INFORMATION SEEKING BEHAVIOUR OF BLIND AND VISUALLY IMPAIRED STUDENTS: A CASE STUDY OF THE UNIVERSITY OF KWAZULU-NATAL, PIETERMARITZBURG CAMPUS

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ABSTRACT

Based on a study for a master's dissertation, this article reports on an investigation of the information seeking behaviour of blind and visually impaired students. It investigated whether the services provided by the University of KwaZulu-Natal on its Pietermaritzburg campus (hereafter UKZN-PMB) accommodated the information seeking behaviour of blind students and those with visual impairments. The theoretical framework for the study was Wilson's (1996) Model of Information Behaviour, Belkin's (1982) Anomalous State of Knowledge approach and Oliver's (1996) Social Model of Disability. Blind students and those with visual impairments, the subject librarians from the Main Library and the Disability Unit (DU) Co-ordinator were surveyed. The study revealed that the students exhibited information seeking behaviour that included the DU staff as an indispensable part of information access. Recommendations include developing a strategy to implement

the UKZN disability policy and allocating a sufficient budget for the purchase of assistive devices or, preferably, incorporating principles of universal design in the information system.

KEYWORDS

information seeking behaviour, blind students, students with visual impairments, academic libraries

1 BACKGROUND AND RESEARCH PROBLEM

The lack of appropriate and adequate provision for learners with disabilities at primary and secondary schooling level has had a profound effect on the number of people with disabilities who have been able to access higher education in South Africa and other countries (Howell & Lazarus 2003). This is just one factor among many that has historically limited access by students with disabilities to higher education in South Africa (Howell 2006). It is difficult to obtain an accurate view of the present numbers and profile of students with disabilities in South African higher education institutions (HEIs) (DoE 2001) as there are different forms and categories of disability (Statistics South Africa 2001) and not all HEIs routinely collect information on disability status (Howell 2005). At the end of 2011, however, it was established that 373 students with disabilities were registered at the University of KwaZulu-Natal (UKZN 2012).

What is also clear is that those students with various disabilities who manage to qualify for and gain entry to universities and other HEIs face further significant obstacles preventing their full and equitable access to and participation in the academic programmes on offer to other students (Howell & Lazarus 2003). Matshedisho (2007:685) notes that, unlike in the United States (US) and United Kingdom (UK), there is no specific legislative support for the rights of disabled students in South African HEIs, but the normative standards underlying the general national anti-discrimination framework in the country (imbued in the Constitution) informing how students with disabilities should be treated are clear: 'human rights, respect for diversity, equal opportunity and fair advantage for people who qualify for higher education courses and programmes'. However, despite such unambiguous guiding principles, the playing field for disabled students wishing to undertake studies at tertiary institutions is far from level (Howell 2006).

Students' information behaviour in general is varied (Budricks 2007; Davis 2000; Shunnugan 2002). Academic information needs form an integral part of every student's life and cannot be seen in isolation from their other needs. Davies (2007:788) suggests that students draw from an institution's resources for a variety of purposes, including daily living and leisure, and points out that most universities claim to be equally hospitable to their whole community and should have no artificial boundaries in terms

of meeting everybody's needs. In reality, however, resource constraints may impinge greatly on what a particular institution can provide. Members of the student community are by no means uniform in their needs or in the way they can access the university's services. For students with visual impairments the mere fact that information is available is not enough. They must be able to access the information with relative ease.

Disabled People South Africa (2001:6) advises that disability needs be defined in context rather than focusing on people's inabilities. The context is that of visual impairment and/or blindness. Visual impairment is a term used for people who have some degree of sight but of a limited range, that cannot be easily corrected with spectacles; who are squint; who need special lighting to be able to see; who have blurred vision as a result of cataracts; or who have tunnel vision (Howell & Lazarus 2003). Blindness refers to the total loss of eyesight (Brockmeier 1992:10) but such people might have some perception of light (Cory 2003).

Studies have been undertaken on the barriers faced by students at South African HEIs with mobility (Losinsky, Levi, Saffey & Jelsma 2003) and visual impairments (Shunmugam 2002) and on problems faced by disabled students in general (Crous 2004). Many of the issues raised by these studies were echoed by Naidoo (2005), who explored the challenges experienced by students with visual impairments on the Westville campus of UKZN. Naidoo identified access to academic material and limited human and technological resources as among the major constraints to equitable participation in the academic programme of the university.

The problem which the article addresses is a gap in knowledge regarding how blind students and those with visual impairments, faced with information and communication barriers that limit their access to necessary academic material, act to overcome such significant hurdles. This study focused on these students' information seeking behaviour in relation and response to library services provided. Studying their behaviour revealed whether they encounter services that meet their needs. The study thus focused on the information seeking behaviour of blind students and those with visual impairments at the University of KwaZulu-Natal on its Pietermaritzburg campus (hereafter UKZN-PMB) trying to obtain the information they needed for their studies at or via the Main Library.

The university's (UKZN 2004) mission statement indicates its commitment to increasing access to learning for students with special needs. In 2004, in accordance with the principle of the Constitution of South Africa (Act No. 108 of 1996) – that no one may unfairly discriminate against a person on the grounds of disability – and acknowledging the Code of Good Practice: Key Aspects on the Employment of People with Disabilities, the Higher Education Act (Act No. 101 of 1997), the White Paper 6 on Special Needs Education (DoE 2001), and other relevant legislation, UKZN (2004) developed a Policy on Students and Staff with Disabilities. This policy states that UKZN (2004:2) is 'committed to making tertiary education and the working environment universally accessible and inclusive for all students and staff including those with disabilities'.

In 1995, a Disability Unit (DU) was established at the former University of Natal to assist students with disabilities in realising their academic potential and to maximise opportunities for their personal development. Services provided by the DU include: providing academic support for students with disabilities in the form of liaising with academic schools; converting material into Braille; providing audio recordings; and handling applications for extra time for texts and examinations. The DU also: provides assistance with financial aid; seeks to increase awareness around disability issues; provides information and training for students with visual and/or mobility impairment; provides orientation and mobility training for such students; and offers counselling and individual support (UKZN 2007).

2 PURPOSE AND OBJECTIVES

Based on research carried out for a master's dissertation, the article describes Seyama's (2009) study which was carried out on UKZN-PMB. The purpose of the study was to establish the information seeking behaviour of blind students and those with visual impairments. Information seeking behaviour was seen as comprising information needs, seeking and use. Once established, this profile of behaviour could be used to determine whether the services provided by UKZN-PMB met the needs of blind students and those with visual impairments.

The study was guided by the following objectives:

1. to determine the demographic profile and academic level of study of students who are blind or visually impaired at UKZN-PMB;
2. to establish what their information needs are;
3. to find out how they meet those needs;
4. to determine where they find the information they are seeking;
5. to establish how they use the information they have obtained;
6. to identify the barriers that they come across while seeking information;
7. to find out whether UKZN-PMB is doing anything with regard to improving services for these students;
8. to suggest how services that are tailored to these students can be improved.

3 CONCEPTUAL AND THEORETICAL FRAMEWORKS

The study was rooted conceptually in the Promotion of Equality and Prevention of Unfair Discrimination Act ([PEPUDA] Act No. 4 of 2000) (South Africa 2000) which is in turn grounded in the Bill of Rights of the Constitution (South Africa 1996) which includes the right of access to information. PEPUDA (South Africa 2000) provides

for HEIs to ensure that students with visual impairments are able to consult whatever information source or services they require without barriers or discrimination and that such services be provided equitably.

The broad term 'information behaviour' covers information needs, information seeking behaviour, information searching and information use. For the purposes of the current article, Wilson's (1999:249) definition is used which describes information behaviour as

> those activities a person may engage in when:
> 1. identifying his or her own needs for information;
> 2. searching for such information in any way; and
> 3. using or transferring that information.

Wilson (2003:447) reminds researchers that

> the choice of an appropriate research method should be determined by a combination of the philosophical position of the researcher vis-à-vis the research objectives, the nature of the problem to be explored, its novelty in research terms, and the time and resources available to carry out the work.

The theoretical framework for the study was Wilson's Model of Information Behaviour (hereafter 1996 model). Wilson's 1996 model emphasises the need to explore information seeking in context and allows people to be conceptualised as individuals and as socially constructed entities. This perspective was particularly important for the study because disability is a very personal, embodied yet contextual experience (Hughes & Paterson 1997). Wilson's 1996 model allows a description of and explanation for information behaviour. Dick (2006) has emphasised the need for the use of models that take a wider view of the social contexts of information behaviour given the history, economic and societal context of South Africa. Wilson's 1996 model was seen as applicable in this context. It has also been used in South Africa in a study of information behaviour in a health context (Fourie 2010).

Wilson's 1996 model portrays information seeking behaviour arising as a consequence of need, which links to Belkin's (1982) Anomalous State of Knowledge approach which presupposes a gap in the knowledge base of the user or a situation of uncertainty. To satisfy this need, the user makes demands upon formal or informal information sources or services resulting in success or failure to find relevant information. If successful, the person can make use of the information found. If the information found fails to satisfy the need, the person has to reiterate the search process. The model shows that information seeking behaviour may involve other people in information exchange and that information perceived as useful may be shared with other people as well as, or instead of, being used by the person him- or herself. Wilson's 1996 model is not reproduced here but rather the reworked version of the model reflecting the information use pathways of this group of students with disabilities (see Figure 1).
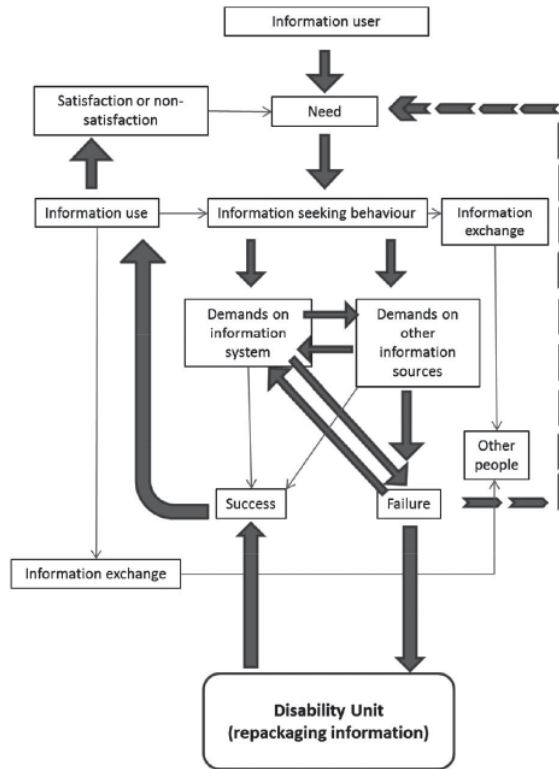
Figure 1: Schematic model showing typical information behaviour depicted by students with visual impairments in their search for information to meet their academic related needs

The model is based on Wilson's 1996 model. The lines represent use patterns with the thickness of the lines showing the frequency of use of that pathway and dashed lines showing an addition to the original model to accommodate the incidence of failure and need to go back to the beginning of the pathway.

Oliver's Social Model of Disability (hereafter the Social Model) (Oliver 1996, 2004; Oliver & Barnes 1998) depicts disability as a condition that is created socially, rather than one created by the attributes of individuals. The problem of access for people with disability is created by features of the social environment, peoples' negative attitudes and an unaccommodating physical environment.

4   LITERATURE REVIEW

Various studies have sought to determine the information behaviour of particular groups of people (Stilwell 2010). In South Africa, the information behaviour of tertiary students

has been studied by Davis (2000, 2006, 2007), Shongwe (2005), Fourie and Bothma (2006), Soyizwapi and Hoskins (2009), Hadebe and Hoskins (2010), Ntombela, Stilwell and Leach (2008), and Adams (2010).

Shunmugam (2002) explored the barriers faced by visually impaired students at the then University of Natal and Budricks (2007) reported on a needs assessment of visually impaired students at UKZN-PMB. The focus of their studies was largely on the barriers students faced in accessing information. The current study concentrates on the wider information behaviour of this group and specifically whether the services provided by UKZN-PMB meet their needs.

Davies, Wisdom and Creaser (2001) surveyed visually impaired people at Loughborough University in the UK to determine what their preferred formats and technology needs were when accessing information. This information was subsequently shared with agencies which provide for visually impaired persons' needs. Further studies on the accessibility of technologies for blind users revealed a need for greater knowledge on the ways blind users access and interact with tools and websites. Brophy and Craven (2007), Atinmo (2007), and Venter and Lotriet (2005) reported that the group of people who are likely to be disadvantaged by websites are those whose needs have not been taken into account.

Preference of format for receiving information was the focus of Astbrink's (1996) consumer-based study of the information needs of people with visual impairments. When it came to individual needs, people relied on particular formats which fulfilled their particular need most successfully. This choice was determined by various factors, such as: degree of visual impairment; age of onset of visual impairment; living arrangements; age; level of literacy; and nature of the material or information to be accessed (Astbrink 1996:5). A similar finding was made by the Royal National Institute for the Blind (1999) in a study which emphasised the need for blind people and those with visual impairments to receive information in formats appropriate to their needs and their age. Two of these needs related to the size of print for the elderly and the use of technology for younger people.

According to Burgstahler, Anderson, Slatin and Lewis (2008), the University of Texas Library has a work station which provides computers with screen readers, screen magnifiers, work-prediction software, scanners and other assistive devices. Similar provision has been made at the University of Washington in the US (Kailes & MacDonald 2006) where information technology available in the Main Library on campus includes computers with screen readers and Braille embossers, as well as voice recognition software for blind and visually impaired students.

Ochoggia (2003) carried out a study on the legislation concerning persons with disabilities and the implications of the legislation for the provision of library and information services for persons with visual impairments in Kenyan learning institutions. He observed that for people with visual impairments, especially students, the range of

reading material available has always been extremely limited. Bagandanshwa's (2006) study in Tanzania concentrated on the technologies deployed by blind people and those with visual impairments to access information. He focused particularly on the removal of barriers to access to information; the provision of appropriate technology; and the development of positive policies to ensure recognition of these groups as potential users of information. Majinge's (2013) doctoral study applied the Social Model (Oliver 1996) as a framework to investigate library services provision for people with visual impairments and in wheelchairs at five Tanzanian universities.

5 METHODOLOGY

Seyama (2009) used a case study approach. Yin (1981) and Case (2002) have observed that case studies employ varied qualitative and/or quantitative sources of evidence. The use of more than one data collection method enhances the rigour of the research. In the current study, two questionnaires and an interview schedule were used to collect data from three different populations. The methods used suited the purpose of the study, namely, to seek comprehensive understanding of the information seeking behaviour of blind students and those with visual impairments at UKZN-PMB. This understanding in turn would offer insights into the adequacy of the provision of services for students who are blind or have visual impairments. Cohen, Manion and Morrison (2000) confirmed that a case study could provide an holistic in-depth investigation of a population under study.

Three different populations were targeted for the current study. Nine blind students or students with visual impairments were interviewed using a semi-structured questionnaire. Seven subject librarians from the Main Library at UKZN-PMB, who are required to assist blind and visually impaired students in meeting their information seeking needs, answered a self-administered questionnaire. The DU Co-ordinator at UKZN-PMB, whose role is to assist blind and visually impaired students to maximise their opportunities while at university, also completed a self-administered questionnaire.

The population of students included those who were either totally blind or had visual impairments; were currently registered at UKZN-PMB; were known by the DU at UKZN-PMB as blind or having visual impairments; and who used or required one or more of the specialised support services made available through the DU in order to facilitate their learning and integration on campus.

Pre-testing of the interview schedule was undertaken with a student with a visual impairment who, as she was not registered with the DU, did not meet the requirements for selection. The questionnaire for the librarians was pretested by a Subject Librarian from another library on campus and by a staff member from the Information Studies programme at UKZN. Minor changes were made to the contents and language of the instruments.[1]

6   RESULTS

All nine students who met the selection criteria and all seven subject librarians and the DU Co-ordinator responded to the study's interview schedule and questionnaires.

6.1   PROFILES OF THE PARTICIPANTS

The subject librarians at the Main Library of UKZN-PMB were all experienced in their jobs and had worked at this library for some time. Only two had worked there for less than five years and two of the seven had never assisted a blind student or a student with a visual impairment.

The DU Co-ordinator for the Pietermaritzburg campus had only been in office for four months so the previous incumbent, who had moved to the Howard College campus of UKZN, completed the questionnaire. She had had considerable practical experience in the field and held a master's degree in Social Science specialising in working with people with disabilities.

Of the nine students interviewed, five were male and four were female, ranging in age from 21 to 24 years. Of these, five were full-time undergraduates with one being part-time and the other three full-time postgraduates. All but one student were living in UKZN's residences.

6.2   INFORMATION NEEDS

The study revealed that the students' most common needs were related to academic issues, with the most pressing being where to find relevant sources of information for assignments in order to meet the due dates. For all visually impaired students, time was a critical problem. Once received, an assignment had first to be read to them by a volunteer from the DU. Only after the students understood what the assignment required of them could they approach the library to start finding relevant sources of information. The end result was a backlog of assignments and missed deadlines. For example, one student said:

> The lecturer gave us an assignment and to most sighted students the first stop was the Library and for me it was the DU, where my assignment sheet was read to me . . . then I tried to figure out what to do next . . . you see this is unfair . . . by the time I start writing the others would have submitted.

Other delays were caused by having only two student assistants who worked four hours a day at the DU. Lifa[2] explained that he thought he might have missed some words in the assignment sheet and 'it was difficult to ask the person to read it to you several times . . . especially because there were only two student assistants at the DU and a number of students would be queuing for help as well'.

6.3   PREFERRED INFORMATION SOURCES AND FORMATS

The factors influencing the choice of information sources and formats were influenced by four main factors, namely: (1) degree of visual impairment; (2) level of study; (3) resources on offer at UKZN; and (4) the nature of the task at hand.

Both undergraduate and postgraduate students preferred electronic sources of information, which allow the students to alter the font size to whatever size is required. However, this option is only of use when the appropriate software has been installed and made available to the student. Bagandanshwa's (2006) study in Tanzania revealed that assistive technological devices were neither manufactured in that country nor were there any local dealers. As a result such technology was difficult to obtain and was sold at exorbitant prices. In the current study, despite the ready availability of technological products in South Africa generally, ZoomText facilities were not available on the Online Public Access Catalogue (OPAC) in the Main Library. Thus, the partially sighted students were dependent on assistance when reading the screen. As one student explained: 'The OPAC's main undoing was the absence of the ZoomText option . . . which makes it difficult for us to use it often.'

As a result, the students were deprived of the liberty to decide for themselves which information they could use. In addition the information they received would only be partially complete as the subject librarians did not have the time to consult all sources on a particular topic. Where other students could access this information immediately and decide what was important, the respondents with visual disabilities had to first scan an article, before it could be edited and then emailed to them so that they could access it through Job Access with Speech (JAWS) software. JAWS is a screen reader program which allows blind people or those with visual impairments to access information on a computer. It provides access to software applications and the Internet and can output to Braille displays.

Three students alluded to the concern about time and one added:

> Unfortunately one was expected to submit on the same date as the sighted students . . . extension of time for submission was the only option for us, but then it meant putting up with a backlog as the assignments are not from one module.

A further complication was presented when some subject librarians refused to assist students, instead referring them to the DU where they thought the blind students and those with visual impairments would get the help they needed. Similarly, blind postgraduate students who depended on receiving lecture notes in electronic formats were reliant on the goodwill of lecturers to send the material to them.

As there was no ZoomText on the library OPAC, students had to use ZoomText on the computers in the Local Area Networks (LANS). A student explained that these are not demarcated 'so anyone can use them . . . even sighted students who might not need

the ZoomText option'. Only two LANS had computers with JAWS software. Another student explained: 'After 4.30 pm the New Arts LAN is closed . . . if you fail to access JAWS at the Commerce LAN . . . you are doomed for the day . . . because nowhere else can one get the JAWS program on campus.'

The students needed electronic information because they could use JAWS and, if desired, a print-out in Braille. Another student explained a further obstacle, 'If I am looking for an article that is in PDF format . . . then I am in trouble because JAWS cannot read it.'

Sazi, a blind student who was doing his postgraduate degree, was helped by the Subject Librarian to identify specific databases, but he explained:

> That information did not help me much especially because the computer databases at the Library did not have JAWS and I was expected to use a mouse . . . click on links . . . sighted people go click, click, click and there is the answer . . . while I am still looking for the link.

These barriers to accessing information reduced students' independence and freedom to conduct information searches when it suited them. Similarly, blind postgraduate students who were required to conduct extensive research and consult a wide variety of sources were further challenged when using library databases as the computers in the library did not have the JAWS software installed. Despite this, postgraduate students' preference for electronic information over print information was largely the result of the shortage of Braille transcribers at UKZN, restricting blind students' access to textbooks and study material.

The World Wide Web (Web) was frequently used, and considered important by the students as a source of information. A major obstacle for blind and partially sighted students was in using a computer confidently and skilfully with limited vision. It was apparent that special instructional programmes were needed to give these students the skills and confidence to formulate and conduct searches effectively. Although library orientation programmes were offered at UKZN at the beginning of the year or whenever the need arose, the specific needs of the blind and visually impaired students were not catered for.

Face-to-face sources of information were either formal (subject librarians) or informal (friends). Williamson (1995, 1998) found that friends were ranked third out of 12 sources considered important for obtaining information for everyday life by blind and visually impaired elderly people in Melbourne, Australia. Similar findings appeared in the British studies of Todd (1984) and Tinker, McCreadie and Savage (1993), where friends were placed close to the top of the list of important sources. Classmates and friends were important to all student respondents, not only by providing information to help with everyday life on campus, but also in finding sources for academic work and brainstorming ideas.

Print sources of information were of use to the partially sighted students as they could take library books home and read them at their own pace. They could also photocopy and enlarge the print of sections in which they were interested. A major disadvantage of book loans was the short loan period of one hour for high demand material kept on academic reserve. As Musa explained:

> I had no option but to negotiate with the library staff at the academic reserve for an extension of time . . . that is, to use the library material for more than an hour without paying a fine . . . it was like the librarian was just doing me a favour or most importantly, just being human.

This restriction, coupled with others on removing books from the library, prevented students from taking material to the DU for scanning into other formats.

As many student notices on campus were distributed as flyers and pamphlets, blind and visually impaired students were excluded from receiving this information. Similarly, lectures presented in class were often in the form of PowerPoint presentations containing information predominantly as images. The student respondents' preferences, therefore, for the format of information were directly related to that information they were able to access or utilise. For example, even though a blind student might prefer to write an examination in Braille, the available formats for examinations in the institution are print, oral and electronic (through the use of JAWS) so their preferences were limited to what was available.

6.4   INFORMATION SEEKING BEHAVIOUR

The students exhibited different patterns of information seeking behaviour, but with some patterns and sequences of activities in common, which revealed the important barriers they commonly encountered in the library information system. This typical behaviour is described with reference to Figure 1.

Undergraduate students, especially the partially sighted, would start with the OPAC to find information sources and then proceed to the library shelves. Postgraduate blind students consulted the subject librarians who helped them locate relevant databases and other information sources. However, for all partially sighted and blind students, regardless of the level of study, the DU emerged as a very necessary intermediary in repackaging information into accessible formats. The preliminary findings from Majinge's (2013) Tanzanian study echoed this finding.

Figure 1 illustrates the synthesis of Wilson's 1996 model and the typical information seeking behaviour that was depicted by the blind students and those with visual impairments shown by the thick dark arrows. Although the individual student's information seeking pathways were depicted separately in Seyama's (2009) study, they are consolidated here to save space.

A notable feature in the revised model in Figure 1 is the usefulness of the DU as well as time spent trying to navigate through the barriers in the library to find information. All the student respondents agreed that the information they eventually found for their assignments was usable, but only after many barriers had been overcome by repeated iterations. For some, if not most of the respondents, the process of finding information that could be of use had to be constantly rethought. This rethinking and the consequent search strategies are indicated in the pathways shown in Figure 1.

The students' information seeking behaviour pathways indicated additional pathways and iterations in the information searching process. Their information seeking pathways did not conform strictly to the linear pattern of the systematic information seeking stages, as depicted in Wilson's 1996 model. Apart from the time spent trying to navigate through the barriers in the library before they could find information sources, they had an extended route of going to the DU for assistive technology to access the required information.

6.5   INFORMATION USE

The results of the study indicated that information needs of the blind students and those with visual impairments were not readily met because of the barriers they encountered and the laborious information seeking processes that consequently had to be undertaken. Depending on the original format, much of the material had to undergo a process of repackaging. If it was in print form, the information had to be photocopied so that text could be enlarged, or scanned and then sent to the student electronically. It cannot be overemphasised that, although some of the respondents finally found the information they were looking for, a lot of time and energy was wasted in the process. Specifically, the content of the information had to meet their needs at that given time and be suitable for their information seeking situation.

6.6   INFORMATION BARRIERS

Davies (2007) recognised the fact that the power bestowed by information is not easily accessible by everyone, particularly those with disabilities such as visual impairments. Ochoggia (2003) observed in his Kenyan study that the range of reading material available had always been extremely limited. Although the students in the current study were considerably better off than those in Ochoggia's study, the results of the current study indicated that the information seeking behaviours exhibited by blind and visually impaired students at UKZN were hindered by a number of barriers. These barriers would have been eliminated or at least minimised by providing services that were universally designed. Majinge's (2013) study in Tanzania produced similar results. Kailes and MacDonald (2006) define universal design as the design of products and environments to be usable by all, to the greatest extent possible. The barriers encountered forced the students to adopt particular alternative (adaptive) behaviours (pathways) of building in a loop back to the DU. Existing systems at UKZN, in Kenya and in Tanzania were not

designed to accommodate users in the way the Social Model (Hughes & Paterson 1997; Matshedisho 2007; Oliver 1996) implies. These users with visual impairments had to try work around barriers.

6.6.1 Technological and personal barriers

Because the computers in the UKZN Main Library lacked suitable software, such as JAWS and ZoomText, blind and visually impaired students were dependent on the subject librarians to search for and read the results from the screen.

Apart from the particular difficulties accessing and using JAWS, most, if not all of the formats of information needed by the students had some shortcomings, which they then devised strategies to cope with, because as one stated 'one has to use what was locally available'. This observation further highlights the need for the library to adopt a universal design approach in the provision of services.

6.6.2 Financial barriers

Cost factors were cited by both subject librarians and student respondents as the reason for the lack of specialised assistive technologies in the UKZN Main Library. By not having suitable reading software (eg, JAWS) on the library's database computers or ZoomText on the OPAC, visually impaired students were unable to find the information they required independently.

7   DISCUSSION

This section evaluates the findings in the light of other studies at UKZN and elsewhere and discusses the results, primarily the adaptive information seeking behaviour of the students in response to the crucial barriers they encountered. It places the findings in the context of the policy and ethos behind UKZN's (2004) disability policy.

7.1   EFFORTS TO IMPROVE ACCESS TO INFORMATION AT UKZN

With respect to directive action to meet the needs of disabled students, UKZN's (2004) disability policy states that the university will, where it will not pose an unjustifiable hardship, provide up-to-date adaptive and assistive technology for students and staff with disabilities. The definition of 'unjustifiable hardship' is action that 'requires significant or considerable difficulty or expense that could substantially harm the viability of the University or seriously disrupt the operation of the institution' (UKZN 2004:Section 5ii). The issue of unjustifiable hardship must be linked to the demand for adequate funding for tertiary libraries to enable satisfactory service to all staff and students. Hoskins (2010) urges universities to spend at least five to six per cent of the institutional budget on their library services. More should in fact be allocated if library services are

to serve the needs of students with visual and other impairments by pursuing a universal access approach.

With regard to library services, provision is also made in the policy to ensure that, within the constraints of budgets and legal requirements, students and staff with disabilities have access to 'appropriate resources . . . to utilize media which are alternate to printed media' (UKZN 2004:Section 9.6). However, as the Director of Libraries (Buchanan 2009) notes, attempts to make UKZN libraries more accessible to students and staff with visual impairments is an ongoing process. Initiatives such as staff workshops were organised in 2009 to sensitise library staff to the sort of problems revealed by the respondents in Seyama's (2009) survey.

In addition, in order to oversee the implementation of the policy, the university has made provision for a Student with Disability Forum with representatives from all services and divisions including the library. The primary functions of the Disability Forum are:

- to guide and monitor the implementation of the policy in each centre;
- to streamline services and ensure uniformity in the development of services to students with disabilities; and
- to plan for and request appropriate human and material resources to support and facilitate the implantation of the policy, within the constraints of the university budget (UKZN 2004:Section 14).

Four of the seven subject librarians who took part in the survey believed that the library fell short of offering a satisfactory service to blind students and those with visual impairments. They realised that these students need a specific, defined service, for example a person who is dedicated or delegated to assist them. The subject librarians were also very aware that the library needs work-stations with specialised computers loaded with programs and software, such as JAWS and ZoomText. They also felt there is a pressing need for librarians to be trained on how best to assist visually impaired students.

Because of the numerous barriers to access in the availability of the necessary software at the point and site of need and a tendency to route the respondents through the DU rather than assist them on site, the information seeking behaviour of students with visual impairments at UKZN-PMB was diverse and flexible. Their behaviour did not adhere to the predictable, fixed pattern of the systematic information seeking stages shown in Wilson's 1996 model. Instead, these students exhibited search processes which involved considerable rethinking and reformulating of their information seeking strategy. Their original plans failed to result in successful access to and use of the information they required for their academic programmes.

With cost implications being given as the major reason for the failure to provide special format material, adequate assistive technology and specialised staff, coupled with the

relatively small population of blind students and those with visual impairments being provided for, regional resource sharing should be regarded as fundamental (Howell 2005; Howell & Lazarus 2003). Libraries and agencies should be willing to lend their resources to other libraries on campus or between other agencies. For example, contacting and networking with organisations, such as the South African Library for the Blind, would give access to large print books and material in Braille.

7.2   ROLE OF THE DU

The DU as an entity plays a crucial role in the information network students with visual disabilities have to fashion for themselves. The DU's role represents a failure in terms of the Social Model (Hughes & Paterson 1997; Matshedisho 2007; Oliver 1996), the ethos behind the UKZN disability policy and the government's Integrated National Disability Strategy (INDS). Oliver's 1996 model is grounded in universal access (Matshedisho 2007). In terms of inclusive higher education, the existence of special units like the DU to help disabled students fit into the institution's programmes and facilities in essence goes against the overt recognition in the model of the need to change the disabling society (the university) to ensure that it presents no barriers to full and equal participation of all students regardless of their physical impairment. The Council on Higher Education (CHE) report (Howell 2005) strongly recommended the mainstreaming of disability support into existing teaching and learning structures, and that HEIs should avoid DUs becoming a dumping ground for anything to do with disability, so obviating the responsibilities to provide equal opportunities. Currently, many of UKZN's organisational units can avoid their responsibility to all students by diverting the so-called problems to DU support staff. This research demonstrates this finding strongly with regard to library services.

7.3   UKZN AND THE DEPARTMENT FOR WOMEN, CHILDREN AND PERSONS WITH DISABILITIES

The funding situation at UKZN in terms of moving towards universal access should have been addressed as in 2012, the Deputy Minister of the Department for Women, Children and Persons with Disabilities (DWCPD), Hendrietta Bogopane-Zulu, reported on new partnerships with universities with the aim to educate society and create disability advocates. The Deputy Minister met the UKZN's DU to tell them about the government's plan to provide a special fund for all disabled students at HEIs. Concerns focused on the challenges that were raised by the DU which were architectural barriers, inadequate human resources in supporting the students, student specific needs and software requirements. UKZN (2012) reported:

> The R77 million fund will be available to all Higher Education Institutions in South Africa and each student will be able to access the grant to meet their needs, including assistive devices and reasonable accommodation . . . The universities are required to

submit a proposal which tables their needs so that they fully provide the support needed by their students.

The particular concerns raised by the Deputy Minister were the societal barriers faced by disabled students in choosing the careers they wanted, but 'ending up opting for courses they did not want' (UKZN 2012). Bogopane-Zulu said the purpose of the fund was to make sure disabled students were able to choose where they want to study and were able to access the necessary support. The Minister's office would have further meetings with UKZN to finalise the way forward.

8   CONCLUSION AND RECOMMENDATIONS

The study concluded that UKZN was aware of the needs of students with disabilities and had formulated a policy to meet these needs, but that library services fell short of meeting the information needs of blind students and those with visual impairments. Intervention from the DU was required to enable the students to carry out their assignments and even then the considerable delays, lack of staff and shortage of equipment frequently resulted in the late submission of assignments and tests by students. Majinge (2013) found that none of the Tanzanian institutions had a policy on disability although one was formulating a policy. Preliminary findings from her study suggest that the UKZN students with visual impairments were marginally better off than their Tanzanian counterparts.

Although UKZN (2004) has shown its commitment in formulating its Policy on Staff and Students with Disabilities, this must be implemented by providing services which are not viewed as additional or optional but rather as an integral part of the overall provision of education. To achieve such equity in the provision of services this university and others with it will have to ensure that their library services are allocated adequate funding and in this regard the new partnership with the DWCPD should help HEIs move towards universal access.

It is recommended that a detailed access and usability audit (on students with visual impairments) of the Main Library at UKZN-PMB is undertaken. This audit would enable library staff to gauge the level of service currently provided and enable future planning as well as give a clear signal that access to information by people with disabilities is a high priority on the campus. Fundamental in providing an efficient service to people with disabilities is the principle of consulting students and staff with disabilities when designing appropriate information systems. The attitude displayed by those staff offering the service is another key issue.

An Organisation for Economic Co-operation and Development report (OECD 2011:132–133) concurred that strategies to improve participation of disabled students

in higher education should seek to, *inter alia*, 'improve initial and continuing training for personnel in the education system and provide them with methodological tools and support', and 'ensure that disability support services work closely with other student services as well as those that provide support to young adults with disabilities in extracurricular activities'. Training of library personnel, for example, would enable them to conduct information literacy classes for the blind students and those with visual impairments. Training could include demonstrating to the students how to access the library's databases remotely. Similarly, teaching staff could liaise with the DU to have study notes and guides reformatted into Braille or a usable electronic format prior to the lecture. The current study also recommends the setting up of an adaptive workstation in the Main Library at UKZN-PMB. To this end, an adequate budget to acquire the technology required for people with visual impairments is imperative.

NOTES

1. Copies of the instruments are available from the first author.
2. Pseudonyms are used for the respondents' names.

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