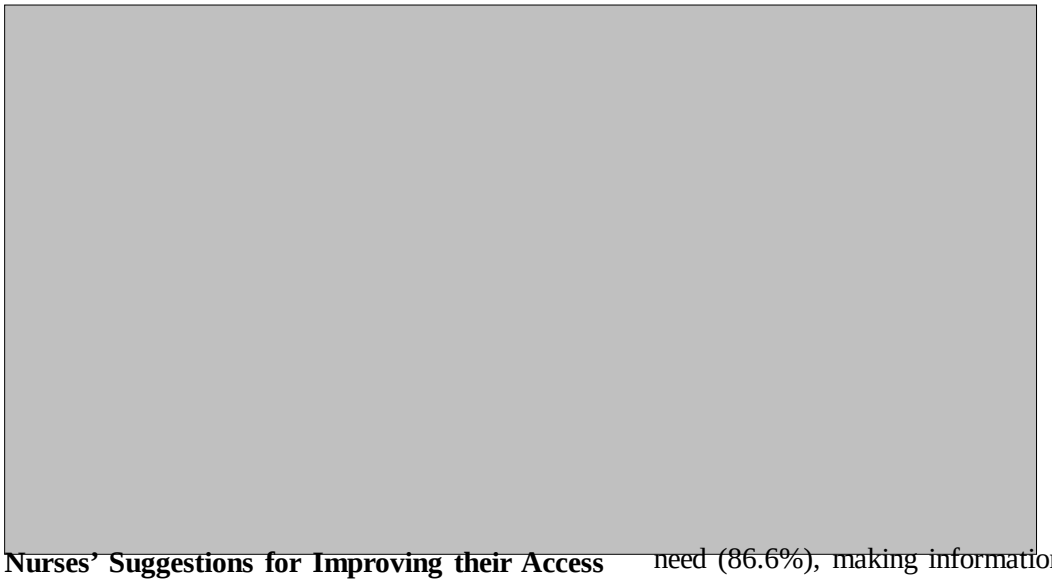
Problems Encountered by Nurses when Seeking Information

The nurses were asked to state whether they sometimes encounter problems when searching for

Table 5: Factors nurses consider in choice of information sources

information. A majority (61.2%) replied in the affirmative, and 79.1% of them mentioned difficulty in accessing foreign journals and materials (Table 6). Furthermore, 56.2% mentioned lack of awareness about the existence of relevant information sources, and 49.8% mentioned the problem of time.

Table 6: Problems encountered when seeking for information



Nurses' Suggestions for Improving their Access to Information

The study synthesized issues that could be addressed by the hospital authority to enhance access by nurses to required information and asked the opinions of the nurses regarding them. Table 7 shows that the suggestion that the nurses liked the most was the establishment of information centres/libraries (90%), followed by making nurses to be computer literate (87.1%). The other suggestions offered by majority of the respondents were as follows: reduction of the cost of obtaining information (86.6%), educating nurses on how to get the type of information they need (86.6%), making information sources readily available (85.6%), assisting nurses to access foreign journals and books (85.6%), and providing of computers with Internet facilities in each clinic or ward (83.6%). Provision of computers and continuing education programmes were not considered as priorities.

Table 7: Nurses' suggestions for improving their access to information

Discussion

All the nurses reported that they searched for information very often in the course of performing their jobs. In terms of motivators or reasons for information-seeking, the main factors were personal needs followed by improved job performance. Patient care as a motivator was mentioned least frequently by the nurses. However, in terms of frequency of searching for information, the order was: patient care generally; new discovery in the field, and nursing process. The apparent contradiction here can be explained as follows: the primary work engagement of a nurse is to care for patients – a task for which the nurse is therefore compelled to search for information. However, in terms of personal preferences, the nurses might be inclined to searching for personal information more than they would other types of information.

Corcoran-Perry and Graves (1990) reported that over 76% of the nurses that they studied searched for information primarily for the purpose of patient care, while only 2% did so for other reasons, such as a personal need to expand one's knowledge. Cogdill (2003) has suggested that patients' needs and how to address them should be a priority in nurses' search for information. The findings of this study are clearly at variance with Cocoran-Perry and Graves' findings, as well as with Cogdill's recommendations. It does appear that nurses at UCH sought for information mainly to improve their personal knowledge and skills for their personal and work lives generally, and not necessarily for appropriate patient care. Possibly also, nurses might not trust the quality, or have adequate interpretation or application of the information they acquired from the information sources compared with those from hospital sources such as patient care protocols, colleagues, supervisors or doctors. Nurses are responsible and accountable for ensuring that only certified safe procedures are employed in patient care, and would therefore not seek for patient care information from sources they are not sure about.

In contrast to the finding by Corcoran-Perry and Graves (1990) that the nurses' information needs focused on patients, the nurses at the UCH were more interested in information regarding outbreaks of diseases. This need may be explained by the consciousness of the nurses about infectious diseases, and the need to take precautions to safeguard their own health while taking care of patients. Spath and Buttlar (1996) have noted that personal interest is usually a strong motivator for nurses' information seeking. This explanation is underscored by the nurses reporting that they are usually very conscious of the danger of contracting HIV/AIDS and other diseases. In addition, the nurses surveyed in this study also wanted to improve their personal awareness and skill about the profession, a desire that might be driven by personal motives. Beyond these, the nurses wanted to have knowledge about new remedies for diseases, as well as nursing processes and results of scientific research. The nurses reported least need for social, political and business information.

Nurses use information from various sources, the most consulted sources being colleagues, seminars/workshops/conferences, case notes, lectures, nursing journals, medical journals, charts, patients, the Internet and television. This study therefore revealed a slightly different pattern of information seeking from that observed by Ajayi (2005) in which meetings, seminars/conferences and colleagues topped the list. In the studies of Cogdill (2003) and Cherly and Ellen (2005), personal digital assistants, electronic journals and books were among the top factors listed while Michelynn's (2006) study showed that nurses' sources of information were mainly from patients, colleagues and notice boards but rarely from published sources of information. Most of the studies reviewed for this study, however, support the view that interpersonal information sources dominate the sources of information used by the nurses because the sources are often easily accessible and sometimes very reliable.

Nurses generally frequently call on human sources of information because of a need for higher-order information, help-seeking to gain confirmation, guidance or supervision, as well as because colleagues and superiors are believed to understand what is best in the practice. Blythe and Royle (1993) reported that medical practitioners require quick and precise directions from experienced authorities without having to leave their patients who need them physically nearby. Moreover, medical practitioners are gregarious, and are interdependent in professional experiences and practices. They also observe hierarchical apprenticeship/leadership style in which superiors command more authority in clinical

decisions than the juniors; they require information sources that are prompt, current and selective, and can produce immediate feedback. The finding of this study confirms that informal information sources are explored first by nurses before formal sources, a result supported by Wilson (1995). This study also found that the nurses consulted, in order of frequency, interpersonal sources, illustrative documentary materials (graphical or handwritten) and human expert sources. Those sources that are much less often consulted are primary information sources, libraries and information centres, electronic sources, newspapers and magazines, the Internet, books, and indexes.

The study revealed that most of the nurses knew that a medical library existed within the hospital environment. The library is also linked with the Health InterNetwork Access to Research Initiative (HINARI), an initiative of the World Health Organisation which provides "free or very low cost online access to the major journals in biomedical and related social sciences to local, not-for-profit institutions in developing countries" (Cutler and Kubiszewski, 2007) as well as with other similar infrastructures. But the library was reportedly not frequently used nor even considered very relevant to nursing practice by the nurses. These findings raise some vital questions: Do the nurses know that the library could meet their information needs? Are the library's services adequately accessible to the nurses? Although further studies might be required to answer these questions fully, Bunyan and Lutz (1991) and Stephens et al. (1992) showed that traditional sources of information, such as libraries, librarians and other information services, were not a popular choice among nurses. According to Thomson (2004), previous studies found that despite nurses comprising 31% of hospital employees, only about 6% visit the library to pursue their information needs in their clinical practice, education and research. He further reported that there should be more assistance to nurses to effectively use the library. The non-use of the library by the nurses in this study may relate to access, which was reported by the nurses as major determinant of choice of information sources. Access was also reported by the nurses as a major problem encountered in using the information they needed. Inadequate access here involves such variables as inadequate awareness, lack of time, pressure of work, inadequate library use skills, among others.

Summary and Conclusion

This study was designed to examine the information needs and seeking behaviour of nurses in Nigeria's premier tertiary health institution -- the University College Hospital, Ibadan. It focused on the following: information sources used by nurses; the adequacy of the sources; the frequency of use of the sources, use, seeking behaviour and the problems faced by nurses in the course of seeking for information as well as perceived ways of ameliorating the nurses' information related problems.

Nurses are aware of their need for information for improved performance, and they use more informal than formal sources. Nurses reported that they require information about patient care more than other aspects of their information need, but patient care does not dominate their information search activities. Colleagues are very handy sources to the nurses, and they actually resort to them whenever they need information. But the nurses considered information from lectures, medical journals, nursing journals, seminars, workshops and conferences, the Internet and even libraries as more relevant than colleagues.

Although the nurses were aware of the existence of an information centre, as well as a library in the hospital, they suggested the establishment of libraries/information centres and reduction of the cost of accessing information sources as key strategies for improving their access to information. Furthermore, the nurses reported difficulty in accessing journals, despite the availability of free access to some foreign databases in the library. These findings show that the availability of an information source in a place does not guarantee that the users for which the source is intended will be aware of, or use, it. The findings also question the level of awareness of the nurses regarding the availability of information resources in the hospital. Does the curriculum of the nursing training include information literacy? Are there periodic programmes aimed at improving the information literacy of the nurses?

Recommendations

The findings of this study support the following recommendations for consideration by the UCH management, as well as health policy makers in Nigeria generally:

1. There is the need to promote the nurses' use of both formal and informal information sources to facilitate regular self-directed learning. Hospital authorities should formulate policies aimed at encouraging nurses to regularly access various sources of information needed to keep themselves abreast of relevant information required for adequate professional practice.
2. The authorities of the hospital should also liaise with library of the College of Medicine to mount appropriate library use and ICT training programmes for nurses. This will enable them use information resources available within the hospital effectively to improve their work performance.
3. Nurses themselves should consider information literacy as a prerequisite for meeting the expectation of adequate care by both their employers, the patients and the public. Use of libraries and other information centres should be part of the nurses learning chores. Also, as information technology literacy has become a critical requirement for effectiveness in today's technology-driven society, individual nurses should gear up to acquire basic skills required to extract information from electronic information sources.
4. The UCH should implement periodic information dissemination and training programmes aimed at educating its staff of the availability and accessibility of information sources within and outside the hospital environment. This is necessary to enable them develop or update staff skills in effective use of the sources, as well as motivating staff to use the sources regularly. This could be achieved through combined use of training, advocacy and institutional support from both the Hospital authorities and the Nurses and Midwifery Council of Nigeria.

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Information Needs and Information-seeking Behaviour of Orphans and Vulnerable Children and their Caregivers in Okahandja, Namibia

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Abstract

This study ascertained the information needs of orphaned and vulnerable children (OVC) and their caregivers and the information disseminating strategies used by key stakeholders in managing the OVC situation in Namibia. Both qualitative and quantitative methods were used, in the form of interviews, focus group discussions and questionnaires. Preliminary findings indicate that the OVC preferred oral and interpersonal communication, and used relatives, teachers and friends as their main sources of information. Television, books, radio, newspapers and church leaders were also popular information channels. Caregivers preferred interpersonal communication, and use social workers and relatives as their main sources of information. Other channels used for communicating information included workshops/ seminars, radios and newspapers. Most service providers produced leaflets and posters, and organised meetings in order to disseminate information to their target groups.

Keywords

Orphans, vulnerable children, caregivers, information-seeking behaviour, HIV, AIDS

Introduction

Despite promising advances in addressing Acquired Immune Deficiency Syndrome (AIDS) in terms of treatment and prevention programmes, the number of people living with the Human Immunodeficiency Virus (HIV) and dying as a result of AIDS is increasing. Statistically, the Sub-Saharan African region is the worst afflicted, with two-thirds (63%) of all people living with HIV residing in this region. The worst affected area within this region is Southern Africa (which includes Namibia), where 34 % of all deaths reported in 2006 were AIDS related (UNAIDS and WHO, 2006). Family members left behind, especially children who rely on their parents for all their needs, are often the worst affected victims of this illness. With the predicted rise in cases where children are left orphaned or vulnerable as a result of HIV/AIDS, care of these children has been placing an increasing burden on already overstretched extended families and communities (Save the Children UK, 2006; Ruiz-Caseres, 2007).

Based on current trends, it is expected that Namibia will have approximately 250,000 orphans (over 10% of the population) within the next 20 years, and over three quarters of these orphans will be children (Yates 2004; UNICEF, 2006). Within the traditional African society, caring for orphans becomes the responsibility of the extended family, but the extended family is often unable to fulfil this obligation towards the orphans. In instances where children are left vulnerable through the death of one parent, many of these households are headed by a

child who has to take care of the other sick parent and, if they have any, their siblings (Barnett and Whiteside, 2006; UNICEF, 2007). Poverty, illiteracy and lack of knowledge on how to get assistance often lead to the exploitation or ill-treatment of orphaned and vulnerable children (OVC) by their caregivers.

Basic and Information Needs of OVC and the Roles of Caregivers

For their daily survival, orphaned and vulnerable children (OVC) experience needs that cover a wide variety of issues and concerns. A study done in 2001 by the World Bank revealed that OVC's major needs centre around coping skills, physical and economic survival, and the ability to protect themselves from exploitation by both caregivers and community members. Other needs concern health and legal related issues, business skills, education, and the need to be cared for (The Task Force for Child Survival and Development and World Bank, 2001). Although information has not been explicitly mentioned as a need, access to information underpins the children's ability to empower themselves for survival.

Studies have found that over 60% of all orphans globally are cared for by their grandparents (in most cases the grandmother), who do so on very meager incomes or pensions. This is also the case in Namibia (UNICEF, 2006; Masabane 2002; Moody, 2007). But OVC and the grandparents and other caregivers are often unaware of available government assistance (Haihambo et al., 2004). Other than the government, a number of non-governmental organisations (NGO's), faith-based organisations and community initiatives are involved in providing services to these groups. According to Yates (2004), services include feeding programmes and educational and psychological support, while general health services are provided through the Ministry of Health and Social Services, which targets all children through primary health care and nutrition programmes.

Caregivers, who include organisations, family members or communities caring for OVC, need guidance on where to find assistance. A study by UNICEF (2005) revealed that many orphans are not receiving the grants due to them. This is partly due to the caregivers' ignorance on where to obtain certain forms of documentation, such as birth certificates, death certificates and other supporting documentation needed to apply for grants. Kumar, Aarti and Arabinda (2001) additionally identified the following information needs: basic knowledge about HIV/AIDS; the children's emotional states and how to address them; health problems, such as symptoms and signs of medical problems; nutritional requirements; methods to combat the stigma and discrimination directed at the child or family; how to access services such as grants, identification documents, etc; and counselling.

In order for government and other service providers to intervene and be of assistance, knowledge and an understanding of the needs and environment of OVC and their caregivers are imperative. Effective service delivery planning is therefore essential. The basis of all service delivery should be knowledge of the nature and extent of the problem at hand. Although general statistics on the people affected by HIV/AIDS are available, Haihambo et al. (2004) found that data identifying the number and whereabouts of orphaned and vulnerable children in Namibia are not known. Nor is there any comprehensible statistics available that provide insight into what services are currently used by the OVC and/or their caregivers. There are, however, several policies guiding service delivery to these groups in Namibia. UNICEF (2005) noted that the known number of OVC was moving beyond the coping capacity of the country, and that timely and correct information is now needed to manage the crisis. This information includes: actual numbers and profile of the affected children; services, support and care required; available service providers; and the effectiveness of the diverse intervention programmes and OVC care approaches.

Yates (2004:6) identified several NGO's involved in service delivery to OVC and their caregivers. Their services concentrated mainly on six areas, i.e.:

- The provision of food by way of feeding schemes, soup kitchens and food parcels.
- Assistance with education by providing uniforms, exempting school fees, paying for accommodation, etc.
- Healthcare services, such as anti-retroviral compliance, fee exemption for basic health services, and nutritional monitoring.
- Psychosocial support by way of home visits,

organizing camps and clubs, training, counselling, and sport and recreation.

- Teaching protection through life skills, information on rights, will writing and involvement in law reforms.
- Providing general assistance through the teaching of income generating activities, access to grants, outreach programmes to caregivers, and temporary shelters and homes.

Most of these activities have (within them) information needs, and information provision and dissemination aspects that require to be investigated, understood and serviced to the benefit of the recipients.

Purpose of the Study

The purpose of this study was to examine the information needs of orphaned and vulnerable children and their caregivers and to identify the information disseminating strategies used by key stakeholders in managing the OVC situation in Namibia. The objectives of the study were as follows:

- To determine the information needed by orphaned and vulnerable children in order to cope with their situation;
- To establish the information needs of caregivers dealing with the OVC situation in Namibia;
- To identify the sources and channels of information used by orphaned and vulnerable children and their caregivers when addressing their information needs;
- To determine the usefulness of information sources and services; and
- To establish the problems that caregivers and service providers experience when accessing, disseminating and sharing information.

Methodology

The study examined the information needs and seeking behaviour of orphans and vulnerable children (aged between 8–18 years) and their caregivers and the role of service providers in Okahandja, Namibia.

Okahandja, which is located 70 km north of Windhoek ("Okahandja", 2007), had, according to the 2001 population census, a population of 14,039 – 7,064 females and 6,975 males. The number of orphans under the age of 15 years, according to the census, was 51,068 for the whole Otjozondjupa region, of which Okahandja is a part (National Planning Commission, 2003). Unfortunately, present day figures for Okahandja are not available. Okahadja was chosen as a pilot study site mainly because of convenience.

The purposive sampling technique was used to select OVC and caregivers because it was difficult to identify the population. The assistance of "experts" familiar with the chosen research groups, such as social workers, traditional leaders and church leaders, was used to identify a sample of respondents for inclusion in the study. This worked well because these community leaders and social workers have a good knowledge of the OVC situation in the small town. Sixty-two respondents participated in the study, 15 of whom were caregivers, eight were service providers, and 39 were OVC.

As there was no authoritative list of service providers, the snowball technique was used to access government departments, NGOs, community-based organisations, faith-based organisations, and traditional leaders. The service providers identified were contacted by telephone to determine whether or not they qualified for inclusion in the study, and whether they would be willing to participate. To qualify for participation, the service providers had to be involved in one or a few of the following: food provision (school feeding programmes); educational support (providing school uniforms, school funds, fees exemption, training skills); health services (providing nutritional food, ARV therapy, referral services); psychosocial support (after-school programmes, kids clubs, counselling); financial support (bursaries, social assistance grants, supplies); and/or protection (places of safety, homes, legal services). The chosen service providers did not necessarily have to be situated within Okahandja, as they could be delivering their services from other locations (for example, most of the government agencies servicing this area were located in Windhoek, the capital of Namibia).

This study used individual (one-to-one) interviews, a focus group interview and a survey questionnaire to collect data. One-to-one interviews were used to gain information from the caregivers, and both one-to-one interviews and a focus group

interview were used in the case of the OVC. Both the one-to-one interview and the group interview dealt with the same questions. A total of twenty three OVC were interviewed, and 16 participated in the focus group interview. These two interviewing approaches were used in order to obtain more in-depth information from the OVC, and the oral method of communication was deemed most appropriate because most OVC and caregivers are semi-literate. A mailed questionnaire was also used to gather data from service providers. This was used because it was the most cost effective way to collect information from geographically scattered service providers. The field study was conducted in January 2007.

Findings

The findings are reported here separately for OVC, caregivers and service providers.

Orphans and Vulnerable Children (OVC)

Twenty three children participated in this aspect of the study.

Demographic Characteristics

Eleven (48%) of the OVC were between the ages of 13 -17 years, ten (44%) were between 8 and 12 years, and two were 18 years old. Most of the OVC surveyed were girls (74%). Their educational backgrounds ranged from school dropout to grade 12, with eight of them in the grades 4 – 7 category, eight others in the grades 1 – 3, five in the grades 8-12, while two were primary school dropouts. The above demographic characteristics refer to only the OVC who participated in the one-to-one interviews.

Information Needs

In order to determine their information needs of the OVC, respondents in both the one-to-one and the focused group interviews were asked to identify their specific needs. The one-to-one responses showed that 21 (91%) needed information on how to get school fees and financial assistance, 19 (82%) needed information on child care, and 18 (78%) each needed information on psychological support, health services and farming skills. Seventeen (74%) indicated that they were in need of information on feeding schemes and will writing, while 16 (69%) wanted information on how to obtain identity documents. Information on grants was needed by 12 (52%), how to make a memory box was indicated by eight (30%) as a need, and information on inheritance law was needed by six (17%) of the respondents. Two (9%) indicated that they needed information on obtaining land for farming purposes. In the focus group discussion, four of the 16 discussants needed information on financial assistance and grants, two needed information on school fees or fee exemptions, child care support, and feeding schemes, and one each stated the need for information on health services, counselling, farming skills, and memory boxes. Two did not express any need for information.

Respondents were also asked to indicate the type of information they often found most useful. Nineteen (82%) of the one-to-one interviewed respondents indicated that information on financial assistance and grants was the most useful. Next was information on health services and nutrition with 11 (48%) responses, followed by information on school fee exemptions and identity documents/birth certificates, each with nine (35%) responses, child care support eight (30%), will writing seven (26%), and training opportunities six (22%). The following three categories had five (17%) responses each: farming skills, psychosocial support, and counselling. The focus group discussion also cited information on financial assistance and grants, psychosocial support, and counselling, as the most useful six (38% responses each), followed by farming and fishing skills five (31%), identity documents three (19%), inheritance information (two percent), and establishing small businesses (two percent). Health and nutrition received the lowest response, with only one (6%) respondent indicating that it was useful.

Information Sources Used

Table 1 summarises the data on the sources consulted by the respondents when experiencing problems. Relatives (70%) and teachers (13%) were the main sources mentioned by the respondents during the individual interviews. However, during the focus group discussion that involved 16 participants, relatives were mentioned by fewer respondents (38%); while friends came second (19%), and teachers were not mentioned at all. In both the

individual interviews and the focus group discussions, respondents who reported no one to consult were 13% and 25% respectively.

Table 1: Individuals consulted when experiencing problems

In order to determine their level of knowledge about the availability of organisations that provide services to OVC, respondents were asked during the one-to-one interviews if they know any organisation/institution that could assist them. Among those interviewed, 15 (65%) did not know of any, while eight (35%) knew of some organisations. However, when they were asked to name the organisations, 13 (57%) could not name any, and the rest 10 (44%) knew of at least one organisation. The organisations mentioned and the number of respondents mentioning them in brackets were: The Ministry of Gender Equality and Social Welfare (two), Evangelical Lutheran Church (two), Table Rock Church [USA] (one), Okahandja Home-based Caregivers (one), Okahanja Samaritan Network (one), The Dutch Reformed Church (two), The Church for Alliance (CAFO) (one), Magdalene Kahere (one), and Christ for Hope (one). In the focus group discussion, respondents identified mostly churches - Roman Catholic Church (four mentions), Pentecostal Church (two), and Dutch Reformed Church (two). Two respondents mentioned the Ministry of Gender Equality and Social Welfare. Six did not know of any organisations which provide services to OVC.

Knowledge of the service providers was gained through several sources. In the one-to-one interviews, most respondents 11(48%), cited friends/ relatives as their primary source. Other sources mentioned were social workers five (22%), My Future My Choice — a life skills programme at schools four (17%); teachers four (17%), and the radio three (13%). The following three sources were indicated by two (9%) respondents each: television, pamphlets and home-based care volunteers' Window of Hope. The library was mentioned only once. The same question elicited the following responses during the focus group discussion: the majority nine (56%) were informed by friends and relatives, while one was made aware by teachers. Six (38%) did not respond.

Information Channels Used

The study also investigated the different channels used by OVC to obtain required information. Table 2 summarises the data.

Table 2: Information channels used by OVC

Among the interviewed respondents, television (100%), radio (100%) and books (96%), newspapers (91%) and church leaders (78%) were identified as the main channels for accessing information. Other channels identified by slightly fewer respondents were: library (43%), school, and traditional leaders (each by 17%). Data from the focus group discussion indicate that respondents identified fewer channels than the interviewed groups: newspapers, television, and radio were all identified by three each.

The study also sought to determine the importance of the different sources of information. Among the interviewed respondents, the radio, teachers and television were ranked as the most important sources of information 12 (52%), closely followed by church leaders 10 (43%). Newspapers, traditional leaders, friends and relatives attracted nine (39%) responses each. Guest speakers and workshops/seminars were rated at eight (35%) each. At the lower end of the scale were the following: sign posts six;(26%), regional councilors five (22%), libraries/resource centres five (22%), and politicians and NGOs four (17% each). Posters, the Internet, and memory boxes were each indicated by three (13%) respondents. Video shows, books, and the trade fair were least mentioned, by two (9%) respondents each. In the focus group discussion, television, radio, church leaders and traditional leaders were rated as moderately useful sources of information by three discussants each. This was followed by just one discussant who indicated the library/resource centre**.** In contrast, friends and relatives were not considered very useful by four of the discussants.

The data presented here indicate, therefore, that radio, television, and newspapers are the main channels through which OVC get information. These results are similar to the findings of a study done by Metcalf, Harford and Myers (2007), who found that 89% of their respondents cited radio as their most important source of information about HIV/AIDS.

During the one-to-one interviews, the orphans and vulnerable children were asked whether the information they obtained from different sources was helpful. Most of the respondents (87%) stated that it was useful, while the rest (13%) indicated that the information was not useful. As a follow up question in the one-to-one interviews, respondents were asked to state how the information had helped them. The question aimed to find out the impact of the information on the children. The distribution of the respondents' answers were: obtained financial grants (35%); not applicable (22%); learnt to face my fears/ learnt to live with foster parents (22%); helped to obtain school fees (13%); acquired skills on dealing/ living with HIV/AIDS (9%); and learnt about my future (9%). The answers with fewest mentions (each with 4%), were: got some money, got

information on where to get clothes, and got information on my rights.

During the one-to-one interviews, respondents were asked whether they faced any problems when accessing the information they needed. Most, 11 (48%), stated that they did not face any problems, while eight (35%) said they sometimes experienced problems and four (17%) experienced problems most of the time. But the findings from the focus group discussion contradicted this, as the majority 14 (88%) said they faced difficulties when accessing the information they needed, while only two (13%) indicated that they sometimes faced difficulties.

In the individual interviews, respondents were asked how they solved problems related to information access. Most respondents (83%) said that they didn't do anything, two (9%) said they seek help from their grandmothers, and one (4%) each said that he/she seeks help from a teacher, a pastor or through prayer.

The final question sought to get the individual respondents' opinion on how they think the flow of information could be improved so that they might improve their lives. A number of suggestions were made by the respondents, generally only a few of the respondents had any concrete ideas on how the flow of information could be improved.

The responses, along with the corresponding numbers of respondents were: more information should be put on TV/radio so parents/caregivers can know where to get help four (17%); help should be provided on where to get school bags, shoes and uniform three (13%); train caregivers to love orphaned and vulnerable children and take good care of them, as they would their own children two (8%). The following suggestions had only one mention each: government should translate information into local languages; more children's homes need to be built; more information is needed on how to get social grants; it should be ensured that information on orphaned and vulnerable children reaches the community; government must improve the way in which it provides information; there should be a kids' club where children meet in order to get information and solve problems; build houses and give food and clothes to children who don't have anyone to support them; government should help those in the San community to get an education; information should be given by word of mouth (orally); there is a need for Internet access to get information; and give donations to children's homes.

The same question was asked during the focus group discussion, and the responses indicated that the participants wanted an increased role for schools, churches, and social workers. The following quotes from three different respondents capture these views:

> *Schools must provide me with information so I can have a better future. I would also like to live with my biological mother so that she can provide me with more information.*

> *I need people to assist with educational materials like books, shoes, and uniforms and the social workers should assist us with information for further studies after we complete grade 12.*

> *The churches should provide more support and information to OVC. Different groups should be started in different localities whereby we can get information.*

To sum up, most OVC are in school, while some are out of school. While most live with guardians, some live on the street, with the municipality's swimming pool being the preferred residence in the latter's case. They mostly depend on social grants for their survival and education - without such help most would drop out of school. Their information seeking behaviour is directed towards relatives if they live at home, and teachers and friends if they don't live at home. Most know of a few organisations that provide orphaned and vulnerable children with assistance. Their information needs are dominated by basic/survival needs, and information regarding the preparation of health and legal documents.

Caregivers

Demographic Characteristics

A total of 15 caregivers participated in the study, and most of them belonged to the 25 – 32 years (34%) and 33 – 40 years (27%) age groups. Caregivers were mostly female (87%). Twelve (80%) of the

caregivers had attained an education between grades 8 and 12, and two had university education. The fact that most of the respondents had attended school and gained basic literacy is encouraging, as this indicates that information can be provided to them in printed or textual format, and that they would probably be able to access information online or in electronic form, if necessary. Their ability to write also makes them less dependent on third parties, in order to receive information communicated to them.

Unemployment amongst the respondents is rife, as the data indicates that only four (27%) earned a steady salary, while the majority 11 (73%) were unemployed. Out of the 15 caregivers, two mentioned that they earned between 100 – 499 Namibian Rands (N$) per month (11 Namibian Rand = one US dollar in October 2008). One of the caregivers indicated earnings of between 500–999 N$, another earned between 1000 – 1499 N$, and yet another indicated an income of 2000 – 2499 N$. Eight of them did not indicate any income, evidently because of unemployment. This shows the high level of poverty among the caregivers. Caregivers need to be economically empowered in order to help both themselves and the OVC left in their charge.

Information Needs and Seeking Behaviour

The 15 caregivers were asked whom they consulted when faced with an information need or problem. Six of them preferred social workers; four consulted relatives; two asked teachers; two didn't ask anyone; and one asked the doctor.

Almost all the caregivers use oral and interpersonal communication as their main sources of information. Most caregivers in this study preferred interpersonal communication as opposed to printed material, despite the majority having attained at least grades 8-12 of education.

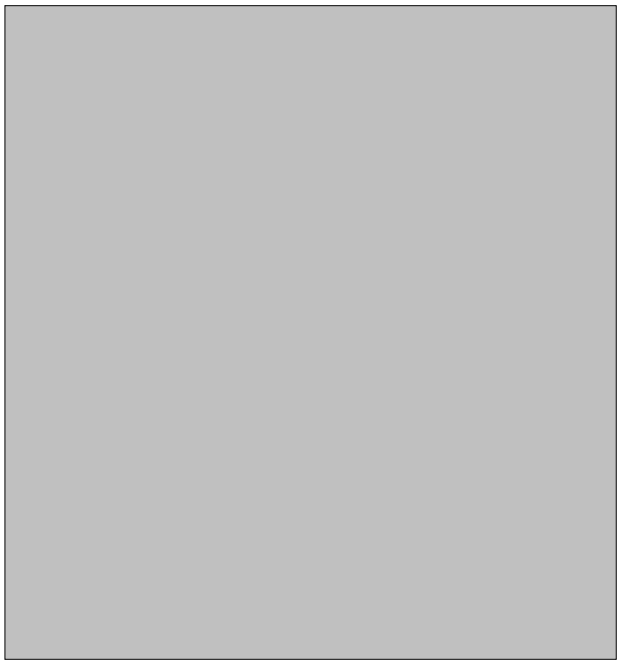
The respondents were also asked if they are aware of any organisations that provide services to OVC. Twelve respondents knew of one or more organisations. Specific organisations mentioned were: the Ministry of Gender Equality and Child Welfare (four), Okahandja Home-Based Care (two), and ARK Okahandja (two). Christ's Hope, the Dutch Reformed Church, Catholic Aids Action, Church Alliance for Orphans, and the US Embassy, were mentioned by one respondent each. Three respondents did not mention any organisation by name.

When asked what services they received from the service providers, responses by the caregivers indicated that they received foster-care grants, clothing, food, shelter, assistance with birth certificates, advice and psychosocial support, home-based care and counselling.

The caregivers' knowledge about the service providers and their offerings were obtained primarily through home-based care volunteers and social workers, (12 respondents, 80%), and also through workshops and seminars (80%). Four respondents got information from leaflets/pamphlets; three by way of the radio; two through friends; and one each mentioned traditional leaders, TV, billboards, computers (e-mail), and through the children. Four respondents indicated that they did not have any knowledge of the service providers.

The information needs stated by the caregivers varied, and are summarized in Table 3.

Table 3: Information Needs of Caregivers (N=15)



As expected, economic matters were the most pressing concern, with most of the respondents indicating that information that dealt with financial assistance, grants and the exemption of school fees was important. Many of the stated information needs

also referred to the attainment of basic services, such as health, counselling for traumatized children, and coping skills. However, when asked to rank their information needs in order of most pressing to least pressing, a slightly different picture emerged, as indicated in Table 4. However, economic and survival necessities were still top priorities for most of the respondents.

Table 4: Information most needed (N=15)

The caregivers were also asked about the channels they used to obtain and disseminate or share information. Their responses are summarized in Table 5.

The most useful channels were given as follows: workshops/seminars and TV (seven); the radio, church leaders, NGOs and government department officials (six each); Internet/email (five); friends(four); newspapers, signposts, and books (three each); and posters, regional councillors, video shows, politicians, the library, and guest speakers (two each). An interesting observation from the table is the high preference by the caregivers for workshops and seminars as channels both for gaining and for disseminating information, as this would not normally be a channel associated with people with the low educational levels indicated earlier. However, the interactive nature of these two sources could possibly be an indication of why they were preferred, as issues can be immediately clarified and direct assistance and guidance provided. The influence of mass media instruments, such as the radio, newspapers and TV, is something that service providers (such as the government) should take note of, particularly because these channels reach a large number of people.

Most of the respondents (i.e., 14 or 93%) indicated that the information received from these

Table 5: Preferred channels of information (N= 15)

channels was helpful, with only one answering negatively. When asked to indicate how the information helped them, various responses were given ranging from empowerment towards providing better care to patients, to ability to apply for grants. The following response aptly captures this view:

> *It helped me to care for HIV/Aids patients and provided information on how to apply for grants and how to handle children, including how to care for and love them. It also assisted me in preparing children to accept death in the family. It also assisted me to provide better home based care.*

Most respondents indicated that they faced problems in providing care to OVC: three (20%) stated that they experienced problems most of the time, eight (53%) stated they faced problems sometimes, while four (27%) stated that they did not experience any problems. Among the 20% who experienced problems most of the time, the issues raised included the following: how to obtain childcare support and social grants (two); getting money for food (one); difficulties in obtaining court orders from social workers as the workers don't have transport (one); patients refusing to take ARVs because they don't have food (one); counselling children in order for them to understand that there is life after death in the family (one); no knowledge on how to apply for grants (one); and difficulties in working with patients, as this requires patience and love (one). In relation to these problems, four respondents said they did not do anything about it, while one respondent each took the following actions: talk to the school principal, provide the social worker with transport, ask relatives for assistance, walk to the Ministry of Gender Equality to ask for help, encourage patients to take medicine, pray, ask for help from nurses and doctors, and encourage the child to talk. The reason four of the respondents did not do anything to find solutions to their problems could possibly be attributed to ignorance in terms of which sources or services to use, or whom to ask for assistance.

When asked how information could be made more accessible, the caregivers provided several suggestions. They proposed that information sources should be brought closer to people, but could not specify how this should be done. Other suggestions were: more workshops and seminars; more volunteers should be used to disseminate information; more community meetings; the Ministry of Gender Equality and Child Welfare should provide more support to OVC; increase the number of social workers; providing better facilities; provide more information on radio, TV, and in buses; more group discussions on issues pertaining to OVC.

Service Providers

Twelve questionnaires were sent to different service providers, but only eight responded. Of the responding organisations, one was Ministry of Gender Equality and Child Welfare, four were faith-based organisations: Okahandja Samaritan Network, Ark Okahandja, Dutch Orphans Charity, Betesda Life Fighter; two were non-government organisations (NGO): The Namibian Men Planned Parenthood Network, Namibian Farmers Aids Awareness Initiative; and one was a community based organisation (CBO): OVC Care Forum. Thus, NGOs and faith-based organisations play a crucial role. Meintjes et al. (2007:1) point out that as the number of orphaned and vulnerable children increases in Africa, so will the number of NGOs that mushroom in order to provide care for them.

Activities

The organisations were asked about their main activities. All the services organisations target children and caregivers. The government ministry assisted foster parents with court cases and filing in application forms, counselling, screening juveniles before court hearings, and placing children who needed care in institutions. Okahandja Samaritan Network organized kids clubs for the children, prepared soup kitchens, assisted children with school enrolment, and helped caregivers and children with income generating activities.

Ark Okahandja taught Christianity and provided support to people living with HIV/AIDS by handing out ARVs. Dutch Orphans Charity provided food, clothes, counselling, psychosocial support, and information regarding reproductive health, and assisted the children with their homework. Betesda Life Fighter provided home-based care and counselling, and helped to register orphaned and

vulnerable children with the MGECW. The Namibian Men Planned Parenthood Network provided sexual and reproductive health education to young people, home-based care, education regarding gender violence, soup kitchens, life skills development, and counselling.

The Namibian Farmers Aids Awareness Initiative provided HIV/AIDS testing, counselling, psychosocial support and information on family planning and sexual reproductive health. Lastly, OVC Care Forum assisted with school enrolment, fees, and a meal programme.

The data shows that most of the organisations provided outreach programmes and dealt with orphaned and vulnerable children and caregivers. There was some duplication, such as soup kitchens, home-based care, and assistance with school enrolment. Unique services mainly consisted of those provided by the government ministry (e.g. foster care, trauma counselling, etc).

Information Provision

The organisations were asked how they made the targeted group aware of their services. Most (six or 75%) of the organisations used community meetings, leaflets, posters, and the radio. Two organisations use Parent-Teachers Association (PTA) meetings; churches; informing caregivers (directly); outreach programmes in schools; workshops, seminars and conferences; talking to farm owners who pass the information on to other farmers; teaching the children drama; brochures; and collaborating with other organisations.

The respondents were asked about the channels of communication they used to disseminate their information. Most (three) of the organisations use community awareness meetings, followed by radio (two) in local languages. Other channels used are leaflets (one), posters (one), PTA (one), booklets (one), songs and drama (one), sending letters to churches (one), sending faxes to distant farms (one), and driving to the farms (one). It emerged from the survey that almost all the organisations created an awareness of their services mostly through word of mouth, but booklets and leaflets were used occasionally.

The service providers were asked whether they believe the channels to be effective. Two organisations stated that their channels were effective because more people were visiting their offices, and more caregivers and children were responding to and attending outreach and training programmes.

In order to obtain data on the type of information required by their clients, service providers were asked to give an indication of the questions that are regularly asked. Some clients complained that the government takes a long time to process papers, while others struggled to obtain school fees and asked about the availability of funds, counselling services, advice on sexual and reproductive health, their rights, and the availability of centres to rehabilitate OVC. The most popular question was concerned with the availability of grants and school fee exemptions. Some of these findings are similar to those of UNESCO (2005), which noted that caregivers needed to provide a number of documents before they can access grants. Obviously, it takes a long time for documents to be processed.

When asked about the format in which they provide information, all eight organisations stated that they provide information orally, followed by the print media (four) and video screenings (two). The data shows that all the organisations used more than one channel to disseminate information.

The organisations were asked where or to whom they referred their clients in cases where they didn't have the required information. The organisations gave more than one response. The majority four (50%) referred clients to the social workers of MGECW, while two referred them to school psychologists. Other service providers referred clients to the library/ resource centre (one), or other service providers (one). Most (six) of the service providers referred clients to professionals to get the assistance they needed. One organisation didn't do referrals because the clients are afraid to move around and always need an escort.

Organisations were asked to indicate the problems they faced when disseminating information about their services. Four organisations responded that they didn't have problems, while two organisations responded that they did not have the right equipment. One organisation lacked fuel to travel to the surrounding farms, while another did not have sufficient funds and sometimes people did not come to them.

The issue of collaboration was also raised to see how the organisations work together in order to use their scarce resources effectively. The information obtained indicates that the government under the Ministry of Gender Equality and Child Welfare usually brought together all the organisations dealing with orphaned and vulnerable children, collaborated with teachers in the counselling of the children, and normally had meetings with other organisations.

The organisations were asked how to improve communication between different service providers and the children and caregivers. The organisations gave a number of responses: communities at grass roots level should be involved and assist each other when services are needed; caregivers need to be made aware of the available opportunities; there should be regular consultative meetings; electricity power generators, videotapes, photocopying machines and fax machines should be made available as they are necessary to reach farm workers; and more branches should be opened to support farmers and train the caregivers on the farms.

The organisations were asked in which areas the children and caregivers needed more information. Responses were as follows: information on best practices and how other countries deal with caregivers and OVC; and information on parental care, grants from the ministry, reproductive and sexual health, rights, nutrition, financial assistance, school development funds, how to deal with teenage pregnancies, counselling, and health services.

Finally, the organisations were also asked to suggest areas in which government could improve information provision to the children and caregivers. All the organisations suggested financial assistance, assistance with school development funds, counselling and psychosocial support, and how to obtain identity documents.

Conclusions and Recommendations

This study found that the information needs of OVC, caregivers and service providers are focused on addressing the difficult circumstances in which they live. Information for survival was cited as fundamental by both OVC and caregivers. This included information on financial schemes from government and donor agencies, school fee exemptions, will writing, how to obtain identity documents, child care support, and health services. However, the mentioned items are seldom found in one place, making it a daunting task for people to get all the required information or to determine where to find it.

The channels used for information access and dissemination differed slightly between the groups, with the caregivers preferring direct contact, while the OVC preferred the mass media. It was found that despite all the channels available, there were still gaps in the flow of information to the OVC and caregivers, to the extent that many still did not know where to get the basic services provided by government and other service providers.

Most of the caregivers and OVC thought that the information that they retrieved or accessed was helpful, although there was some indication that not all the information was considered useful. This potentially leads to frustration and a feeling of helplessness in an already critical situation.

Service providers should therefore strive to make the information available - through their information services and resources - in a manner and format suitable to the environment in which the caregivers and OVC live, so that the information reaches them in a timely and effective manner. The preferences for different channels for accessing and disseminating information by the OVC and caregivers should be taken into account when attempting to provide them with information. It would also be ideal to empower/provide school teachers and OVC guardians with skills that enable them to deal with OVC's psychological problems, and avail them with basic information on the different services available to the OVC in their geographical areas.

Furthermore, the OVC problem is a national problem; thus, there is a need to establish a national information strategy that can provide basic information to OVC and caregivers all over Namibia in order to address their needs. This information could also be available on a website that radio stations and television stations could access and broadcast to the various stakeholders.

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Noise Sources and Levels at the University of Calabar Library, Calabar, Nigeria

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Abstract

The purpose of this study was to determine levels of environmental noise and identify noise sources that inconvenience library users in the University of Calabar Library. Data were collected using a Sound Level Meter to take acoustical measurements at over 100 points in and around the library, whilst a survey questionnaire was used to elicit information from users of the library. The survey sample consisted of 980 library users drawn from all the reading rooms in the university library. The study found that levels of noise in the university library were high [43.5 – 88.5 dB(A)] and exceeded the acceptable level of noise set by World Health Organization (WHO). The major sources of noise in decreasing order were noise from people, automobiles, aircrafts, cellular phones and equipment. The implication of this finding is that noise poses a serious threat and distraction to library users, as they cannot concentrate during reading and study activities in the library. Another implication of the finding is that the management of the university library appears not to be managing the problem of noise effectively. The study proffers several recommendations which, if implemented, would reduce significantly noise levels in the library considerably and make them conform to World Health Organization [WHO] standards.

Keywords

Noise, environment pollution, university libraries, library user, Nigeria

Introduction

Environmental noise is any unwanted sound that constitutes a menace to the environment. It is sound at the wrong time and in the wrong place. Environmental noise is as a result of human attitude, and is increasing with industrialization and urbanization. Noise can cause an emotional strain and become a source of great frustration when the noise is beyond a person's control. Noise causes exhaustion, absent-mindedness, tenseness and irritability (Wright, 2002). Universities are important agents in the development of human resources of any nation. The major role of the universities in Nigeria as defined in the National Policy on Education (Federal Ministry of Education, 2000) includes the provision of high-level manpower for national development, and this role is achieved through its programmes of teaching, learning and research. These roles of the universities cannot be achieved without the presence of a vibrant university library (Aguolu, 2003). University libraries assist the universities in the discharge of their functions by acquiring all the relevant information resources necessary for sustaining the teaching, learning, research and the public service functions of their universities. The extent to which university libraries are able to perform these functions will depend on a number of factors, which include a quiet learning environment.

The environment of Nigerian universities has changed with stringent economic conditions and rising enrolment that have resulted in over-crowding

of few available facilities. Daily, many library users in Nigerian universities are battered by sounds of varying intensities. This is because the university communities in Nigeria are now subjected to noise of cars, motorcycles, buses, sirens, the roars of airplanes, noise from hawkers, the noises of electric generators, student and staff themselves. All these have given rise to a noisy environment, which makes working, leisure, learning, reading, studying and teaching difficult, and sometimes impossible. Attempts have, however, been made at the Federal level of Nigerian government to control noise in Nigeria. On Monday, April 26, 1982, the House of Representatives Committee on Housing and Environment in a bold step towards the control and abatement of environmental noise in Nigeria called for memoranda on "Noise Pollution and Urban Noise Control Measures". More recently, in 2001, the Nigerian Senate began debate on the bill to ban the use of siren because of high noise levels (Onuu, 2000). This has recently led to the submission of a proposal of training for minimization of road traffic noise by Federal Road Safety Corps. Unfortunately, these attempts to reduce noise by the Nigerian government are not pursued to their logical conclusion, as noise has continued to be a major source of nuisance to the university communities in Nigeria. Our knowledge of noise levels in Nigerian university libraries hitherto is unknown. This leaves a gap of understanding the levels of environmental noise in university libraries in Nigeria. The study was therefore conducted to fill this knowledge gap by providing answers to the questions: What are the levels of environmental noises and what are the sources of noise that disturb library users in the University of Calabar library?

Literature Review

Noise is not a new phenomenon, but rather it is a problem that has grown steadily worse with time (Yano, Yamashita & Izumi, 1991). The poet, Decimus Junius, commented on conditions in ancient Rome and stated that noise caused more death among the Roman invalids than any other factor. Today, environmental noise poses a multi-dimensional urban challenge, and noise is the most widespread nuisance (Onuu, 2000). Noise in a library is part of the nature of the environment, and the university library is a dynamic university community centre that offers a wide range of services and materials. Noise in library has become a huge distraction for those who see the library as their sanctuary for quiet study and review of resources (Crumpton, 2007).

Studies have been carried out on noise levels in libraries. In autumn term of 2002, the Aberdeen University Library Services Division carried out a noise survey in the library. The survey concentrated on two forms of noise – people conversation and mobile phones and permissible levels of noise. The findings indicated that noise levels were high in the library (Aberdeen University, 2002). Hanna (2002) in a study of environmental appraisal of historic buildings in Scotland: the case study of the Glasgow School of Art reported that preliminary recordings of sound level showed an evidence of noise nuisance in one of the GSA offices.

In late March to early April 2003, the Robert Gordon University (RGU), United Kingdom, undertook a web-based survey to measure users' perception of the library service. The findings showed that noise in the library was a great nuisance. Dominy (2004) conducted a survey in Hagerty library in Drexel University and observed that noise levels are high in the library, especially at the circulation desks. In Appalachian School of Law, Grundy, United States of America, a biennial library survey was conducted during March and April, 2004. The results of survey showed that noise levels in the school were high and the library environment was not conducive for reading and learning (ASL, 2004). In spring 2005, a user satisfaction survey was conducted in the Aston University Library in the heart of Birmingham, most of the students commented that the library was too noisy for quiet study. In 2004, the eleventh annual general satisfaction survey was conducted in the Glasgow Caledonian University Library (2004). The findings showed that noise from people in library environments makes the respondents not very satisfied.

However, very few studies regarding noise in university libraries have been carried out in Nigeria. Ozowa (1996) studied on architectural design that reduces noise in Nigerian library buildings; and in the study, no inclusion of noise levels or sources were mentioned. Exhaustive search of the literature showed that no known study has been conducted on

any Nigerian university library to determine noise levels, given the relatively old age of the library buildings and changing use of and study techniques since the buildings were designed.

University of Calabar Library

The University of Calabar (UNICAL), located in Calabar; Cross River State, Nigeria was established on 1st October 1973. It grew out of the Calabar campus of the University of Nigeria, Nsukka (UNN). Today, the University of Calabar (UNICAL) library houses about one million unique collections, which support the university's academic curricula, as well as research and scholarship.

The library moved to its present building in 1987. The new library building is located at the centre of the new academic campus with faculties of Medicine, Science, Arts grouped around it within a five-minute walking radius. The building, excluding the basement, is a four-storey "H" shaped structure with each wing measuring 108 by 14.775 metres. The wings are linked in the middle on each floor by a central service court 18 metres long. It is also linked at each end of each floor by a covered walkway. The central service court carries the main staircase and landings, lift (not functional) and conveniences on all the floors.

The right wing faces the science faculty, which is towards the North of the university campus, and it is separated from the science faculty by a car park. The first floor of the right wing houses the reference and social science libraries. The second floor houses the science, technology, medical and law reference library. The third floor houses the research library division (which consists of journals, abstracts and indexes) and the Africana division.

The left wing faces the Great Kwa River on the east of the campus. The ground floor houses the resource development, processing and humanities units. The first floor of this wing houses the university librarian's office, ICT portals, classrooms and some business centres. Eighty-nine (89%) of the second floor is used for classrooms and business centres. Department of Radiology uses the third floor as offices and classrooms. The fourth floor of the building is not completed. There are adequate numbers of electric fans, which facilitate air circulation inside the library; however there is no air conditioning.

To the west of the university is the Calabar International Airport. The University of Calabar library has ICT infrastructural facilities supporting a virtual library network equipped with sixteen computer systems. The opening hours of the library are Mondays to Saturdays between 8am and 10pm during sessions, and between 8am and 6pm during vacation.

Table 1: Layout of the University of Calabar Library Building

Research Methods and Instruments

This survey used three main methods to collect data: a combined acoustical (using sound level meter), a questionnaire and direct observation methods. The use of combined methods is because noise has sensory, spatial and behavioural aspects in terms of their sources, magnitudes and effects. Similar methods were used in other noise monitoring programmes in Japan (Yono, Yamashita & Izumi, 1991), in the United States of America (Reuters, 2002), and in India (Pal & Samantha, (2002). These methods are in conformity with the American National Standards Institute [ANSI] (2002) recommendations for the description and measurement of environmental noise.

Sound Level Meter

Sound is measured in decibels (dB). The decibel reading has been adapted to match the way that the human ear works (National Institute on Deafness & other Communication Disorder, 2004). One decibel is approximately equal to the threshold of a person's hearing. The human ear is not equally sensitive to sound at all frequencies. A special frequency dependent rating scale has been devised to relate noise to human sensitivity. It is called the 'A' weighted decibel scale [dB (A)] and performs this compensation by discrimination against frequencies in a manner approximating the sensitivity of the human ear (Kryter, 1996).

A sound level meter is an instrument, which gives objective, reproducible sound level in decibels (db), and is for monitoring sound levels in a 30dB to 130dB range. The sensing microphone on the sound level meter is located at the end of the silver barrel at the top of the meter. The front panel has an LCD and four buttons labeled POWER, WEIGHTING, DB, and REPONSE. LCD display allows for easy use and viewing of measuring sound levels. A 3.5-mm signal output terminal is located on the bottom of the meter. The output of this terminal is sent to the data logging end. Panel buttons turns the meter power on and off. It also controls the output of the signal output terminal. When the switch is in the "ON" (DC) position, the output is a DC signal which is proportional to the dB level. When the switch is in the "ON" (AC) position, the output is the AC signal from the sound level meter. This switch sets the range for the panel read out. In low noise settings, the switch is set on the "30 – 80" scale. If a small solid triangle appears to the left of the digital readout, other settings for higher sound levels are used. In this study, the B & K Type 2203 precision sound level meter was used. The meter was set up on a tripod 1.2m above the ground. This level corresponds to the ear level of an average human height (Yono, Yamashita & Izumi, 1991).

The library was zoned into four sites. Measurements of noise levels were made at the outside and inside (with windows open) of the university library building. Measurements were made in the university library at noisy and quiet periods during the day (8am - 6pm) and during the night (7pm -10 pm) on working days (Mondays to Saturdays). All measurements were made without any specific noise source in mind. One hundred random readings were taken at different locations in and outside the university library.

Questionnaire

The choice of the questionnaire as the appropriate instrument for the study is based on objective oriented rating in measuring community response to noise level. Aberdeen University library services (2002) used a questionnaire with rewarding success during a noise survey of their university libraries. The questionnaire used in this study had eight items and was pre-tested. The first part of the questionnaire requested from respondents such personal information as age, gender, length of time as staff or student, and hearing status. The questionnaire also asked if the respondent had any hearing problems. The second part elicited data on the sources of noise, level of disruption of activities, and the respondent's rating of the level of noise. The questionnaire was handed out to everyone entering the reading rooms of UNICAL library on a half hourly basis for one week. The researcher assumed that everyone allowed access to the library was a regular, registered and bona fide library user. The questionnaire had accompanying text explaining the rationale for the survey. This study was undertaken in February, 2008.

Out of the one thousand and forty six (1,046) copies of questionnaire distributed, nine hundred and eighty - eight (94.45%) were returned with valid

responses. Thirty-one copies (2.87%) were not returned at all and 27 copies (2.68%) were returned uncompleted. From the 988 respondents, three (3) respondents who had hearing problems and were not using hearing aids were excluded from the study. Also, five (5) respondents that indicated that they had other worries besides noise and could not concentrate while in the library were excluded. Nine hundred and eighty (980) respondents were actually used for the study, and their demographic attributes are summarised in Table 2.

Table 2: Background Information of Respondents

Age (years)	No.	%	**Gender**	No.	%	**Length of stay (years)**	No.	%	**Hearing status**	No.	%
17- 27	539	55.0	*Male*	674	68.8	*1-2*	184	18.8	*Using hearing aid*	10	1.0
28-37	263	26.8	*Female*	306	31.2	*3 or more*	796	81.2	*Not using hearing aid*	970	98.9
38 and above	178	18.2									
Totals	**980**			**980**			**980**			**980**	

No. - Number of respondents
Source: Field Data (2008)

Table 3: Average Outdoor - Indoor Noise Levels

Zone	UNICAL Library Location	Night periods dB(A)		Day periods dB(A)	
		Indoors	*Outdoors*	*Indoors*	*Outdoors*
1.	Front	44.0	46.0	74.2	88.5
2	Back	44.0	44.0	64.5	68.0
3	Right	43.5	43.7	65.0	67.0
4	Left	43.5	43.9	68.0	75.0

Source: Field Data (2008)

Findings

Measurements with the Sound Level Meter

Table 3 shows the average indoor and outdoor noise levels, at various locations in the university library. For night periods, the noise levels were 43.5 and 46.0 dB(A), while 64.5 and 88.5 dB(A) were measured for day periods respectively. The results revealed that level of environmental noise is high in University of Calabar library.

Respondents' Rating of Noise Levels

Respondents were asked to rate the noise levels in the UNICAL library. The results revealed that 348 (35.5%) respondents rated the university library as noisy, 377 (38.47%) rated the library as very noisy; while 144 (14.70%) rated the library as extremely noisy (Table 4)

Table 4: Respondents' Rating of Noise in the Library

Noise rating	**Total**	**(%)**
Extremely quiet	0	0.0
Quiet	111	11.32
Noisy	348	35.51
Very noisy	377	38.47
Extremely noisy	144	14.70
Total	980	100

Source: Field Data (2008)

Major Sources of Noise in the Library

On noise heard most often by respondents, Table 5 shows that 'people' was indicated by close to half (44.80%) of the respondents, followed distantly by automobiles (21.53%), and yet more distantly by air planes (14.79%), and then cell phones (10.31%) and equipment (8.57%). Figure 1 charts the relative frequencies with which the different sources of noise were mentioned by the respondents.

Table 5: Major Sources of Noise in the Library

Source of noise	Frequency	%
Automobiles	211	21.53
Cell phone	101	10.31
Air planes	145	14.79
Equipment	84	8.57
People	439	44.80
Total	980	100

Source: Field Data (2008)

Effects of the Noise on Different Categories of Library Users

Table 6 summarizes the respondents' estimation of the disruptive effects of noise on activities in the library. Disruption of activities by noise was rated by respondents to be "slightly', "much" and "very much" by 30.1%, 38.6% and 31.3% of the 980 respondents respectively.

Table 6: Respondent's Rating of the Level of Disruption of Activities Caused by Noise in the Library

Very Much	Much	Slightly	Not at all	Total
307 (31.3%)	378 (38.6%)	295 (30.1%)	0 (0.0%)	980 100%

Age and Perception of Level of Disruption caused by Noise

Table 7 also shows data in respect of the column of perceptions by respondents in different age groups of the extent to which their activities are disrupted by the noise in the library. To find out if the level of disruption is influenced by age, a chi square test was used to analyse the data (Table 4). The calculated $\div^2$ value of 189.60 was greater than the critical $\div^2$ value of 9.49 at degrees of freedom (df) of 4 and 0.05 alpha level. Thus, age of respondent was found to be significantly associated with perceptions of the extent to which activities in the library are disrupted by noise. Comparison of the observed and expected cell counts in the table shows that very young users (aged 17-27 years) appeared less disrupted by the noise, whilst those aged 27-37 years tended to be 'much' or 'slightly' disrupted, but not 'very much'. Finally, older respondents (aged 39 years or above) tended to be 'very much' disrupted by the noise than their younger counterparts.

Table 7: Respondents' Perception of the Extent Of Disruption of Activities Caused by Noise

	Extent of disruption caused by noise			
Age (Years)	***Very much***	***Much***	***Slightly***	***Total***
17- 27	158 (168.85)	205 (207.90)	176 (I62.25)	539
28-37	25 (82.39)	128 (101.44)	110 (79.17)	263
38 & above	124 (55.76)	45 (68.66)	9 (53.58)	178
Total	307	378	295	980

NOTE: Expected values are in brackets.*Chi-square test results:*Calculated $\div^2$ = 189.60; Degrees of freedom = 4; Critical $\div^2$ = 9.49; Test is significant at 5% level.

Gender and Perception of Level of Disruption caused by Noise

A chi-squared test was performed to find out if there were gender differences in the respondents' perception and estimation of the extent of disruption of activities due to noise. The test showed that the calculated $\div^2$ value of 0.37 was less than the critical $\div^2$ value of 5.99 for two degree of freedom at the 5% level of significance (Table 8). The conclusion, therefore, was that male and female respondents did not differ significantly on their estimation of the extent of disruption caused by noise in the library.

Table 8: Chi-squared Test of Gender Differences in Perceptions of the Disruptive Effects of the Noise

	Extent of disruption caused by noise			
Age (Years)	**Very much**	**Much**	**Slightly**	**Total**
Male	215 (211.14)	259 (259.97)	200 (202.89)	674
Female	92 (95.86)	119 (118.03)	95 (92.11)	306
Total	307	378	295	980

NOTE: Expected values are in brackets.*Chi-square test results:*Calculated $\div^2 = 0.37$; Degrees of freedom = 2; Critical $\div^2 = 5.99$; Test is not significant at 5% level.

Table 9: Chi-squared Test of Length of Stay Differences inPerceptions of the Disruptive Effects of the Noise

	Extent of disruption caused by noise			
Age (Years)	**Very Much**	**Much**	**Slightly**	**Total**
1-2 years	115 (57.64)	59 (70.97)	10 (55.39)	184
3 or more Years	192 (249.36)	319 (307.03)	285 (239.61)	796
Total	307	378	295	980

NOTE: Expected values are in brackets.*Chi-square test results:*Calculated $\div^2 = 118.56$; Degrees of freedom = 2; Critical $\div^2 = 5.99$; Test is significant at 5% level.

Length of Stay and Perception of Level of Disruption caused by Noise

Table 9 shows the distribution of respondents by the duration of stay at the university. The data show that most (81.2%) of the respondents had spent three years or more in the university, and so would have spent significant time in the library over the period. A chi square test with the data was undertaken in order to determine if respondents' estimation of the disruptive effects of the noise varied by length of their stay at the university (Table 8). The calculated $\div^2$ value of 118.56 was greater than the critical $\div^2$ value of 5.99 at two degrees of freedom and 5% level of significance. The conclusion, therefore, was that there was significant association between respondents' length of stay and their estimation of the disruptive effects of the noise. Comparison of the observed and expected cell counts in the table shows that respondents who had stayed in the university for a shorter period (1-2 years), as one would expect, felt disrupted by the noise more than those who had spent longer periods (3 or more years). The respondents who had spent longer periods had probably adapted to the noise, despite the likely undesirable health effects of the noise on them, such as gradual hearing noise and stress.

Discussion

The WHO standards indicate that noise levels inside educational institutions and schools should not exceed 45 dB(A). The noise levels recorded at the library were within the standards during night-time, but ranged between 64.5 and 88.0 at various points in the library during the day-time when most users patronise the library. The day time noise levels are much above the acceptable noise level standards. Thus, one can conclude that users of the UNICAL library are being inconvenienced and disturbed by noise. According to the United States Environmental Protection Agency (ASHA, 1995), at noise levels of 70 dB(A) or higher, only 45% of reading intelligibility is possible. This finding is similar to the investigations of Crandell, Smaldino and Flexer (1995) who revealed that high levels of noise in school environment contribute to poor reading skills of students. Similarly, laboratory studies by Bronzaft (1997) showed that people exposed to high levels of noise were not able to perform tasks requiring skills of attention such as reading. ANSI (2002) reported that when noises in schools exceed recommended levels, it is difficult for people to learn or study. The conclusion from the recorded day-time noise levels at the library is, therefore, that learning activities in the library are being compromised.

The high noise levels in the UNICAL library could be due to high population in the university. At inception, the university had only three faculties, 154 students and small complement of academic, administrative and technical staff. At present, the student population had increased to about twenty thousand (20,000) in 63 academic departments, 10 faculties, and four colleges and institutes, as well as many non-academic departments and units (University of Calabar Annual Report, 2007). Thus libraries, classrooms, laboratories and the campus are usually overcrowded, which results in a lot of noise in and to the university library. The management of the university library appears not to be managing the problem of noise effectively. New lecture halls and office blocks have been built, but the library still serves as lecture halls, and no measures seem to be in place to reduce noise in the library

The study observed an age bias in respect of response to noise, with younger respondents reporting less disruption than older ones. This result agrees well with those obtained by McNulty (1987), who studied impact of transportation noise and found out that teenagers reported less disruption than older persons. The findings revealed that there was no gender bias with respect to disruption effects of noise in the library. Onuu (2000) similarly found no gender biases in perceptions of road traffic noise. The study also found evidence of adaptation to the noise by the respondents who had stayed longer at the university. Similar results were obtained by Hammad and Abdelazeez (1987), who reported that residents who live or work in boisterous cities for a long time have accepted noise as a way of life and thus report less disruption. In the same vein, McNulty (1987) also reported evidence of adaptation to noise in his study of subjective response to noise.

Most of the library users rated the library as very noisy. These findings are similar to those observed at the Aston University, Birmingham. In a 2005 user satisfaction survey conducted in the university library, 66% of the surveyed students commented that the library was too noisy for quiet study. Many of the students felt that the library was being, but should ideally not be, used as a social place. In the same vein, Ball (2004) commented on the LibQual survey in which over 200 libraries in North America participated that there were many complaints about the noise levels in all areas of the libraries, and that undergraduates rated the libraries as noisy.

The sources of noise mentioned most frequently by the respondents were people, automobiles, airplanes, cell phones and equipment in that order. Noise from people tops the list as most prevalent noise by a very wide margin. These findings are similar to Wright's (2002) observation at the University of Oklahoma. Similar findings were reported by the Aston University Library and Information Services, which confirmed that library was too noisy for quiet study and that many students used the library as a social place (Aston University 2005). Also, the Robert Gordon University conducted a LibQual survey in spring 2003 to identify gaps in and desired expectations of library service. The results show that most students would need a separate study area, which might alleviate noise from other readers while reading. In same vein, in Aberdeen University Library Services Division found, during a noise survey was conducted in 2002, that noisy staff and noisy students are major sources of noise.

Noise from people as a major source of noise in UNICAL library could be due to the fact that many users of UNICAL library act as though they were never introduced to the idea that a library is expected to be a quiet place. Users treat the library as though it were a social forum rather than a place for quiet study. Groups of them quite commonly cluster together and converse at normal conversational levels as though they were in a bar. Students shove their feet and chew gum inside the library. Noise also comes from staff of the library because the library is a teaching environment where librarians must talk to assist users in finding and understanding the information resources. The service desks (circulation, reference, reserve) provide assistance to users, so moderate level of noise is also expected. Also, The UNICAL library serves as lecture halls and classrooms, so there is high level of noise during peak hours. It is also not uncommon to see hawkers near the university library.

The Calabar Free Trade Zone (CFTZ) was commissioned in November 2001. Since then, there has been an upsurge of fairly used vehicles popularly referred to as "Tokumbo" or "Belgium" into Calabar

town and its environs. There is indiscriminate importation of old vehicles and the number of vehicles in Calabar has increased. Also, there is widespread use of horns and siren by motorists, government officials, fire fighters and bullion vans. These explain the high level of noise from automobiles at the UNICAL library.

Noise from airplanes is the third major source of noise at the library. To the west of UNICAL library is the Calabar International Airport. Although the university is not directly under any fly path, noise from airplanes flying at low altitudes could be heard in the university library especially during airplane landing and take-off. Commuters' use of airplanes in Calabar has increased due to establishment of 'TINAPA', a tax-free business and holiday resort that is attracting a lot of tourists to Calabar.

Noise from cell phone is the next major source of noise in UNICAL library. Noise from cell phone as a major source of noise in UNICAL library could be due to the fact that the cell phones policy as announced by UNICAL library administration is not being enforced. UNICAL library regulations regarding the use of cell phones in the library expect owners of cell phones to turn ringers off or set to the lowest volume level while in the university library. Observations by this researcher show that users of UNICAL library do not turn off their cell phones while in the library. Not only do the ringing cell phones disrupt library users' activities, but they also force them to endure listening to cell phone conversations when cell phone owners do not have the decency to leave the reading area to talk. These findings are similar to Vincentia's (2003) report that unprecedented availability of cell phones to students in St. Vincent and the Grenadines has led to noise in schools, and cell phones have become a nuisance. Students complain of not being able to concentrate in schools libraries where every five minutes a cell phone rings. Similar findings were reported by Rochelle (2003).

Noise from equipment is also an important source of noise in the library. In UNICAL library, noise from equipment is mainly due to the many business centres operating in and around the library, which provide services to the university community. Apart from the traffic of customers to these business centres, owners of some of the centres resort to the use of electricity generators during the very frequent public power outages. The high noise levels emitted by these machines add to the overall environmental noise pollution.

Conclusion and Recommendations

Environmental noise pollution has become very worrisome in UNICAL library, and the high environmental noise conditions negate the purposes for its establishment. The purposes of university libraries as locations for intensive study cannot be achieved without the presence of a quiet environment. The findings of the study reveal that noise levels in UNICAL library are high (43.5 – 88.5 dB{A}) and exceed acceptable standards for educational institutions. The noise constitutes a serious distraction to library users. So, the effectiveness of study and learning processes that take place in the library is likely being compromised.

Based on the findings of this study, the following recommendations that will result in control and abatement of increasing noise levels in the university library are suggested:

- Signs should be posted in each designated zone of the library building indicating the allowable noise level in order that users can make an informed decision on the most suitable area for their use. A sign should be placed in the library reminding users to turn off phones or set them to silent mode upon entering the library.
- Every reasonable effort should be made to ensure that noise is limited to appropriate level. Library staff observing violation of noise policy should remind users of the noise policy, and may suggest a more appropriate area for study. Should the library user refuse to abide by the policy, he or she should be asked to leave the library and if he or she refuses to leave, security should be called. Library users who repeatedly violate the noise policy should have their names and their student numbers recorded by a staff member. The head of their department should be notified and disciplinary action taken.
- Electricity generators and other equipment that generate noise should be housed far away from libraries. Automobiles that emit high noise levels

should be banned from entering the universities.

– The use of noiseless air conditioner, quieter copiers and printers should be encouraged in the library. Screens should be erected around air conditioners, copiers, and printers in the library to help absorb the sound. Engineering measures such as sound insulation and anti vibrating mountings should be fixed in the library buildings. Trees and shrubs should be planted around libraries, as trees help to absorb noise.
– Nigerian universities should sponsor research about noise levels and sources in their libraries and other locations on their campuses towards implementing strategies to control environmental noise.

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Use of Library Information Resources and Services as Predictor of the Teaching Effectiveness of Social Scientists in Nigerian Universities

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Abstract

This study investigated the predictive relationships between teaching effectiveness and use of library information resources and services among social scientists in thirteen federal government-funded Nigerian universities. Stratified random sampling with equal allocation method coupled with self-developed questionnaire was used to collect data from 650 academic social scientists from the universities, out of which 570 responded giving a response rate of 87.7 per cent. The study found that the utilisation of library information resources and services correlated significantly with perceived teaching effectiveness of the respondents. It was also found that the utilisation of library information resources and library services contributed 49.8 per cent and 38.5 per cent respectively to the prediction of teaching effectiveness of the respondents. It was recommended that academic social scientists in the Nigerian universities should endeavour to use library resources and services to improve their teaching effectiveness.

Keywords

Library information services, social scientists, teaching effectiveness, universities, Nigeria

Introduction

Roberson (2005) defined a library as an institution that manages the intellectual products of society and processes them in such a manner that the individual can gain access to them readily. University libraries provide resources for knowledge acquisition, recreation, personal interests and interpersonal relationships of users (academic staff, non academic staff and students and library personnel}. The university library is a key component of a university system. Library information resources may be defined as those information bearing materials that are in both printed and electronic formats such as textbooks, journals, indexes, abstracts, newspapers and magazines, reports, CD-ROM databases, Internet/E-mail, videotapes/cassettes, diskettes, magnetic disk, computers, microforms, etc. These information materials are the raw materials that

libraries acquire, catalogue, stock, and make available to their patrons, as well as utilize to provide various other services. Library information services may be viewed as the activities that libraries and their personnel render to meet the information needs of their users. Such services include core and traditional library services such as reference, current awareness, selective dissemination of information (SDI), circulation of library information resources, indexing and abstracting, CD-ROM database search, translation, microfilming, bindery, as well as digital age Internet-based and business bureau services such as e-mail, world wide web, photocopying, facsimile, word-processing, etc.

Among the categories of users which university libraries serve are academic social scientists. The social sciences are a branch of knowledge concerned with the study of human beings interacting or acting in groups (Line, 2000). The social sciences, which include such subjects like Economics, Geography, Sociology, Anthropology, Political science, Psychology and Demography, aim primarily toward understanding human social behaviour, as well as the relationship between people and the social systems in which they participate. Social scientists in Nigerian universities, like other university academics, are expected to perform three main functions — teaching, research, and service (such as consultancy practice). These functions are mutually interdependent. Teaching and service are expected to be enriched by the improved subject matter knowledge obtained through research, whilst research strategies and conclusions should be enriched by the feedback from students and society. In this respect, university administrators are usually very concerned with how to motivate their academics to undertake innovative research and teach effectively. In particular, teaching effectiveness is considered important because effective teaching by lecturers would ultimately facilitate improved student learning in, and quality graduate output from, the universities to improve society.

Teaching effectiveness can be defined as the ability of a teacher to inculcate knowledge and skills in students, as well as change their behaviour for better living. Adam (1993) and Ismaila (1999) have noted that teachers' knowledge of subject matter, skill proficiency and resourcefulness could be linked to school effectiveness, teacher effectiveness and students' academic performance. In other words, one of the requirements for the teaching effectiveness of social science teachers in universities is improved knowledge of subject matter acquired through research and service. In addition, such teachers should possess teaching skill proficiency and resourcefulness. Among the strategies that demonstrate such skills include: clear goal setting, good structuring of curriculum content, clarity of presentation of lectures, frequent questioning of students, use of exercises immediately after presentation of new content, use of evaluation, feedback and connective instruction, effective class management, etc.

Teaching effectiveness variables and indicators could be used to assess the effectiveness with which social scientists in Nigerian universities perform their teaching functions, much in the same way as the quality of their research functions is usually assessed by the quality of research activities and publications. In this regard, self evaluation by lecturers themselves and students' evaluation of their teachers' quality of teaching have been emphasized in the literature as good methods of ascertaining the teaching effectiveness of academic staff in educational institutions (Marsh, 1987; Onocha, 1995).

Problem Statement and Objectives

In the field of social science information sources and systems, especially in Africa, no effort has been made to understand how the availability and use of library information resources and services relates or contributes to the teaching effectiveness of social scientists in universities. It was in the light of this that this study investigated library information resources and services utilisation as correlates of perceived teaching effectiveness of social scientists in Nigerian universities. The specific objectives of this study were to:

(a) find out the library information resources mostly used by social scientists.
(b) determine the library information services used by social scientists.
(c) find out if the use of library information resources or library information services correlates significantly with teaching effectiveness of social scientists.
(d) ascertain the extent to which the levels of use of library information resources and services among

the social scientists could be used to predict their teaching effectiveness.

(e) determine the relative contribution of the use of library information resources and use of library information services to the prediction of teaching effectiveness of the social scientists.

The study also sought to validate the following hypotheses:

1. There is no significant multiple correlation between library information resources' utilisation, library information services utilisation and teaching effectiveness of the respondents.
2. The linear combination of library information resources utilisation and information services utilisation does not significantly predict teaching effectiveness of the respondents.

The findings from this study of how the use of library information resources and service may influence positively the teaching effectiveness of the social scientists in Nigerian universities would assist the university library managers in determining how to improve their resources and information services in support of teaching and research in the universities. The findings would also provide insight for social scientists on how their future use of the resources and service could be used to improve their teaching effectiveness. This may, in turn, promote greater collaboration between university library managers and the social scientists on strategies for more effective development, access to and use of the library resources and services.

Literature Review

The exponential growth of published literature in different academic fields all makes it difficult for the social scientists in universities to keep track, access and use relevant and qualitative information for effective teaching. Information in this context could be defined as facts, news, messages, opinions, ideas, processed data, symbols, signs and signals that are capable of improving the knowledge of a recipient on a particular subject, topic or event. Although the Internet and the Web nowadays provide access to wide range of information sources such as web pages, databases and full-text documents, university libraries are still reputed for their careful and judicious selection of information resources and the provision of library information services that support the academic programmes of their universities. Moreover, especially in developing countries, university libraries have usually pioneered the provision of Internet connectivity and access to enable students and teachers to access web resources. Accordingly, quality library information resources and services provided by university libraries are essential to ensuring quality teaching and learning in the universities. Hence, the university library would, ideally, be the main storehouse of quality resources and services for effective research, teaching and service by social scientists in the universities. However, if a university library is to provide effective information services to support teaching and research, it must have adequate information resources and sufficient highly skilled information professionals.

Social Scientists' Use of Library-based Information Resources and Services

Roberts (1980) opined that the involvement of social scientists in their own information activities has been an implicit one; in everything, it shows a substantial contrast to the scientific, technological, and medical fields, where researcher and practitioner involvement in information activities has been far greater and more profitable. Preschel and Woods (1989) reported that the academic social sciences are not at the leading edge of information dissemination technology from reasons such as: costs; interdisciplinary structure; imprecise terminology and fuzzy-edged concepts of the subject areas; and the possibly poor prospects for return on investment. Hence, academic social scientists often build up their own information collection with a wide variety of material, including conference, workshop and symposium papers, photocopied articles, pre-prints, research reports, monographs, books and electronic information downloaded from the Internet, floppy and compact discs for their own convenient use, rather than consulting information materials in their institutional libraries. Studies on information-seeking behaviour and use of some user groups point to the fact that the information-seeking process usually begins with personal collection.

Nevertheless, social scientists in the universities can best benefit maximally from the use of library information resources and services when they actually use them continuously for updating their knowledge and teaching skills. Adeleke (2005)

asserted that if the library is to contribute to the advancement of knowledge, it must not only provide the resources but also ensure effective use of the resources by its clienteles. Okiy (2000), in support of this claim, posited that for the library to perform its role adequately, its resources must be effectively utilized. Thus, the social scientists in the universities need to have access to relevant information resources in their institutional libraries and make effective use of them to improve their teaching effectiveness.

Olanlokun (1995) found that journal articles, textbooks, theses and dissertations, monographs and treaties and government documents were considered very important to the job functions of the Nigerian academics. Hobohm (1999) confirmed that social scientists relied heavily on monographs, as well as on periodical literature. A study of the information seeking behaviour of social scientists in Haryana universities by Shokeen and Kaushik (2002) reported that periodicals were the most important and used source of information, while browsing is the first preferred method of searching the required information.

Watson (2004) opined that digital reference services are very important for the use of social scientists. He further submitted that citations are the single most important source of information for social science researchers, an online citation service such as the social sciences citation index is necessary. Abstracts and indexes, online catalogue, textbooks and journals are used by academic social scientists to improve their effective teaching and research (Adekunle, 2004). Meho and Haas (2001) reported that social science faculty studying stateless nations used the world wide web and electronic mail. Social science faculty largely depend on formal sources of information, such as books journals, theses and dissertations (Folster, 1989; Haart, 1997; Shoham, 1998). Similarly, Meho and Tibbo (2003) reported that social scientists studying stateless nations relied more on their personal collection, fieldwork, other libraries, and archives than their own university library collection.

Agba, et al. (2004) reported that academic staff at Makerere University in Uganda used library electronic information resources for teaching and research. Nazan and Kurbanoglu (1998) found that social science and humanities scholars in a Turkish University preferred and used library reference materials such as encyclopedias, dictionaries and periodicals for their teaching and research in a Turkish university. Oduwole et al. (2002) confirmed that students, academic staff, administrative personnel and the public made use of Online Public Access Catalogue in University of Agriculture, Abeokuta, Nigeria for report writing, lesson preparation, research methodology and class assignments. However, Day and Bartle (1998), reported that of the 193 academics from Social Science related discipline in the seventeen higher education institutions in United Kingdom, 43 per cent of them never referred to electronic journals but made use of electronic mails.

In respect of library information services, Medina (1990) asserted that a number of library networks have experimented with the delivery of documents via fax, resulting in shorter delivery times. With the advent of information communication and technologies, some academic libraries in the Nigerian universities have been able to offer effective information services like Internet/E-mail, facsimile, telephone/telex, statistical data analysis, word processing and desktop publishing, CD-ROM database searching, current awareness, photocopying, lamination, etc. Social Scientists in universities also rely heavily on the use of statistical information in order to be able to understand human behaviour in different societies.

Teaching Effectiveness of Academics

The teaching effectiveness of the academics in the Nigerian universities has been of interest to educational evaluation experts (Obanya, 1985; Warkins, 1994; Doyle, 1983). Onocha (1997) stressed the importance of evaluation of teaching effectiveness of teachers by reiterating that the evaluation constitutes a source of information for diagnostic feedback to teachers about the effectiveness of their teaching, for measuring teaching effectiveness to be used in administrative decision making, for measuring quality of the course to be used in course improvement and curriculum development, for students in order to determine which courses to select, for teachers so that they know what teaching skills they should improve, and for scoping further research on teaching. Okpala (1999) suggested that

the evaluation of teaching effectiveness could be conducted by the teacher himself, the student (learner) or an observer.

Okpala and Onocha (1994) posited that quality teaching promotes a pattern of teacher-student interaction biased towards encouraging learner active involvement in individual and group activities (e.g. asking questions, discussing, manipulating, observing); and the teacher's active involvement in helpful activities such as explaining, demonstrating, prompting thinking and discussion, clarifying concepts, etc. Enthusiasm has also been identified as one of the characteristics of an effective teacher and is, perhaps, related to teaching excellence. Some of the parameters for measuring teaching effectiveness in the field of educational evaluation include: teacher's enthusiasm about teaching; use of humour to enhance of presentation; encouragement of students' expression of ideas; emphasis on course content in tests and examinations, recommendation of valuable reading texts; encouragement of students' questions and answers; use of teaching styles that hold student interest; careful preparation of course materials; provision of valuable knowledge, clear explanation of concepts, etc.

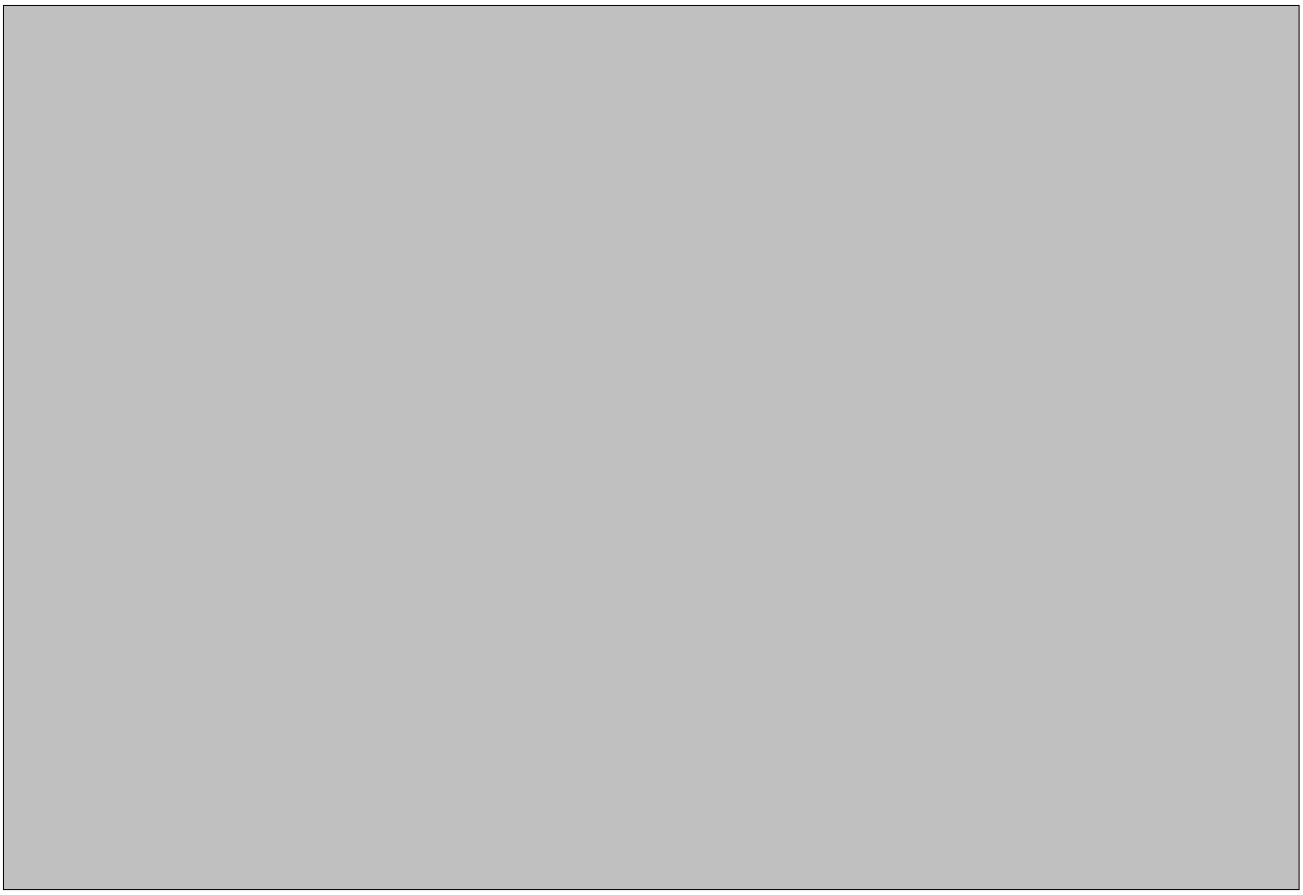
Haslett (1984) reported that there were four dimensions of teaching effectiveness by which students judged their teachers, namely: student/ teacher rapport, communication style, instructional style and stimulation. Their most prevailing teaching effectiveness methods used by the respondents included those that hold students' interest, recommend valuable reading texts, enhance presentation of lesson with humour, discuss current development in the field, amount others. Cawley and Zimmaro (2000) submitted that teachers who had extensive mastery of subject matter were more logical in their presentation of instruction. They provided helpful and timely feedback, and graded materials and examinations regularly.

Methodology

The population of study consisted of social scientists in the thirteen Federal Government Universities that were founded between 1948 and 1975 in Nigeria, and offered at least three of the core disciplines in the social sciences (Geography, Economics, Psychology, Political Science, Sociology and Anthropology). These universities produce about 70 per cent of the annual turnout of the Social Science graduates to the Nigerian labour market. In addition, they are first and second generation universities notable for academic excellence.

Stratified sampling technique with equal allocation method was used to select 50 social scientists from each university, making a total of 650. A self-developed questionnaire tagged the Library Information Utilisation and teaching effectiveness of Social Scientists (LIUPTESS) scale was used to collect data. The questionnaire had a Cronbach Alpha reliability coefficient of 0.72 for the Library Information Utilisation sub-scale and 0.88 for the 18-item Teaching Effectiveness sub-scale. Thirteen trained research assistants helped with the administration of the questionnaire. A total of 570 social scientists out of the 650 sampled responded and the copies of their questionnaire were found valid for analysis given a response rate of 87.7 per cent. The data collection and analysis lasted for six months, during June to November, 2005. The distribution of returned copies of the questionnaire by university and social science department is summarized in Table 1.

Table 1: Distribution of Respondents by University and Department



Data Analysis and Findings

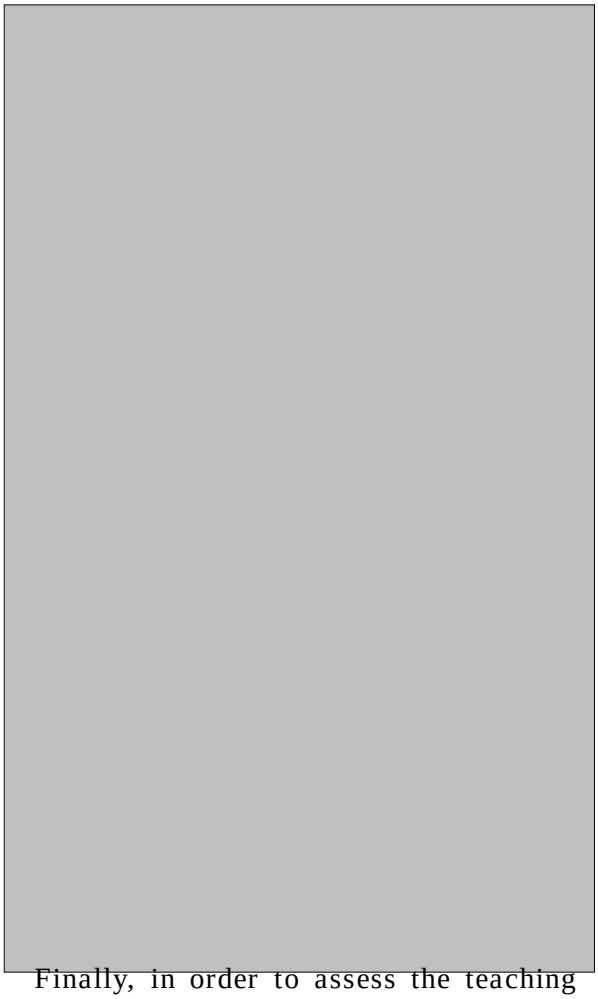
The 570 respondents in the study comprised 433 (76%) males and 137 (24%) females. Concerning their academic qualifications, 180 (31.6%) possessed master's degrees, 68 (11.9%) possessed master of philosophy degrees, and the remaining 222 (56.5%) possessed doctor of philosophy degrees. They were aged between 32 and 64 years, with a mean age of 39 years. In terms of job status, 59 (10.4%) were Assistant Lecturers, 186 (32.6%) were Lecturers II, 122 (21.4%) were Lecturers I, 98 (17.2%) were Senior Lecturers, 60 (10.5%) were Readers/ Associate Professors, and 45 (7.9%) were Professors. Their teaching experience ranged between 3 and 32 years, with a mean teaching experience of 18.5 years.

In order to collect data on the use of different library information resources, the respondents were requested to rate their use of each of the library information resources in Table 2 on a 4-point scale: very heavily used = 4, heavily used = 3, occasionally used = 2 and never used = 1. The mean score and standard deviation score of each of the resources were then calculated, as provided in the table. The results in the table show that journals, abstracts/ indexes, textbooks and theses were the library information resources utilized most by the respondents, whereas Internet/CD-ROM databases, library staff, and references sources such as encyclopaedias, directories/handbooks and dictionaries were least used.

Table 2: Mean Scores of Library Information Resources Utilisation by the Respondents

The respondents were asked to rate their use of each of the library information services in Table 3 on a 4-point scale: very heavily used = 4, heavily used = 3, occasionally used = 2 and never used = 1. The mean score and standard deviation score for each of the services were then calculated, as provided in the table. The results in the table show that current awareness, selective dissemination of information, document delivery/loaning, photocopying, reference and CD-ROM database searching were, in that order, the services utilized most by the respondents, whereas translation, indexing/ abstracting, bindery/microfilming were least used.

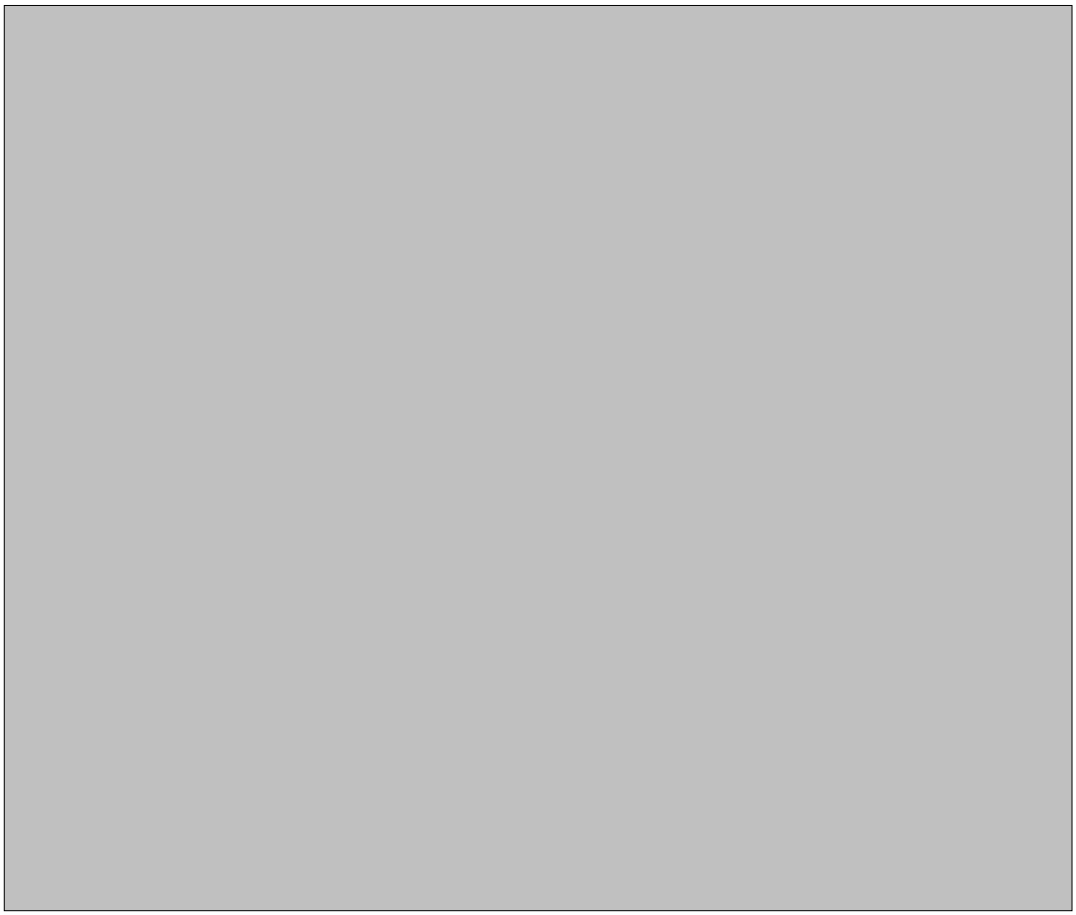
Table 3: Mean Scores of Library Information Services Utilisation by the Respondents



Finally, in order to assess the teaching effectiveness of the respondents, they were asked to indicate the extent to which they used each of eighteen different strategies to facilitate effective teaching and learning. They were asked to rate their

individual use of the strategies on a 4-point scale: 'very true of me' (coded 4), 'true of me' (3), 'occasionally true of me' (2), 'not true of me' (1). Table 4 presents the mean and standard deviation scores of the teaching effectiveness of the respondents.

Table 4: Mean Scores of Teaching Effectiveness of the Respondents

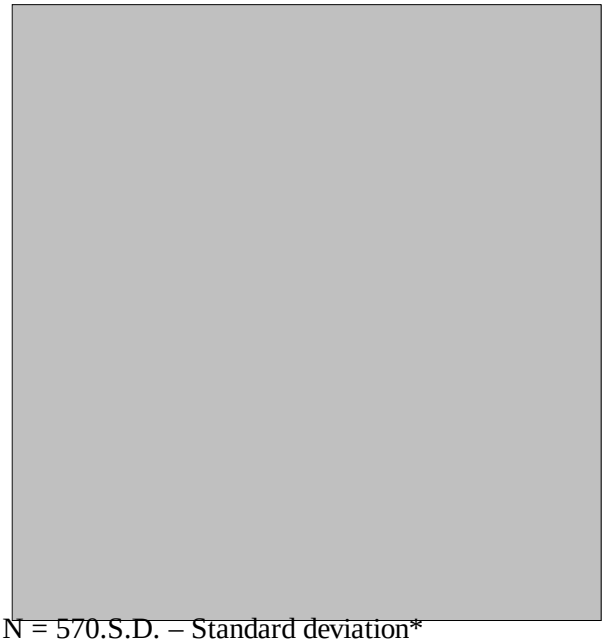


The results in Table 4 show that the most prevalent teaching effectiveness strategy used by the respondents included: using teaching styles that hold students' interest; recommending valuable reading texts that add to course understanding of the students; enhancing presentation of lessons with humour; discussing current developments in the field; and carefully preparing course materials and presenting them in interesting ways. However, the following teaching effectiveness strategies were the least used by the respondents: contrasting the implications of various theories; utilising inputs from students in teaching; summarising major points of course; facilitating note taking by the student; and providing valuable feedback on examination.

In order to measure the level of teaching effectiveness of each respondent, it was assumed that the greater the number of effective teaching strategies used by a respondent, the higher the overall teaching effectiveness of the teacher. Hence, the levels of use ratings given to the different strategies by each respondent were coded quantitatively and summed to obtain teaching effectiveness scores for each respondent.

Finally, in order to find out if library information resources and services' utilisation significantly correlated with the teaching effectiveness of the respondents, simple and multiple correlation analysis were carried out. The results are presented in Tables 5 and 6.

Table 5: Pearson Correlation (r) between the Variables



N = 570.S.D. – Standard deviation*
Test was significant at 5% level.

The results show a significant positive correlation between library information resources' utilisation and teaching effectiveness of the respondents ($r = 0.74$, $p < 0.05$), and also between library services' utilisation and teaching effectiveness of the respondents ($r = 0.62$, $p < 0.05$). Further analysis (not reported in Table 5) also revealed a significant positive multiple correlation between teaching effectiveness and the library information resources utilisation and library services utilisation ($r = 0.68$, $P < 0.05$).

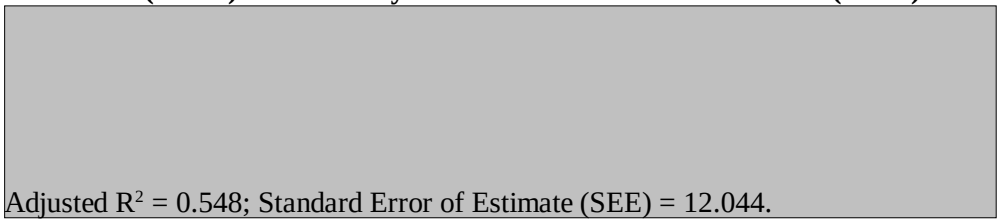
However, to determine the extent to which the linear combination of library resources and services' utilisation significantly predict teaching effectiveness of the respondents, multiple regression analysis were performed. Table 6 reports the results of the regression of teaching effectiveness library information resources utilisation (LIRU) and Library Information Services Utilisation (LISU).

It was found that the linear combination of the variables, library resources' utilisation and library services utilisation significantly predict teaching effectiveness of the respondents ($F = 28.75$, $df = 2,567$, $p < 0.05$). Also, one could infer that about 54.8 per cent ($R^2 = 0.548$) of the total variation in the teaching effectiveness of the respondents is attributed to a linear combination of the two variables. Furthermore, Table 7 provides information on the extent to which each of the two variables individually predicts the teaching effectiveness of the respondents.

Table 7: Relative Contribution of the Independent variables to the Prediction of Teaching Effectiveness of the Respondents

The library information resources utilisation significantly predicts teaching effectiveness of the respondents ($\hat{a} = 0.6825$. $t = 7.37$, $p < 0.05$), and so does the library services utilisation of the respondents independently predict their teaching effectiveness ($\hat{a} = 0.4538$, $t = 5.79$, $p < 0.05$). The estimated predictive equation of teaching effectiveness using the library information resources and library services utilisation variables is, therefore, $Y = 0.1279 + 0.6825X_1 +$

Table 6: Regression of Teaching Effectiveness on Library Information Resources Utilisation (LIRU) and Library Information Services Utilisation (LISU)



Adjusted $R^2 = 0.548$; Standard Error of Estimate (SEE) = 12.044.

$0.4538X_2$ where X_1 = LIRU and X_2 = LISU, and the value 0.1279 is the constant. In addition, the relative separate contribution of library information resources utilisation (*Beta* = 0.498 or 49.8%) is higher than that of library information services utilisation (*Beta* = 0.385 or 38.5%).

Discussion

This study found that library information resources mostly used by the respondents were journals, abstracts and indexes, textbooks, theses and dissertations, conference proceedings, technical reports, newspapers and magazines, government documents and statistical publications. This finding corroborates the assertion made by Watson (2004) that in general, social scientists rely heavily upon both journals and monographs to almost equal extent, as well as on the mass media (television, radio and newspapers), interview and experimental data, personal documents, government documents and official records for their job performance.

Hurych (1986) and Stoan (1991) had reported that, generally, less than ten per cent of both scientists and social scientists make regular use of formal information resources such as databases in even a mediated way; although at the beginning of the online information era, it was observed that social scientists were more frequent database users than natural scientists. Milne (2002) had, however, reported a very significant increase in the number of academics who used CD-ROM. This indicated that academics and, specifically, social scientists were adopting the new information formats, and that the use of such formats was becoming part of their regular information-seeking activities. The finding of this study shows that social scientists in the Nigerian universities heavily used library electronic information resources (i.e. Internet/E-mail, and CD-ROM databases), perhaps due to improved access to the more current information that the resources provide.

The study also found that the most prevailing library information services utilised by the respondents were current awareness, selective dissemination of information, document delivery/ loaning of materials, photocopying, reference, CD-ROM database searching and Internet/E-mail. The finding of this study is in agreement with that of Aya (2000), who reported that greater proportion of academic social scientists in Abuja sourced their needed information from the Internet. Popoola (2000) studied the use of information products and services in social science research in Nigerian universities and found that they utilized current awareness, statistical data analysis, referencing, E-mail/facsimile, photocopying, online database searching and selective dissemination of information in support of their research activities.

Finally, this study found significant positive correlations between teaching effectiveness and library information resources utilisation and library services utilisation by the respondents. Each of the independent variables was found to be a significant factor in predicting the teaching effectiveness of the respondents. Both variables, when taken together, strongly predict teaching effectiveness of the respondents. How might one interpret these results and their implications? One should quickly sound a warning that correlated or predicted relationships do not necessarily imply causal relationships. One may recall the conclusion by Adam (1993) and Ismaila (1999) highlighted earlier in this paper, that teachers' knowledge of subject matter, skill proficiency and resourcefulness could be linked to teacher effectiveness. The findings of the present study suggest that the academic social scientists who participated in the study tended to use effective teaching strategies to facilitate teaching and learning. Thus, a reasonable interpretation of the significant predictive relationships found in this study between high teaching effectiveness and high utilisation of library information resources and services among the social scientists may be that the utilisation of library information resources and services directly improves social scientists' knowledge of subject matter and, possibly also, teaching skill and proficiency.

Conclusion and Recommendations

Social scientists in universities require quality information in order to be able to teach effectively, undertake innovative research, and use their acquired knowledge and experience to provide expert services to society. However, the global growth of social science information in print and electronic formats means that social scientists also need quality information resources and services that could help

them to identify, access and use the required quality information. University libraries are expected to provide such resources and services which, when used effectively by social scientists, should translate into improved teaching effectiveness.

That expectation motivated this study, which investigated empirically the relationships between the use of library information resources and services and their teaching effectiveness. The findings of the study indicate that strategies and programmes to motivate social scientists in Nigerian universities to use available university library resources and services more effectively would translate into higher teaching effectiveness. It is therefore recommended that the management of the Nigerian university libraries should (a) strive to continually improve the quality of the library information resources and services provided by their libraries; (b) implement innovative user programmes to improve awareness and use of the resources and services among university academics.

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Short Communications

Use of Internet Services in Ghanaian University Libraries

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Keywords

Information technology services, university libraries, Internet facilities, Ghana

Abstract

This study investigated how students, lecturers and research fellows have been using the Internet services provided by the three oldest public university libraries in Ghana – the Balme Library of the University of Ghana, Lego; the Kwame Nkrumah University of Science and Technology Library (KNUSTL); and the University of Cape Coast Library (UCCL). These libraries have well established IT facilities and provide Internet services dedicated to teaching, learning and research. Data were collected through a questionnaire administered on 240 users of the libraries and through interviews with the library staff in charge of IT services in the libraries. The study found that most of the respondents used the services only once in a while and mainly for sending and receiving information. The study recommended that the university libraries should expand their computer facilities, train users in different online skills, and compile and publicise the Internet sites useful for obtaining different types of research information.

Introduction

University libraries in Ghana, like in most other African countries, usually face challenges in gaining adequate access to global scientific and research literature. This affects the libraries' ability to provide current and scientific information to support academic and research work. In the 1990s, CD-ROM, E-mail, Internet and Inter-Library Loan and Document Delivery Services were introduced at different times to the public university libraries in Ghana. The services first began in the Balme Library, University of Ghana in 1994, and later in the other four public university libraries. This paved the way for a dramatic transformation of the libraries' roles as information providers. University libraries in Ghana are now making further progress in the acquisition of information technologies that permit access to global electronic resources in order to strengthen their ability to provide current, adequate, reliable and timely scientific and research information to their users.

The advent of Internet access in the university libraries has clearly helped to transform the level of access by users of Ghana's public universities to primary, secondary and human information sources. The Internet facility has enabled links to the online

public access catalogues (OPAC) of other libraries, as well as access to remote electronic databases. E-mail is being used to provide reference, inter-library loan and document delivery services. E-mail has also facilitated the way scholars interact with each other. It has enhanced the exchange of ideas and collaboration between researchers, faculty and students. E-mail has provided better links between libraries in Ghana, especially academic and research libraries resulting in the birth of Consortium of Academic and Research Libraries in Ghana (CALIGH). The Internet access services has augmented the information resources of the university libraries for the improved satisfaction of user needs, and the university libraries can now be seen as providing a more cost-effective information service for teaching, learning and research.

Research Objectives

An important research issue in this connection pertains to how the Internet services being provided by the libraries are currently being used. Understanding the current patterns of use is crucial in order to determine how effective the services are, and how they can be further developed. This requirement directed this study which sought to find out how students, lecturers and research fellows are making use of the Internet services being provided by the public university libraries in Ghana. Specifically, the study set out to answer the following research questions:

(i) How often do students, lecturers and research fellows (users) use the Internet services?
(ii) For what purposes do the users exploit the Internet services?
(iii) Which Internet facilities are used most often by the users?
(iv) What challenges do the users face when using the Internet services?

Literature Review

According to Tedd (1993), Information Technology (IT) is a "combination of computing and telecommunication for the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numeric information." According to Sidiqui (1997), IT facilitates speedy and easy access to unlimited information from different sources. It also provides round the clock access to users, and makes information flexible for all users according to their needs. In this study, IT services were defined as those services that use computer and telecommunications to make available electronic information resources to meet the information needs of users.

In today's networked global village, ready connectivity or access to the Internet is clearly the most useful IT service that a library can provide for its users. The Internet is an information resource which brings a wide range of materials from around the world to the user. The availability of huge mass of online information from computer files, library catalogues, databases, government organisations, and newsgroups, industrial and commercial sources, as well as from individuals, makes the Internet indispensable for academic and research work. McNab and Winship (1996) perceive the Internet as a low-cost means of communication, which is heavily used by academic libraries to reach a variety of valuable services.

E-mail is considered the most widely used Internet resource. It has greatly increased the patronage that Internet enjoys. Kennedy (1999) expressed the view that E-mail should suffice for anyone who needs one good reason to justify looking up to the Internet. Through e-mail, distance and time are no more barriers to effective communication. Academic libraries offer a variety of services to the academic community via e-mail. Notable among such services are inter-library loan, document delivery, and reference services. E-mail has become essential for academics at all levels to enhance their research activities, publications and other professional activities, as well as in communicating with colleagues and students both locally and internationally. E-mail also enhances the building up of the "invisible college" network of scholars, which keeps scholars in touch with the latest development in their fields. Adams and Bonk (1995) are of the view that the large percentage of faculty who used e-mail and the high frequency of e-mail use as found in their study make e-mail "an optimum service venue". Alemna (1999) also states that the introduction of e-mail in academic libraries in Ghana has brought notable improvements. He pointed out that e-mail has offered a fast and

relatively inexpensive means of document delivery, a task that has always posed a major problem for Ghana and many other African countries.

E-mail is useful not only for one-to-one exchanges, but also for enabling participation in multi-lateral information exchange, such as mailing lists, electronic discussion groups, and electronic bulletin boards. These other facilities provide opportunities for users of e-mail to engage in scholarly discussions and information exchange. Mailing lists are used to share knowledge and expertise with people who have similar interests, thereby keeping them up to date with the latest research and development on particular topics. According to Krol (1994), three things may happen when using the mailing list: (i) Someone might post a news item announcing a great find (new discovery); (2) Great finds (new discoveries) would probably be collected into a group of frequently asked questions (FAQ). FAQs are posted to the newsgroup periodically (usually monthly). By reading FAQs, subscribers can instantly be brought up-to-date on whatever the newsgroup is discussing. (3) If one does not find what he/she wants in a FAQ, one can "go fishing". In this case, one writes a posting to his/her interest newsgroup putting one's need across. It is easy to cast out and see what one can catch. Under normal circumstances, one would have to subscribe to a mailing list in order to receive mails that members exchange.

Electronic bulletin boards also enable millions of users worldwide to exchange information on a vast range of topics. A bulletin board organizes discussions under a set of broad headings called newsgroups. The pieces of information or "articles" that make up the "news" are written by people interested in the topics. Articles are posted to the newsgroups so that others can read, reply and comment on them. There are moderated scholarly discussions and news groups where contributions are edited and scrutinized, so that only useful contributions get to subscribers. Inside each newsgroup, there are usually multiple discussions going on in an orderly manner, under specific subjects.

Methodology

The descriptive survey methods, that included a questionnaire and interviews, were used for the data collection. The study covered the main libraries of the three oldest public university libraries in Ghana: Balme Library (BL), University of Ghana, Legon; Kwame Nkrumah University of Science and Technology Library (KNUSTL); and University of Cape Coast Library (UCCL). These libraries have well established IT facilities and provide IT services dedicated to teaching, learning and research. As noted above, the IT-based services that had been introduced into the university libraries in Ghana are CD-ROM, E-mail, Internet and the Interlibrary Loan and Document Delivery (ILL/DD). At the time of this study, however, the CD-ROM and the ILL/DD services had ceased functioning in the three university libraries. This study therefore focused on the Internet and email services, which were being provided in the libraries.

The population of the study comprised the students, the lecturers and the research fellows who had registered to use the IT services in the main libraries of the three public university libraries. The user population for each library was provided by the libraries as follows: BL, 1203; KNUSTL, 750; and UCCL, 600. Hence, the total population was of 2,553 users. An adequately representative sample size was then determined based on Alreck and Settle's (1985) proposal that a sample of ten per cent is usually adequately representative. Ten per cent of the population of 2,553, i.e., 255, was therefore drawn from the population as the study's sample. The total sample was then proportionately divided among the three university libraries, and systematic random sampling was used to select the users from within each library. Ideally, because the study population consisted of different categories of users (students, lecturers and research fellows), stratified sampling should have been adopted. However, stratified sampling was abandoned because the user population at the various libraries was highly unevenly distributed among the three categories of users. Table 1 shows the population and sample size of the users of the IT services.

Table 1: Population and Sample Sizes of Users of IT Services in the Universities Libraries

Copies of questionnaires were administered to the 255 sampled users of IT services in the three university libraries, out of which 240 copies were completed and returned representing a response rate of 94%. Tables 2 and 3 summarise the academic status and faculty of the respondents.

Table 2: Response Rate by Status

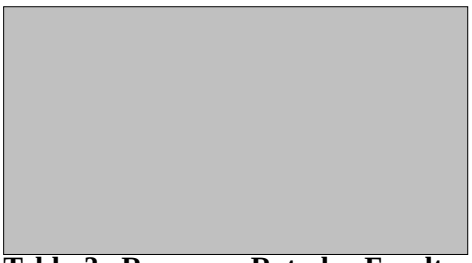
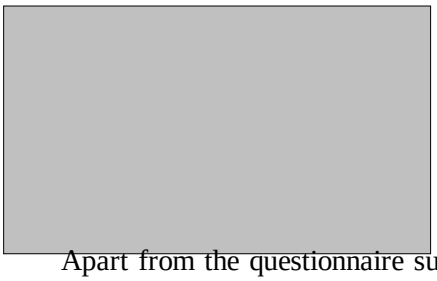


Table 3: Response Rate by Faculty



Apart from the questionnaire survey, both the professional librarian and the library assistant in charge of the IT services in each of the libraries were interviewed to gain more insight and clarify some of the issues that emerged from the information provided by the respondents. The Statistical Package for Social Science (SPSS) was used to analyse the questionnaire responses.

Results

Use of IT Services

Whittaker (1993) has noted that if a library's services are well communicated, then, they are likely to be well used. In turn, if a library's services are well used, it is a fairly certain indication also that they are meeting the needs of its users. Accordingly, one of the main objectives of this study was to find out how often the IT services provided by the three university libraries were being used. Respondents were asked to indicate how often they used the IT services. Two hundred and forty (240) users from all the three university libraries were served with the questionnaire. Seven users (3%) did not respond. Table 4 summarises their responses.

Table 4: Frequency of Use of the IT Services

Table 4 shows that the majority and almost half (49%) of the respondents used the IT services only once in a while, whereas 75 (31%) and 41 (17%) of the respondents used the services often and very often respectively. What is evident from the data is that, generally, the IT services provided in the three university libraries were not being used often by the respondents. A large number of them used the IT services only once in a while.

Use of Internet Services

The response in relation to Internet use revealed an overwhelmingly high 228 (95%) level of use. Respondents from the Social Sciences and the Sciences used the Internet service more than those from the Humanities. A possible reason for this was suggested by Wiberley and Jones (2000) that the humanists often use primary materials and obscure

sources that are unlikely to be digitized. They may therefore not use the Internet as often as the social and the natural scientists. This notwithstanding, the university libraries should come up with strategies and programmes that will encourage the humanists' greater use of the Internet services. The humanists could, for instance, be introduced and provided with the necessary skills to participate in discipline-based scholarly discussion groups like the Electronic Bulletin Boards and online databases that address their information needs.

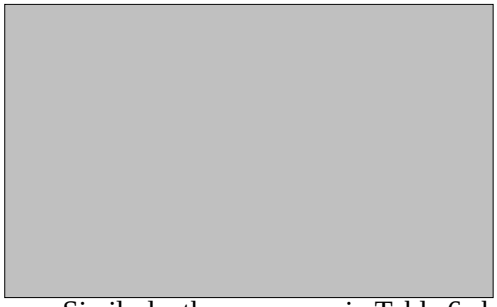
Use of the E-mail Services

The responses obtained in respect of the use of e-mail indicated that 187 (78%) of the respondents used the e-mail services provided by their libraries. Regarding frequency of use, it was found that 47% (113) of the respondents used e-mail often, 28% (67) of them used it very often, whilst 25% (60) of them used it once in a while. In terms of the different categories of users, the largest percentage (80%) of the undergraduate respondents as against 74% of postgraduate respondents used the e-mail services in the libraries. The data also showed that 71% of the lecturers and 62% of the research fellows also used e-mail. These relative percentages might be accounted for by the ease with which the different categories of users are able to obtain affordable access to the Internet outside the libraries.

Use of Mailing Lists

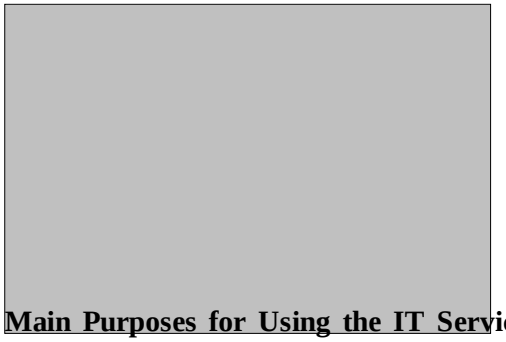
One of the survey questions sought to find out if the e-mail users subscribed to mailing lists. Table 5, which summarizes the responses, shows that only 18% (42) of the respondents subscribed to mailing lists. The high level of non-use of mailing list indicates that the university libraries need to implement strategies to promote the use of this facility by their users. The libraries also need to anticipate the future needs of users as new services evolve. In this regard, compilations of the various bulletin boards and mailing lists in the different disciplines could be prepared by the libraries and sent to users. Seminars could also be organized to show users how they could use and benefit from mailing lists, bulletin boards, and other Internet-based facilities.

Table 5: Use of Mailing Lists



Similarly, the responses in Table 6 show that a relatively low percentage (28%) of the respondents subscribed to bulletin boards. Although the response shows a high level of non-use for both mailing list and bulletin boards, it must be noted that more respondents subscribed to bulletin boards than mailing lists. The low level of subscription to mailing lists and bulletin boards, taken along with the high level of use of e-mail reported earlier, seems to indicate that most of the users have not yet caught on to using e-mail to access mailing lists and bulletin boards, although they might be aware of such facilities. Discipline-based discussion groups are very useful for teaching, research and learning, and the university libraries need to promote awareness and knowledge among users of the value of these facilities. The high level of use of e-mail by lecturers, postgraduates and research fellows is a good indication of the potential use of such facilities by these categories of users, if the facilities are effectively promoted by the libraries.

Table 6: Use of Bulletin Boards



Main Purposes for Using the IT Services

The survey sought to find out the main purposes for which IT services were used in the libraries. The analysis revealed that respondents used the IT services mainly for sending and receiving information (54% of the respondents), for literature search

(35%), and for communicating with colleagues in the same area of specialization (11%). This presents communication as the major purpose for respondents' use of IT services.

Use of IT Services for Sending and Receiving Information

All the four categories of respondents (lecturers, research fellows, postgraduates and undergraduates) used the IT services substantially for sending and receiving information. Eighty-two per cent of the lecturers, 80% of the undergraduates, and 72% of the postgraduate students used the IT service for sending and receiving information. Comparatively, only 66% of the Research Fellows used the library IT services for sending and receiving information. Also, comparatively more respondents from the science faculties (81%) than from the social studies (78%) and humanities (64%) faculties used the IT services for sending and receiving information.

Use of IT Services for Communicating with Colleagues

Communicating with colleagues in the same subject area of specialization enhances collaboration, sharing of ideas and research findings, thus keeping academics and researchers in touch with current developments. Such communication can also lead researchers to other useful information resources. Data collected in the study show, however, that apart from the lecturers who had the highest percentage of usage (61%), the other users, including postgraduates (26%) and undergraduates (33%) did not use the IT services much to communicate with colleagues in the same field. Research fellows, most surprisingly, registered the lowest percentage (11%). These findings are in consonance with the earlier findings that few of the respondents subscribed to mailing lists and discussion groups, and that research fellows probably had access to the Internet other than through the IT services in the university libraries. The data also indicate that 38% of respondents from the humanities used the services, whilst 35% of the respondents from the social studies and 25% of those from the science faculties used the IT services to communicate with colleagues in the same field.

Use of IT Services for Literature Search

The use of the IT services for literature search by the different user categories showed that high percentages of research fellows (89%), lecturers (82%) and postgraduate students (74%) used the IT services for that purpose, compared to only 49% of the undergraduates. This finding agrees with the expectation that research fellows, lecturers and postgraduates, being more involved in research-oriented academic work, should also use the services for literature searches more than the undergraduates. In terms of faculty, the highest proportion of respondents who used IT services for literature search belonged to the Social Studies faculty (64%), followed closely by respondents from the Humanities faculty (62%), and then by respondents from the Science faculty (56%). The lowest proportion for respondents from the Science faculty is surprising in view of the earlier reported finding that the respondents from the Science faculty used the IT services more often than those from the Social Studies and the Humanities. It is also very surprising because, out of the nineteen online databases provided by the Consortium of Academic and Research Libraries in Ghana (CALIGH), there are seven science-oriented online databases, in addition to eight other databases which cover all subjects, including science. This means that out of the nineteen databases, fifteen provide science-oriented information that could satisfy to some extent the information needs of users from the Science faculty. The issue then is why respondents from that faculty were not using the IT services to search the databases as much as the humanists and social scientists. Could it be that they had access to Internet facilities elsewhere, or lacked the skills for effective literature search, or that the available materials do not satisfy their information needs? It is important for the University Libraries to investigate the reasons respondents from the Science faculty do not use the IT services for literature search as much as expected.

Self versus Mediated Literature Searches

The study sought to find out whether or not users conducted searches for electronic information themselves. The majority of the respondents, i.e. 182

(76%), conducted their own searches, whilst the remainder depended mostly on library staff to do the search on their behalf. A follow up interview with the staff indicated that mediated searches were conducted for users (mostly undergraduates) who were not conversant with searching strategies. The staff further explained that only postgraduate users were trained to use the IT services, and other users were either guided to conduct their own searches or had their searches conducted for them. Although mediated search goes a long way to help such users, it is not always the best. Tedd (1993) advises that if mediated search is being undertaken, it is a good idea, if possible, for the original enquirer to be present during the search, so that additional information can be obtained when necessary. The findings signpost the need for the university libraries to provide training for all categories of the users of their IT services in order to empower them to conduct searches on their own.

Problems Affecting the Effective Use of the IT Services

Respondents were asked to state the problems that prevent them from making effective use of the IT services in the libraries. Almost all the respondents, i.e. 98%, stated that the IT services laboratories for users in the libraries were too small; that the available computers were inadequate to serve the population of users; and that users sometimes had to queue. The need for training was indicated by 57% of the respondents, whilst 25% of them indicated difficulty in assessing some of the online databases. The university libraries should note and find solutions to these challenges in order to encourage the patronage of the IT services provided in the libraries.

Discussion

The study revealed that students, lecturers and research fellows used the IT services provided by the public university libraries, although most of them did so only once in a while. The users applied the services mainly for sending and receiving information, for literature search, and for communicating with colleagues in that order.

Most of the users conducted search for information themselves, with only a few depending on the library staff for mediated searches. Users' ability to do independent searches means they have been able to learn and use the search strategies, and are therefore capable of applying them without support. Regarding the few respondents who rely on the staff for mediated searches, the university libraries should come up with programmes that will address their problems. Periodic training programmes to assist users acquire skills for performing searches on their own are desirable. This will help users develop more confidence in the use of the IT services, which, in turn, would promote use of the services.

The study observed high levels of E-mail use for sending and receiving information but comparatively lower levels of use for accessing mailing lists and discussion groups. The high level of the use of E-mail for sending and receiving information by the respondents supports the findings of Milne (1999), Schauder and Chu (1994), and Liebscher, Abels and Denman (1997), who found that among the academics who use the national or international computer networks, over ninety per cent use them for E-mail. The observed moderate to high uses of the IT services in the libraries for information searching by the respondents is also consistent with Markwei's (2001) findings that academics in Ghana have started using the Internet intensely.

The use of Mailing List and Bulletin Boards has however not caught up well with the respondents. This finding corroborates Applebee, et al (2000) who also found a low use of Electronic Discussion groups among Australian academics. Collaboration and exchanges of ideas and knowledge by lecturers, researchers and students with their counterparts elsewhere in the global village are desirable for productive and globally visible academic and research work. Accordingly, the university libraries should implement strategies to encourage their users to exploit internet facilities such as mailing lists, bulletin boards, discussion groups and blogs to interact and exchange ideas with other scholars.

This study found that the majority of the respondents used the IT services in the libraries for sending and receiving information, but only minimally for communicating with colleagues in their areas of specialization. These two findings suggest that personal or social, and not research-oriented, communication was the major purpose for the

respondents' use of the IT services. This conclusion is in consonance with Diaba's (2001) finding that a great deal of E-mail communication is done more for social and family matters and networking with colleagues than for serious academic-related matters.

Conclusion and Recommendations

The study revealed that, overall, the IT services provided in the three university libraries are not used often by the respondents, with only about half of the respondents reporting doing so. Although e-mail was used very frequently, such uses of email were mainly for personal communications, and less for research–oriented communication and collaboration, such as participating in bulletin boards or mailing lists, communicating with colleagues in same field, or literature search. The study also revealed that respondents from the science faculty were not using the IT services to access the databases subscribed to by the libraries as much as one would have expected. Furthermore, the study found that the IT laboratories provided by the libraries are very small relative to the number of potential users, and that the numbers of computers in the laboratories are also not enough to facilitate the frequent use of the IT services.

These findings highlight the need for more or larger laboratories to facilitate user access to the services, as well as user education programmes by the libraries to promote the use of Internet services for research-oriented purposes. Accordingly, the study makes the following recommendations:

(i) The university libraries should expand their computer laboratories in order to increase user access to and use of their IT services.

(ii) The libraries should institute periodic programmes to train different categories of their users to help them acquire skills to conduct effective online information searches within and outside the libraries.

(iii) The libraries should introduce users to scholarly discussion groups and electronic bulletin boards in the various disciplines through appropriate training programmes.

(iv) The libraries should compile and publicise suitable Internet sites on topical issues in anticipation of user needs for research, learning and teaching.

(v) The libraries should liaise with the various faculties to find out ongoing research activities, so that relevant literature will be prepared in anticipation of research needs.

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