

**PROVISION OF ACCESS TO INFORMATION IN ACADEMIC LIBRARIES
IN SOUTHERN AFRICA: TWO CASE STUDIES**

by

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Acronyms and abbreviations

AACR	Anglo American Cataloguing Rules
ADB	African Development Bank
ADL	African Digital Library
AISI	African Information Society Initiative
ANSI	American National Standards Institute
AODL	African Online Digital Library
APC	Association for Progressive Communications
ARSONET	African Regional Standards Organisation
ATM	Asynchronous Transfer Mode
AU	African Union
AVLIN	African Virtual Library and Information Network
CALICO	Cape Library Consortia
CCDP	Cooperative collection development policies
CDS/ISIS	Computerised Documentation Service/Integrated Set of Information Systems
DISA	Digital Imaging Project of South Africa
EASSy	East African Submarine Cable System
ECA	Economic Commission for Africa
EDI	Electronic Document Interchange
esAL	Eastern Seaboard Association of Libraries
FLAG	Fiberoptic Link around the Globe
FOTIM	Foundation of Tertiary Institutions of the Northern Metropolis
FRELICO	Free State Library and Information Consortium
Gaelic	Gauteng and Environs Library Consortia
ICT	Information and Communications Technology
IDRC	International Development Research Centre
ILL	Interlibrary Loans
ISDN	Integrated Services Digital Networks

ISP	Internet Service Provider
IT	Information technology
ITS	Integrated Tertiary Software
ITU	International Telecommunication Union
IUG	Innopac User Group
LAN	Local Area Networks
MARC	Machine-readable cataloguing
MCSE	Microsoft Certified Systems Engineer
NCIP	Circulation interchange protocol
NISO	National Standards Organisation
NNB	Namibia National Bibliography
ODA	British Overseas Development Agency
OPAC	Online public access catalogue
PANAFTEL	Pan African Telecommunication
POP	Points of Presence
PTO	Post and Telecommunication Organisations
RASCOM	Regional African Satellite Communication Organisation
RINAF	Research and Information Network for Africa
RIO	Reseau Informatique de L'Orstrom
Sabinet	South African Bibliographic Information Network
SACat	South African union catalogue
SADC	Southern African Development Community
SAFE	South Africa - Far East project
SAIS	Southern African Interlending Scheme
SANB	South African National Bibliography
SASLI	South African Site License Initiative
SAT/WASC	South Atlantic 3/West Africa Submarine Cable
SDI	Selective Dissemination of Information
SEALS	South Eastern Alliance of Library Systems
UNAM	University of Namibia
UNESCO	United Nations Educational, Scientific and Cultural Organization

Unisa	University of South Africa
USA	United States of America
VSAT	Very Small Aperture Terminals
WAN	Wide Area Networks
WSIS	World Summit on the Information Society
Z39.50	Search and Retrieve Protocol Standard

SUMMARY

Information and communications technology (ICT) makes remote access to information possible. Resource sharing facilitates the provision of access to information sources not owned by an individual library.

Case studies were conducted at the University of South Africa and University of Namibia libraries to explore the provision of access to information in academic libraries in southern Africa through collection development, resource sharing and acquiring remote access to electronic resources through ICT facilities.

It was found that both libraries have recently adapted their collection development policies to accommodate electronic resources although their budgets did not increase accordingly. The recruitment of ICT knowledgeable staff tends to be a problem at both libraries. Resources are shared via interlending and document supply with Unisa Library as a model in southern Africa. Both libraries add their holdings to the national bibliographies and Sabinet and are members of GAELIC. However, the UNAM library is a passive partner. A consortium within Namibia's borders is suggested to improve resource sharing.

Key terms: collection development; collection management; collection development policies; provision of access to information; electronic resources; information and communications technology; academic libraries; resource sharing; library cooperation.

CHAPTER 1

GENERAL INTRODUCTION

1.1 BACKGROUND TO THE PROBLEM

An academic library cannot be expected to house a comprehensive collection that has been developed for all current and potential users. Therefore, its users need access to information sources not locally held in the library collection. Ownership of information collections has the main advantage for library users of direct exposure to documents and the capability of browsing. Providing users with electronic access to information, however, allows them to find materials not owned by a particular library (Getz 1991:73-75; Lynden 1994:26-28; Owens 1994:59-75; Simpson 1994:95-107; Schroeder 1995; Line 1995a:11-13; 1998:16-18). Libraries worldwide will have to acknowledge or take advantage of being “linked in a great chain of access” (Gorman 1997:498). In order for libraries to survive, acquisition of materials merely held locally or held on-site will be inadequate (Bennett 1984:260; Gorman 1997:498; Phillips & Williams 2004:273-284; Ameen 2005:112-116).

Libraries find it necessary to provide remote access to information because of shrinking library budgets, the growing quantity of printed and, or published material and developments in information communications technology (ICT) which make it possible for users to have access to material not locally held. Library users can be served much better if there is a possibility for them to have access to other library collections through resource sharing and the use of electronic databases. This is particularly true of academic libraries in southern Africa since they are in many cases not adequately stocked (Lor 2000: 215-16; Rosenberg 1997:2-4; 1998:5-13). As an academic librarian in Namibia, the researcher became aware of the problems surrounding the provision of access

to alternative information sources at the institution at which she is employed, namely the University of Namibia Library, and that these problems need to be addressed so that the situation can be improved.

However, there are certain factors that will determine whether academic libraries in southern Africa, in general, and Namibia, in particular, are capable of ensuring that users have access to information in this information age. Prerequisites for providing remote access to information include a functioning telecommunication system, technical know-how, computerised networks and the financial means to buy the required equipment. ICT alone provides only part of the solution (Rosenberg 1993:108). There also has to be the willingness among the different parties to co-operate by means of resource sharing (Alemna 1993:26-28; Adam 1996c:133; Tonye 1997:415).

Factors hampering libraries and technological connectivity in southern Africa, in general, and Namibia, in particular, are the state of the economy and poor infrastructure, which includes a lack of information technology, a steady electrical output and reliable telecommunications. The unwillingness of governments and other policy makers to participate in information exchange also plays a role (Raseroka 1997:487-499). Factors, such as unwieldy bureaucracy, illiteracy and the multiplicity of languages, as well as the reluctance or inability to install and maintain equipment once it is received, the lack of foreign exchange, as well as the lack of capacity to produce software have to be taken into account when investigating resource sharing among African libraries (Alemna 1993:26-28; Zulu 1994:77-94; Adam 1996a).

The standard of information technological connectivity is a key factor in determining whether the countries in southern Africa are capable of joining consortia and networks and providing remote access to information and information resources.

However electronic accessibility and resource sharing, (including networking and interlending), are subject to certain constraints in Namibia as in most southern African libraries. These include poorly developed telecommunication technologies, outdated or non-existent union catalogues, insufficient funds and non-conformity to bibliographical standards (Lungu 1992: 655; Behrens 1996:78; Rosenberg 1998:11-12).

The question is the extent to which other academic libraries in southern Africa and Namibia, in particular, are able to utilize ICT in order to gain access to external information sources. If the ICT infrastructure is inadequately developed, remote access as well as resource sharing is not possible and the information supply to the southern African academic community will be lacking. An additional question is whether academic libraries in southern Africa make sufficient use of resource sharing, such as networking, interlending and consortia which also ensure access to information.

As already mentioned, the use of ICT in academic and other libraries in Namibia is not well developed as yet. According to the Directory of Namibian Libraries (Loubser, Boer & Diergaardt 1992) there are 256 libraries of all types in Namibia. Card catalogues are still in use in all of the Namibian community libraries. Although many of the libraries have their databases stored on Computerised Documentation Service / Integrated Set of Information Systems (CDS/ISIS), library users are obliged to utilize these card catalogues. Only the larger libraries in the country as well as some special libraries give access through their stock via a web-based online public access catalogue (OPAC).

Only two libraries have commercially-acquired library management software which is capable of handling MARC21 bibliographic records. The University of Namibia (UNAM) Library uses Millenium/Innopac while ITS (Integrated Tertiary Software) is used at the Polytechnic of Namibia Library. The University of Namibia Library is an example of an academic library in southern Africa that

faces many problems mainly because of shortcomings as far as technological, financial and human resources are concerned and because of its geographic isolation.

On the whole academic libraries, particularly university libraries in South Africa are known for their effectiveness, quality of collection development and well educated staff. For instance, the Unisa Library is recognized as a well functioning library that can be compared to those in the United States of America or Europe. It could be viewed as an ideal library whose ways of dealing with the provision of access to information, resource sharing and collection development could set the standard against which other libraries in the southern African region could be judged.

1.2 PRESENT STATE OF RESEARCH

The problem of providing access to information sources not locally held by libraries is part of the 'access versus ownership' debate. Library and information science subject literature abounds with information on this issue. Since the discussion on 'access versus ownership' originated mainly as a result of economic constraints in a First World environment, it goes without saying that its possible solution may even be a more pressing concern in the African context, given the weak resource base of most libraries referred to above.

Various authors have contributed to the literature on the theme of access to, and ownership of information resources in southern Africa or in Africa as a whole. There is no doubt in the minds of many writers that the provision of access to relevant information is fundamental and an absolute necessity in overcoming underdevelopment (Adeyemi 1991:1-5; Adam 1996c:133-137; Tonye 1997:415,422; Yilmaz 1999:104-106; Jimba 1999:79-83; Okiy 2005:311-312). As access to information is the basis for development in every form,

academic libraries in southern Africa in general, and Namibia in particular will fall even further behind if they are unable to utilise information technology effectively (Adeyemi 1991:1-3; Adam 1997:211-214; Tonye 1997:415-418).

Very few empirical studies have been conducted on the situation surrounding “access versus ownership”. However, the provision of access to information can be studied against the background of various issues related to the development and management of information collections, namely that of (a) the development of the physical collection, (b) the expansion of the electronic collection, and (c) resource sharing and its relevant prerequisites.

A few authors have focused on the theme of collection development within an African context. Badu (2004:93-107) conducted a qualitative study of 21 academic libraries and found that the main concerns of these African libraries are information technology, service development, library funding and human and physical resource development. Adekanmbi (2007:45-52) conducted a study on the use and state of collection development policies in the colleges of education in Botswana. Olanlokun and Adekanye (2005:141-148) conducted a similar investigation at the University of Lagos. Van Zijl (2005) also included collection development policies in her study of the efficacy of collection development and management practices, policies, guidelines and standards in two universities of technology libraries, one of which is located in South Africa.

Lor (1990) wrote his doctoral thesis on the development of a model for monitoring the South African interlending scheme. He felt that in order to ensure a steady flow of accurate and up-to-date information a national system requires monitoring.

Resource sharing between 33 law libraries in Nigeria was investigated by Lawal and Bassey (2008:91-100) who report that all of the libraries acknowledged the need for interlending. The same trend was revealed in a study by Munge

(2007:64-74) who stressed that interlibrary loan activities in Kenya were enhanced by a number of information sharing initiatives after the advent of information technologies in the 1990s. He came to the conclusion that despite problems, users are able to have access to a considerable number of information resources available within national and international databases as a way of alleviating information scarcity in these institutions. Muswazi (2005:59-66) conducted a case study at the University of Swaziland in order to assess user involvement, particularly in the use of electronic resources.

Various authors have contributed to the discussion on the role of consortia as a means of resource sharing, the effect of ICT on academic libraries, the introduction of electronic information resources, digital libraries and the transformed library and information sector in South Africa (Edwards 1999:123-129; Thomas & Fourie 2006; Lor 2008:116-128; Mutula 2008:89-102; Davis 2009:131-137). However, it would appear as if few empirical studies have been conducted on these issues in southern Africa.

1.3 STATEMENT OF THE PROBLEM

The academic library in southern Africa has an important role to play in the delivery of access to information, in whatever format. This can be done either through the physical collection, or by electronic means or through resource sharing activities. The question that should be asked is whether academic libraries in southern Africa are successful in their endeavors in this regard and whether they can cope with possible problems in respect of the human, financial and technological resources required to support the provision of access to information.

The purpose of the study is to investigate the extent to which academic libraries in southern Africa, and in particular Namibia, provide electronic access to

information, develop their collections, and engage in the sharing of their resources, and the problems they experience in terms of financial, human or technological resources to support such a service.

In view of the above, the main problems of this study can be formulated as follows:

- (1) To what extent do academic libraries in southern Africa provide access to information by developing their collections of paper-based and electronic information resources and engaging in resource sharing?

From this broad problem area the following sub-problems emerge:

- (a) Have collection development practices and policies changed to incorporate and extend access to electronic information resources?
 - (b) What networking and resource sharing activities have been initiated?
 - (c) To what extent are academic libraries building their own electronic databases?
- (2) What problems do academic libraries experience in providing electronic access to information sources in terms of financial, technological and human resources?

From the above problem areas the following sub-problems are identified:

- (a) Have budget allocations been changed to cover additional costs for electronic resources?
- (b) How well-stocked are the libraries in respect of facilities and equipment for information and communications technologies (ICT),

- and are users provided with the required training in the use of these technologies?
- (c) Are librarians suitably qualified and trained to work in the field of ICT?

1.4 AIM

In providing an overview of the current state of provision of access to information in academic libraries in southern Africa, the study aims to show the adjustments and changes in information provision and how particular libraries attempt to maintain a balance between access to information and ownership of information resources within their own collections. The ultimate aim is to develop a theoretical framework of the basic requirements for the provision of access to information and to provide recommendations for the improvement of information access.

1.5 DELIMITATIONS

For the purpose of this research, it was decided to limit the project to two academic libraries in southern African, namely the University of Namibia Library and the University of South Africa Library.

The reason for the choice of these academic libraries is that the researcher lives in Namibia and would be able to obtain first-hand information on the library situation and related problems in Namibia. Apart from the library of the Polytechnic, the University of Namibia Library is the only academic library in Namibia. There are a few college libraries which are at present being incorporated into, and will function under the auspices of the University of Namibia. Two other academic libraries, one in a neighbouring country and one

in South Africa, were also approached to participate in the investigation but were unable to complete the questionnaire. South Africa has 17 universities and the University of South Africa Library was chosen to participate because it is a large academic library, with a comprehensive collection, a large professional library staff contingent and a strong financial budget with which to work.

Thus, the focus falls on the University of Namibia Library with the University of South Africa Library investigated as the ideal to which other libraries in southern Africa could strive in terms of the provision of access to information. It is not possible to compare the two participating libraries directly because of differences in the size of their collections, budget, clientele and staff. The composition of their user communities is also quite different. In addition, the University of Namibia is a comparatively young institution that only received university status in 1990. However, Unisa's approach to dealing with issues, such as interlending, resource sharing, and the provision of access to electronic resources, can give other libraries in the region an insight into how they could deal with similar issues and solve related problems.

Aspects that are explored in each library are limited to amendments in collection development policies to incorporate electronic resources, resource sharing through library co-operation, possible participation in consortia (in this case limited to GAELIC) and interlending. Access to information is viewed as a prerequisite for service provision. In this study the focus is on the library's role in acquiring information sources and providing access to information rather than on the user's behaviour in attempting to obtain access to information.

1.6 SIGNIFICANCE OF THE STUDY

In determining the capacity of academic libraries in respect of human, financial and technological resources to support the provision of access to information

from remote locations to the local institution, areas for improvement can be indicated. Findings of the case studies can indicate how the availability of electronic resources in these libraries has an impact on their collections and physical or ICT facilities and infrastructure. It can also indicate whether resource sharing activities have changed and if there are any budgetary concerns. The results can lead to recommendations for the improvement of services and indicate trends in future developments. This could entail revisions of collection development policies and procedures, different staffing requirements or capacity building programmes.

1.7 RESEARCH METHOD

The research was conducted by means of a literature review and an empirical study. The literature study focuses on the issue of “access versus ownership”, collection development, provision of access to electronic resources, networking and resource sharing in libraries in southern Africa.

A combination of the qualitative and quantitative approaches was adopted for this study. The empirical study involved two case studies. Data was collected by means of questioning methods and interviews using a questionnaire and an interview schedule. The aim was to obtain information which could be analysed and whereby patterns could be extracted and possible conclusions drawn. Policy documents, annual reports and websites of the relevant institutions were examined as well.

In conducting a case study, the researcher tries to investigate various characteristics of a small number of cases over a specific period of time. Thus the focus is more on what is typical than what is unique (University of South Africa. Department of Information Science 2000:93-99). The case study method was selected because it presented the most appropriate means of gathering,

comparing, categorising, analysing and reporting on collection development practices, ICT infrastructures, resource sharing patterns and willingness for budget adaptations (Soy 2006:9).

Case study research excels at bringing us to an understanding of a complex issue or an object and can extend experience or add strength to what is already known through previous research. Case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships (Yin, 2002: 23).

As a form of qualitative descriptive research, the case study looks intensely at an individual or small participant pool, drawing conclusions only about that participant or group and only in that specific context. Research is not focused on the discovery of a universal and generalisable truth; instead, emphasis is placed on in-depth exploration and description (Becker et al. 2005).

1.8 DEFINITION OF CONCEPTS

The following relevant concepts are defined within the context of this study: 'academic libraries', 'provision of access to information', 'access versus ownership', 'electronic resources', 'information and communications technology', 'resource sharing', 'southern Africa', 'financial and human resources'.

1.8.1 Academic libraries

An academic library forms an integral part of a college, university or other institution of post-secondary education. Its aim is to meet the information and research needs of its students, lecturers, and staff by assembling information

resources regardless of format and ownership and organizing and describing these information sources and thereby enabling their retrieval at the time of need.

1.8.2 Provision of access to information

In the context of this study the term “provision of access to information” refers to the library’s role in acquiring and making information available by whatever means. It could be through information sources held in the library’s own collection or information could be made accessible by means of resource sharing activities, or in electronic format through the Internet, on CD-ROMs or electronic databases. As already mentioned in section 1.5, access to information is a prerequisite for user services. It concerns the collecting and making accessible of information records to meet user needs.

1.8.3 Access versus ownership

“Access versus ownership” is a phrase commonly used in the North American subject literature to refer to the controversy which arose during the last two decades involving collection development decisions which have to be made when selecting print and electronic resources. The word “access” in this context refers to electronic access to remote information resources. British sources usually refer to it as “access versus holding” and reference is also made to the “access versus assets” debate (Brin and Cochran 1994:207; Owens 1994:62; Simpson 1994:99; Shreeves 1997:373; Sweetland 2000:1; Kiondo 2004:21).

The word “ownership” refers to those information sources, which are acquired through the library’s collection development budget and which will then be the physical property of the institution and part and parcel of its collection.

1.8.4 Electronic resources

Electronic resources are materials or media that consists of data and, or computer program(s) that are encoded for reading and manipulation by a computer. Software applications, electronic texts and bibliographic databases are included in this category.

1.8.5 Information and communications technology

Information and communications technology or ICT is the application of modern communications and computing technologies for the creation, management and use of information. Access to electronic information is dependent on information technology. The abbreviation IT is also used to refer to this concept but in this study ICT is preferred.

1.8.6 Resource sharing

Resource sharing refers to the activities that result from a formal or informal agreement among a group of libraries (usually a consortium or network) to share collections, facilities, data, personnel, and so on for the benefit of their users and to reduce the expense of collection development. It includes interlending, document delivery and networking. Networking in this context means the exchange of information through common communication channels between two or more libraries, usually for the purpose of accomplishing shared objectives (Reitz 2004).

1.8.7 Southern Africa

The countries generally included in southern Africa are: Angola, Botswana, Zambia, Swaziland, Zimbabwe, Mozambique, South Africa, Lesotho, Namibia. However, only academic libraries in South Africa and Namibia are represented in the case studies.

1.8.8 Financial resources

The term 'financial resources' describes the availability of money possessed by an organisation, or being made available to an organisation for fulfilling its staff and operational functions (Marketing dictionary 2010). In academic libraries the largest portion of the library's budget is allocated to the purchase of new information sources in order to develop a balanced and growing collection

1.8.9 Human resources

Human resources are the people that staff and operate an organisation as contrasted with the financial and material resources of an organisation. In academic libraries in particular, a well educated, skilled and knowledgeable staff contingent is essential.

1.9 RESEARCH PROGRAMME

In Chapter 1 a general background to the problem and a brief overview of the present state of research is provided. Main and subordinate problems are

identified and the aims and significance of the study are pointed out. The delimitations of the study and the research methods are sketched and relevant concepts are defined.

Chapter 2 deals with the provision of access to and ownership of information resources as an issue in collection development. The subject literature on the “access versus ownership” debate is examined. The advantages and disadvantages of either access or ownership are discussed and a viewpoint reflecting a balance between the two approaches is put forward. The factors that influence collection development are also investigated.

Chapter 3 deals with alternative access to information other than through ownership. Resource sharing strategies such as interlending and document supply as well as the possible formation of consortia as a means of broadening a collection are examined. This will have implications for the collection development policies in academic libraries. With the evolution of the so-called “virtual library” or “library without walls”, the question is posed as to what the new role of academic libraries and librarians are in this new electronic age. Resource sharing in the southern African context is investigated with all the pre-requisites for successful sharing of resources and related problems.

Chapter 4 has as its main theme the implementation of information technology and access to electronic sources in libraries in southern Africa. This chapter attempts to assess the stage of Internet development in southern Africa against the background of the situation in Africa as a whole and the problems and benefits it has for the continent. Other themes include the digital divide as well as consortia and digital libraries in southern Africa.

Chapter 5 deals with the research method, quantitative and qualitative research approaches, case studies as well as the data collection methods that were utilized.

Chapter 6 presents the findings of the empirical research on the current state of collection development in two academic libraries in southern Africa and their capability of providing access to information from remote locations. It includes data about the technological, human and financial resources and facilities of these libraries. The two libraries are assessed according to the necessary prerequisites for the provision of remote access to information, such as information technology infrastructures, budgets, resource sharing and technical know-how or skills.

Chapter 7 includes the summary, conclusion and recommendations as well as future areas of research.

CHAPTER 2

ACCESS AND OWNERSHIP AS AN ISSUE IN COLLECTION DEVELOPMENT AND MANAGEMENT

2.1 INTRODUCTION

As pointed out in Chapter 1, section 1.2, the problem of providing access to information not locally held is part of the “access versus ownership” debate. In order to discover if academic libraries in southern Africa maintain a balance between providing access to information on the one hand and ownership of information sources, on the other, this chapter provides a discussion of the “access versus ownership” discussion. As access and ownership is an issue in collection development and management, these functions will also be clarified within this context.

Information technology makes it possible to bring information and clients together 24 hours a day all year round, which would be the ultimate access model in information provision. This leads to questions about the role of the library and its physical collections in the electronic age. Since the advent of the digital library has brought about a totally new approach to the traditional views of collection development, this concept will also be discussed in this chapter.

2.2 ACCESS TO INFORMATION AND OWNERSHIP OF INFORMATION SOURCES

The access versus ownership issue is discussed within the context of collection development and management, access and ownership-based library models are explained and the need for librarians to adapt to the changing nature of information is pointed out.

2.2.1 Access versus ownership debate: historical overview

Brin and Cochran (1994:207) noted that there have been journal articles on this subject since 1975 but wider focus on the issue dates from 1989 becoming significant in the early 1990s. The emphasis of articles written in the late 1980s, early 1990s usually took a different view on the library phenomena to those written in the late 1990s. Owens (1994:62) claims, for instance, that when the new technological developments first began to appear “some discussions of access implied that electronic, just-in-time delivery of information could be substituted for an onsite collection of books and journals”.

Simpson (1994:99) shares these sentiments when he writes that,

“Several years ago, the issue of access vs. ownership resurfaced within professional discussions as research libraries pondered the incurables of increasing cost and declining budgets. The only answer seemed to be to obtain needed items through access because ownership was becoming more difficult. It was seen as a situation of either access or ownership”.

Higginbotham and Bowdain (1993) explore a range of approaches academic libraries could adopt to provide access to information that exists outside the library’s collection and conclude that economic conditions have contributed to

shifts in emphasis in libraries from ownership to access oriented collection development. Shreeves (1997:373) mentions that the phrase “access over ownership” had by the early 1990s achieved an almost “mantra-like” status among librarians, which he believes, “reflects more than just the rhetorical effectiveness of an oversimplified concept”.

After the initial view that libraries should shift their emphasis in collection management from an ownership to an access approach, the general feeling in the library field is very compellingly one of a balance between these two approaches (Owens 1994:62; Simpson 1994:95-107; Schroeder 1995:5; Kane 1997:59-67; Shreeves 1997:373-391).

But the theme is not unravelled with clear-cut answers. An editorial by Sweetland (2000:1) has the title “Access versus ownership – current dilemma, future crisis?” which indicates that it is still an issue today. Journal articles since 2000 concentrate on print versus electronic journal access (Schaffner 2001:239-248; Alan & Butkovich 2003:32-34; McDonald 2003:22-24; Rowse 2003:24-28). Instead of “access versus ownership” one now often hears about “just-in-time” versus “just-in-case” scenarios (Bandyopadhyay 1999:10; Moahi 2002:341-349).

2.2.2 Ownership- and access-based library models

Harloe and Budd’s (1994:84) ownership- and access-based library models in table 2.1 demonstrate the difference between the traditional and virtual libraries. The left-hand side of the model represents the traditional library, the right-hand side the virtual library. One can place the two library models on a continuum with ownership represented at one end of the pole and access represented at the other end of the pole. Most academic libraries in reality occupy a position in the middle of the two extremes. The modern library in a real-life situation today

is probably a combination of both models which is then known as a digital, electronic or hybrid library model.

Table 2.1
Ownership- and access-based library models

Ownership-based library model <u>(Library as storehouse)</u>	Access-based library model <u>(Library as gateway)</u>
Emphasis on use of traditional print collections stored locally and physically browsable.	Emphasis on access to resources that are networked and browsable electronically.
Value is attributed to the size of the collection.	Value is placed on the availability of the collection and deliverability of the information.
“Just in case” approach to collection development, based upon the goal of physical acquisition of resources that form an archival collection.	“Just in time” approach to collection management, based upon high reliance on expedited document delivery.

“The essence of librarianship is access that is making information and knowledge available to the user” (Lynden 1994:19). The shift that has taken place in libraries is the insight that the future of libraries no longer lies in large collections but in their ability to provide access to remote sources of information. These can be held in other libraries or in commercial databases (Line 1995a:11).

Access to books and periodicals in the past depended on ownership. According to Branin (1998:8) libraries could offer a valuable service to a select group of information seekers simply by buying as many books as possible.

In recent years libraries have experienced budgetary constraints, which have affected the development of their information collections. As a result, the trend of libraries sharing resources, nation- and worldwide, has developed more intensively. To continue to provide a service to clients, cheaper and/or alternative sources of accessing information are being considered. Libraries started to turn to the rapid advancement of technology as a solution and a tool.

2.2.3 Effects of information and communications technology

The opportunities offered by information technology for electronic access to information is the major difference in how collection management is practiced today compared to earlier years (Bennett 1984:260; Gorman & Miller 1997:498; Jenkins & Morley 1999:4; Phillips & Williams 2004:273-284; Ameen 2005:112-116).

Whereas collection development was a more or less straightforward task in the past, it now has to adapt to the transforming nature of developments, particularly in information technology, variety, cost, licensing, functionality, and archiving (Rowley & Black 1996:22; Phillips & Williams 2004:277). Phillips and Williams (2004:275) state that “everything electronic dominated the collection development scene from 1997 onward”. The opinion that “if it is not on the Web, then it does not exist” (Branin, Groen & Thorin 2002:9) strongly influences collection development today.

Provision of access to information and information sources outside the library through interlibrary loans (resource sharing and document delivery) has always been part of collection development and management. Thus, even in the so-called “traditional” library, information not locally held was made accessible to users. However, as explained by White and Crawford in Kiondo (2004:20) the main difference between traditional collection development and the collection of

e-resources is that the former is based on ownership of materials by libraries whereas electronic applications enable libraries to gain access to information via commercial vendors and co-operative networks.

MacEwan (1998:11-12) believes that “one of the most critical issues facing collection development today is how to bring together subject, technical, and service expertise in the most effective manner”. Academic librarians need a new language for discussing collection management and development, basing it upon the “logic of content”. That means that collection managers should concentrate on the content of the information provided, regardless of the actual form in which the information is packaged (Harloe & Budd 1994:83).

Rowley and Black (1996:29) conclude that “collection development will continue as a vital part of a library’s mission for the future. It must however be rethought and framed in the context of the library as a developer, designer, and manager of knowledge”. Phillips and Williams (2004:283) come to the conclusion that traditional collection management values might soon reach a “digital wall” which might force a re-worked definition of collection and collection building as the digital environment requires new approaches.

2.3 COLLECTION DEVELOPMENT AND MANAGEMENT FUNCTIONS

Collection development and collection management are often used synonymously as there is no agreed usage for these terms.

Collection development is defined by Reitz (2004:156) as

“the process of planning and building a useful and balanced collection of library materials over a period of years, based on an ongoing assessment of the information needs of the library’s clientele, analysis of

user statistics, and demographic projections, normally constrained by budgetary limitations”.

Collection development is defined by Mosher & Pancake (1983:417-424) as the effective and timely selection of library materials forming carefully constructed areas of subject collections, shaped over time by bibliographic experts. They describe this as “the synapses linking thousands of decisions into sensitive provision of needed research materials, the capacity to make the parts fit the needed whole” (Mosher & Pancake 1983:421).

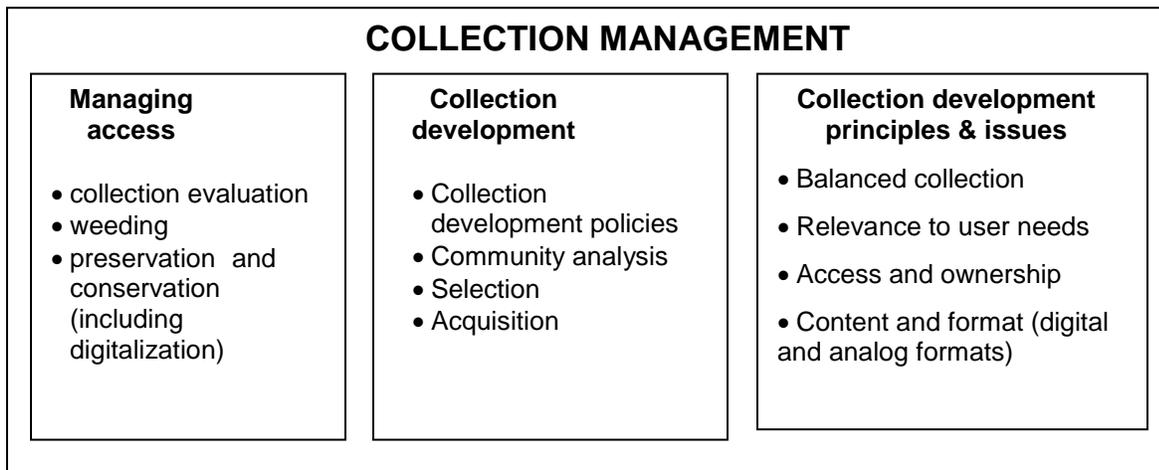
Collection development consists of six elements, namely, community analysis, collection development policies, selection, acquisition, collection evaluation and weeding (Evans 1987:44). Collection management may incorporate this, but include the allocation of the book fund and the achievement of a balance between books, journals and maintenance as well. Furthermore, it includes the disposition of stock between open and closed access, as well as between different media and between branches of the library. Involvement of academics in collection building, the allocation of library budgets, collection evaluation and the overall impact of electronic systems can all be seen as part of the whole collection management process. Finally, it also involves the monitoring and encouragement of collection use (Odini 1994:12; Rowley & Black 1996:26).

It is therefore of significance that today the term “collection management” is used more commonly and includes also policies, planning, analysis, assessment of strengths and weaknesses (collection evaluation) as well as co-operative activities. It also includes preservation and conservation of analogue and digital sources. This comprises archiving of digital sources and digitisation of analogue materials (Branin 1993:ix-xii; Reitz 2004:157). Fourie (2001:15) points out that collection management embraces managing access to information, its preservation and storage as well as all the processes of collection development. Collection development and management functions as

well as collection development principles and issues are graphically represented in Figure 2.1.

FIGURE 2.1

Collection development and collection management functions



Odini (1994:12) comes to the conclusion that collection development and management “is essentially a planning process which uses the methodology typically followed in planning: establishing mission and policy statements, describing the present state of affairs, reviewing relative strengths and weaknesses, considering environmental influences and other current trends, setting goals and designing strategies to reach those goals”. For this to be successful, it must be based on an agreed, regularly reviewed collection development policy. “Collection management is a central part of the library’s and its librarians’ investment in the quality and responsiveness of its collection” (Johnson 2004:164).

2.4 COLLECTION DEVELOPMENT PRINCIPLES AND ISSUES

Figure 2.1 shows the principles and issues that are fundamental to collection development. In implementing the collection development programme the librarian's decisions must reflect a balance between present and potential users' needs and interests. The collection's relevance to user needs must be judged according to predicted use. All sides of an issue should be represented in the collection and a balance between materials on different subjects should be maintained. In addition, both analogue and digital information must be selected and decisions about whether to own or to provide access only should be focussed on the content required to meet the needs of the user community rather than on the form in which it is packaged (Fourie 2001:22-25).

A principle that guides collection development and management nowadays is that of maintaining a balance between access to electronic databases as well as information resources available in other libraries and ownership of paper-based collections together with issues such as, just-in-time and just-in-case delivery, and temporary versus permanent access (Zhang 1998:1). According to Kiondo (2004:21) the balance between paper-based and electronic information is a difficult challenge that does not have a straightforward solution.

2.5 COLLECTION DEVELOPMENT FUNCTIONS

The main impact of the decisions taken as a result of the "access versus ownership" debate will be on collection development policies and a revision of these in order to include electronic resources as a newly introduced format.

2.5.1 Collection development policies

The American Library Association (1996) describes a collection development policy as

“documents which define the scope of a library’s existing collections, plan for the continuing development of resources, identify collection strengths, and outline the relationship between selection philosophy and the institution’s goals, general selection criteria, and intellectual freedom”.

Johnson (in Kennedy 2005:1) describes it as

“a formal written statement of the principles guiding a library’s selection of books and other materials, including the criteria used in selection, de-selection, and acceptance of gifts. It may also address intellectual freedom, future goals, and special areas of attention”.

The two broad functions or purposes of a collection development policy are, on the one hand, communication, and on the other, planning. Communication includes both internal communication intended for library staff, users and administrators as well as external communication for mainly resource-sharing purposes on local or national level and as a financial planning tool. The planning function of the collection development policy is aimed at identifying and predicting present and future user needs in order to establish funding priorities (Fourie 2001:38-39).

Generally, Johnson (2004:72) maintains that “libraries without collection development policies are like businesses without business plans”. One has to know what the business is doing at the moment and where it is heading.

The components of a collection development policy are two-fold. Firstly, it consists of a general policy statement, which includes an introduction, statement of the library's goals, needs and priorities and a statement of its objectives. Secondly a statement of collection levels is included which includes a detailed listing of subjects with indications of the collection's existing strengths and weaknesses. This will involve collection evaluation and user analysis (Gorman & Howes 1989:30-32). The collection development policy statement could also include selection policies and procedures, acquisition policies and procedures, weeding and collection evaluation policies and procedures and co-operative agreements with other libraries. These policies and procedures could also be issued as separate documents (Fourie 2001:39-45).

Libraries are growing far more inter-dependent and a shared collection development policy between libraries is therefore necessary. Co-operative collection development is linked to document delivery and document access. Co-operative collection development needs efficient resource sharing, easy bibliographic access to collections elsewhere, and coordinated collection development and management, in order to succeed (Johnson 2004:259; Shreeves 1997:374). These aspects will be dealt with in Chapter 3.

In the new electronic information age there is a great deal of speculation regarding the value of collection development policies where the value of access to information is weighed up against ownership of one's own collection. In a period of change, directives are necessary to guide the thinking, decisions and actions of libraries. Policies are needed to establish and reinforce the decisions taken and the strategies and plans made for an access model of acquisition (Van Zijl 1998:99-101).

It is important to incorporate plans for the development of electronic information collections into a collection development policy. Although the community or user needs analysis is the same, the scope, access and selection criteria often differ

from those of print resources. Studies of the collection development policies of various universities like Cape Town, Johannesburg, Limpopo, Port Elizabeth, Rhodes, Pretoria, Stellenbosch, and the Witwatersrand show that the tendency is, to have a separate collection development policy for electronic resources.

Kennedy (2005:3) feels that a collection development policy for digital resources is even more important than it is for print material. He thinks that the selection of digital resources is more complicated and that aspects such as equipment and the preservation of these resources should be included in such a policy.

2.5.2 Community analysis

Knowledge of the service community is the keystone to effective collection development (Evans 1987:26). Other terms used for this collection development function are needs assessment or information needs analysis. The goals for this first step in collection development is to establish the overall size and structure of the user base, its characteristics, interests, values, educational and information needs.

Usually primary as well as secondary data is used. Primary data or information about a community is gathered by ways of surveys, observational research, individual or/and focus group interviews. Secondary information about the community is collected by analysing existing data from written documents and studies (Evans 1987:26-27; Futas 1995:6-7; Johnson 2004:175).

As with other materials, collection managers will assess present curriculum and research needs, when deciding on the purchase of electronic resources. The challenge with e-resources is to choose from a large set of potentially relevant resources those most relevant to a user's need (University of Auckland 2006:1).

One also has to be aware of the information needs of multiple user groups with various levels of online expertise (Fourie 2001:120).

2.5.3 Selection

Selection is the process of deciding what materials should be added to the collection. According to Fourie (2001:104-105) there are four steps in the selection process, namely (i) the identification of individual items in published lists, (ii) the evaluation of the inherent merits of an item according to criteria for the evaluation of content and form, (iii) the evaluation of the item in its relationship to the collection as a whole and (iv) the decision as to whether the item meets the collection development aims and objectives of the library. These steps are also valid for electronic resources with additional problems such as the instability of resources, licence limitations, and insufficient bibliographic control (Fourie 2001:120).

The central focus of the selection process is the user. The difficulty that exists is to keep a balance between what is wanted and its value or as Evans (1987:82) puts it "quality versus demand". In order to successfully select material for a library's collection, the selector must have an intimate knowledge of the library's clientele, its purpose and the existing collection (Gorman & Howes 1989:185-187).

Guidelines for selection should form part of the collection development policy because criteria for the evaluation of items will have to be spelled out according to which selectors can orientate themselves before making selection decisions (Futas 1995:10).

Selection criteria for electronic resources are in most cases similar to those applied to print resources. Criteria that have to be considered are:

- coverage and availability of material;
- enhanced content and additional functionality of the electronic format compared to its print counterpart;
- reliability and range of access;
- ease of use;
- timeliness of information provided;
- convenience for users, e.g. unrestricted access;
- full-text availability;
- cost-effectiveness, e.g. subscription savings;
- publisher commitment for sustainability (Fourie 2001:123-124; University of Auckland 2006:3).

Considerations in terms of access, be it for the subscription period only or as an indefinite availability have to be investigated.

2.5.4 Acquisition

This process involves the location and acquisition of the items that were identified during the selection process by confirming the details of price and publication, locating the item, ordering it, and processing the item and the paperwork once they arrive. Although procedures may vary depending on the type of library, all libraries strive to acquire materials as fast and economically as possible.

After receiving a request the availability of the item must be verified by using online databases. A decision is usually made beforehand if titles are ordered directly from a publisher, through a vendor or a bookstore. Each order then receives a unique order number so that it can be traced, returned or follow-up on orders can be made. Most of the requested materials will be received and will then be processed which entails stamping and bar coding it. After that

vendors will be paid. Newly arrived items have to be forwarded to the cataloguing department (Evans 1987:213-216; Fourie 2001:82-83; Arizona State Library, Archives and Public Records 2008:1-4).

Acquisition of electronic resources involves aspects such as subscribing to electronic journals per individual title or as a package. Licensing agreements will stipulate the allowed usage of the material and provide copyright permission (Fourie 2001:120-123; Johnson 2004:227-228).

2.6 MANAGING ACCESS TO INFORMATION

Collection management can be viewed as a programme to improve access to information to users (Fourie 2001:15). It incorporates all the collection development functions but also includes collection evaluation, weeding (de-selection) and the conservation and preservation of information material.

2.6.1 Collection evaluation

Collection assessment or evaluation of the whole collection is "an organised process for systematically analysing and describing a library's collection. Assessments are conducted to provide several kinds of important information sources to libraries. They help clarify the library's goals in the context of its mission and budget, supply data used to set funding priorities, and build a base for long-range planning and administration" (Arizona State Library, Archives and Public Records 2008 :1).

According to Johnson (2004:268-272) collection analysis determines to what extent the collection maintains the mission, goals and needs of the library. It also informs management about the financial resources required to develop the

collection to prove whether the library is delivering the collections and services expected on investments. “Decisions about other areas such as co-operative agreements, space limitations and needs, and ownership and access are informed through collection analysis”. The primary function of collection analysis is to heighten the knowledge of one’s own collection and to be able to measure success and manage it more effectively.

Two broad methods of measuring the physical collection exist. Firstly, collection-centred surveys or stock-taking count holdings and check lists to determine the scope and depth of the collection. Secondly, user-centred surveys gather information on the use of the collection by library clients. By combining the results of both the quantitative and the qualitative data much information can be obtained to help in future planning, to make informed decisions including staffing and budget allocations, space planning, accreditation, shortcomings and inventory purposes (Johnson 2004:272-273; Arizona State Library, Archives and Public Records 2008:2). Statistics of the use of electronic resources can help with the evaluation process of electronic databases (Fourie 2001:129).

2.6.2 Weeding

Weeding or de-selection entails removing items from the collection and discarding materials, relegating it to storage or transferring ownership to another library. Weeding is essential to ensure that the collection is useful and accessible.

Reasons for weeding are according to Futas (1995:262):

- To help in making the library collection more readable and current.

- To save space and money: shelves will not be overcrowded and less shelves will mean more reading and study space. Weeded material will no longer involve hidden costs in maintenance.
- To save time: shelving is easier and it is easier for users to identify a book on the shelves.
- Removing outdated or worn-out items makes the collection visually more attractive.
- To provide feedback on the collection's strength and weaknesses by identifying gaps in the collection.

In the context of providing access to information in both paper-based and electronic formats weeding implies reducing access but saving financial resources. Physical items can be removed but conserved by a process of digitisation and storage (Fourie 2001:15).

2.6.3 Conservation and preservation

Libraries must decide whether they want to keep certain information material and, if so, in which format, that is, in its original format or in digitized format, such as scanned or electronic conversions of the original print version. Figure 2.2 is based on a model by Atkinson (1998:11). It demonstrates the various possibilities of movement of items within a collection; the “anti-collection” being all information resources not owned by the library. Items owned by the library in traditional format are depicted by the “onsite”, “offsite” quadrants.

Figure 2.2

Model of items in a collection

Anti-collection a	Offsite b
Digital d	Onsite c

(Source: Atkinson 1998:11)

Movement of information items can be from (a) anti-collection to (c) onsite by means of acquisition; from (a) to (d) digital when acquiring digital material; from (c) onsite to (d) digital in a digitization process or from (c) to (b) when transferring items after de-selection into an outside storage facility (Fourie 2001:14).

Preservation and conservation are important parts of collection management. The possibility of converting traditional formats into digitized objects as well as the trend to publish certain information in electronic format only gave way to the development of digital libraries.

2.7 DIGITAL LIBRARIES

With the advent of information technology, digital libraries developed. The demands of users for access to information have forced libraries increasingly to adopt a 24 hours, 365 days facility for core services and to offer these through what is often called the “digital”, “electronic”, or “virtual” library (Guenther 2000:

34). The meanings of these concepts are similar and they are often used interchangeably.

2.7.1 Definitions

Different terms are used to describe the library of the 21st century, namely, the digital, electronic and virtual library.

2.7.1.1 *The digital library*

The digital library does not necessarily eliminate traditional library activities but creates new services for its clientele (Robins & Sochats 2002:1). The Digital Library Federation's (2004) working definition is

“Digital libraries are organisations that provide the resources, including the specialised staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities”.

Reitz (2004:217) defines a digital library as one

“in which a significant proportion of resources are available in machine-readable form (as opposed to print or microform), accessible by means of computers. The digital content may be locally held or accessed remotely via computer networks”.

2.7.1.2 *The virtual library*

The term “virtual library” implies that human experience and interaction with objects in a virtual library are similar in some degree to a physical library whereby the “virtual” implies a synthetic environment. Virtual libraries only exist virtually, that is, the library does not exist “in real life”. The collections do not exist in tangible form but are electronically accessible in digital format via computer networks (Reitz 2004:760).

2.7.1.3 *The electronic library*

An electronic library consists of information in various formats, namely original digital information, digitised information where information has been converted from an analogue source into a digital form as well as the traditional analogue information (Fourie 2001:6). “The electronic library of today is more than just a “virtual” version of the older book stacks; it’s really a transformation of how information is conceived and delivered” (Reed in DiMattia & Blumenstein 1999:42).

Taking the abovementioned definitions into account it is clear that the concept of the digital library, also known as the “hybrid library”, is the term that best describes the concept of the library as we know it today.

2.7.2 *Functions and characteristics of a digital library*

One can assume that digital libraries have the same purposes, functions and goals as traditional libraries with the following specific characteristics (Cleveland 1998:3):

- Digital libraries encompass both electronic and paper materials.
- Digital libraries also include digital materials that exist outside the library's physical and administrative boundaries.
- Processes and services of the traditional library will have to be enhanced to accommodate the differences between new and traditional media.
- Digital libraries will serve a particular clientele, as do traditional libraries but with the difference that they might be widely dispersed throughout the network.
- Digital libraries require the services of both librarians as well as computer scientists.

Digital libraries create a gateway to information resources worldwide and place the library in the middle of the "information-creation business" where users are able to use new information tools to combine pieces of information and create new ones (Feldman 1998:1; Tedd 1998:194). Because of these features the digital library design depends very much on the users, the content and how it will be used. Just as research libraries differ from public libraries, so too must digital libraries serve contrasting populations. Digital libraries are even more problematic since in their case the user populations are often unknown (Feldman 1998:4).

The main goal of any library remains the connecting of people with relevant information. The virtual library is seen as the "super library" with universal application of advanced high-speed computing and telecommunication capabilities for the accessing and delivery of information resources.

To abolish all printed material in favor of a bigger, better, electronic-only access, is not a viable option at this stage and will most probably not be viable for quite some time to come. Electronic media have unique problems and the digital format does not necessarily equate with usability. There is a generation gap

between users and non-users of the new technologies, which is closely related to cultural level, education and age (Rooks 1993: 22; Crawford 1998:28-30; Kuny & Cleveland 1998:10-12; De Prado 2000: 203).

The idea that the digital library with its electronic information is free of charge is a myth. Digital libraries create a new and uncertain economic reality. While the demands of information technology are becoming more severe and resources scarcer, it becomes evident that information technology is a long-term cost. The vigorous development of ICT necessitates updated hardware to manage more powerful software and faster telecommunications connections. The usefulness of hardware and software becomes limited as user demands call for increased capabilities for new applications and expanded resources. In the past the cost of information was hidden to library users, whereas in the digital era the costs are most likely to be met by the clients or users. For example, fees are charged for interlending transactions or payments are made for online full-text articles (Kuny & Cleveland 1998:107-112; Tebbetts 2000:127-129).

One of the hitches in the development of the digital library is to provide a platform where all of the library's collections no matter the format are accessible in a seamless and integrated way. This enforces the incorporation of standards for system architecture, information structuring and markup languages. Therefore each library should adopt metadata (data about data) standards for their collections' digital holdings. These standards will provide the necessary structure to support access to the collections from both the library's public access catalogue (OPAC) as well as through the use of search engines outside the local system (Guenther 2000:35).

Digital collections will improve and extend physical libraries but they will not replace them (Crawford 1998:28).

2.7.3 Digital libraries in southern Africa

Building digital library collections in southern Africa is still in its beginning phases but a few initiatives and programmes have been started. The United Nations Educational, Scientific and Cultural Organization (UNESCO) is one of the supporters in this instance by supporting training for the building of digital libraries in Africa as a whole. This is mainly done by training workshops using the Greenstone software. This software suite was developed by the University of Waikato in New Zealand, the Human Info NGO in Belgium and UNESCO. It is an open source product, available free of charge and enables users to organise, create and publish digital collections of electronic files on CD-ROM or the Web (UNESCO 2005:1-2).

The following digital library initiatives exist in southern Africa:

The African Virtual Library and Information Network (AVLIN) which is a network of virtual and digital libraries which aims to provide Internet-based information. Its main aim is to promote socio-economic development and facilitate knowledge exchanges between researchers and policy makers to leading African libraries, universities and information centres. One of its main aims is to “facilitate research and developmental activities in both infrastructure and development of digital and virtual libraries” (Alemna 2006:6-7).

The African Digital Library (ADL) was established in 1999 in collaboration with netLibrary, a United States of America (USA)-based company and is a project of the Centre for Lifelong Learning of the former Technikon SA. It is a collection of nearly 9000 electronic books that can be accessed free-of-charge by any person living on the African continent. It sees itself as a back-up to physical libraries in the 54 African countries. The ADL

sees itself as a developmental project that aims at helping less-developed regions with limited access to books. It will also assist African institutions in converting the full text of research papers, theses and dissertation into e-book format (West 2001:1-7; ADL 2003:1).

African Online Digital Library (AODL) serves scholars and students conducting research and teaching on countries in West Africa and South Africa. It is also aimed at teachers and students of African languages both in the United States and Africa. It is a fully accessible online digital repository. Its goal is “to adopt the emerging best practices of the American digital library community and apply them in an African context” (UNESCO 2005).

The Campbell Collection of the University of KwaZulu-Natal makes digital images of rare and fragile historic photograph collections. It has by now about 10000 images which it makes available for academic research. The museum’s documentation is enhanced with images of art and ethnographic objects including Zulu beadwork and traditional dress.

The Digital Imaging Project of South Africa (DISA) makes South African material of high socio-political interest accessible to scholars and researchers world-wide (DISA 2009).

2.8 ADVANTAGES AND DISADVANTAGES OF ELECTRONIC ACCESS

The literature is full of examples of the advantages and disadvantages of either ‘ownership’ or ‘access’, as well as the consequences of both, the costs involved and experiences libraries had been exposed to in pursuing technological

solutions (Lynden 1994:26-28; Line 1995a:11-13; Hughes 1997:427; Alan & Butkovich 2003:32-34; Rowse 2003:24-26).

2.8.1 Disadvantages of electronic access

Critics of the “access” model cite a range of concerns, such as the inability to browse and identify useful material in the more traditional way, the loss of bibliographic control and the shrinking of library collections, and the repercussions thereof (Line 1998:15-18; 1995a:11-13). Financial limitations, the initial outlay and maintenance of an electronic information system and the constant increase in costs for fee-based access are obvious drawbacks. License agreements very often limit the use of information and the belief that electronic information is cheaper is an illusion as well (Schaffner 2001:239-240).

The intangible nature of the Internet, which is universally seen as the largest “access tool”, is a concern for libraries. The ability to change and manipulate material at will, removes the permanency of the written word and brings the whole question of intellectual ownership to the fore. Other shortcomings are the constant change of Internet addresses, incompatibility of software and the growing clutter which makes navigation time-consuming (Lynden 1994:28-31). Herring (2001:76) points out that a fairly small percentage of all journals and books are on the web. He also mentions that the cost of having everything digitised is exceptionally high even if only the copyright costs are taken into account. Another disadvantage is also the time-span of scholarly material available online, which is usually only 10 to 15 years.

Line (1995a:11-13, 1995b:1-6, 1998:16-18), expressed scepticism about the access model of information retrieval. His experience showed that users liked and needed the direct exposure to documents mainly because of its browsing capability. His feeling was that there is actually no alternative for a good current

collection and that the problem rather lies in the standard of service that is given. This attitude most probably has changed in the meantime.

A multitude of case studies were conducted by major libraries or consortia mainly in the United States providing statistics on print journal costs as opposed to costs of journal access via document delivery (Truesdell 1994:201; Hughes 1997:424-431; Kingma & Mouravieva 2000:20-26; Schaffner 2001:244-246). Apart from costs the issue of conservation was another aspect raised in respect of ownership (Lynden 1994:29).

2.8.2 Advantages of electronic access

While these are valid concerns, they do not outweigh the advantages of access to other information sources now predominantly in electronic format. Then there are the expected results in savings of library staff and space together with binding costs (Adam 1996c:134; Chang 1996:2-5; Garcha 1996:25). Libraries have neither the budgets nor the space to deal with the information revolution with its developed and constant need for knowledge. A point, which highlights this reality, is that valuable information is now often only available in electronic format (Getz 1991:74).

Another benefit of electronic access is that index-driven electronic documents have a major timesaving advantage over their paper-based or print counterparts. The ability to skip to the exact place in a long document or specify a collection of documents on a specific subject within minutes cannot be underestimated. Connections, interrelationships and word-associations can be established and the ability to manipulate information statistically also exists. Electronic documents have the advantage of being much more versatile, and can be searched by keywords and allow simultaneous user access. One of the nicest features of electronic sources is the possibility that they can be accessed

from remote locations (Getz 1991:73-75; Lynden 1994:26-28; Schaffner 2001:240). The main advantage of remote access to electronic resources is that libraries do not have to own the material in order for a patron to use it. Another benefit is the fact that it is possible to gain access to certain data from anywhere, be it from home, the office or the library, which makes the whole process of information retrieval much more user-driven (Lynden 1994:26-28).

2.9 SUMMARY

The issue of striving for a balance between 'access' on the one hand and 'ownership' on the other, is part of collection development and management. This chapter gave a background on the "access versus ownership" debate as well as ownership- and access-based library models and possible advantages and disadvantages of both access and ownership. Where once libraries pursued the ideal of building comprehensive collections which could meet most of their users' information needs, the trend is now to migrate to a worldwide collection of collections. This is not a straightforward or easy task and libraries and librarians are expected to be flexible, confident and organised.

The various functions of collection development policies were discussed and the effect that electronic resources have in respect to these operations. The effects of information technology are not only visible in how collection development is defined within this new environment but in the introduction of collection development policies that will make provision for electronic access to information as well as the collecting of physical items available onsite in the "traditional" library.

The gateways to access are multiple: co-operation, co-ordination, and networking, resource sharing through interlending and document supply services, development of consortial agreements as well as possibilities of

access to electronic sources. These will be dealt with in the subsequent chapter.

CHAPTER 3

RESOURCE SHARING: AN ALTERNATIVE MEANS OF PROVIDING ACCESS TO INFORMATION IN SOUTHERN AFRICA

3.1 INTRODUCTION

In Chapter 2 the issue of “access versus ownership” was discussed within the context of collection development and collection management. The principle of maintaining a balance between access to electronic databases and ownership of paper-based collections guides collection development and management. Information technology has brought about changes in collection development and new forms of libraries such as the digital, electronic or virtual library. Financial constraints in respect of library budgets, on the one hand, and improved means of communication and information delivery, on the other, has lead academic libraries to acquire increasing electronic access to information resources and to engage in resource sharing. It is, therefore, an alternative means of providing access.

This chapter outlines the provision of access to information sources not owned by an individual library by means of resource sharing. In order for resource sharing to function satisfactorily, certain prerequisites have to be met, and an attempt will be made to determine whether these prerequisites are being met within the southern African context. The current state of resource sharing, interlending and document delivery, co-operative collection development, and consortia in academic libraries in southern Africa will be examined. The barriers to resources sharing and electronic information networks will also be discussed.

3.2 DEFINITION OF CONCEPTS

Resource sharing by means of library co-operation and networking as well as consortia enhances access to information sources if ownership is not possible. These concepts are defined.

3.2.1 Resource sharing

Resource sharing is defined by Odini (1991 in Lungu 1992:647) as “an omnibus expression that covers co-operation, co-ordination, interlibrary loans, acquisition storage and processing”. The basic objective is to improve the ability of the participating libraries to perform their basic function of matching user needs and information sources.

Resource sharing in whatever form is the predominant way of providing access. This is done through co-operation and networking, interlending activities and the possible formation of library consortia. There have to be certain standards in place as well as union catalogues in order for libraries to be able to network. Consortia-building is a trend that developed all over the world to broaden the locally held collections and to facilitate financial savings.

Simpson (1994:96) feels that “resource sharing should combine the best parts of access and ownership into a programme that balances the equation: Resource sharing = Access + Ownership”. By using collective action to share their strengths and support each other in their weaknesses libraries could maintain and develop their collections in the current economic environment. Co-operation becomes all the more vital as core collections continue to decline and become more similar from one library to the next. This suggests that ultimately through a lack of co-operation and co-ordination there will be nothing diverse left to borrow. Coordinated acquisitions among a group of libraries will ensure

the broadest possible range of resources in collections. Simpson (1994:96-103) presents a refined form of access to information in which resource sharing should be seen as a means to ownership of information sources through co-operation rather than as an alternative to ownership.

Resource sharing involves “activities engaged in by libraries for the purpose of improving access to, and delivery of the holdings of other libraries or information providers. Resource sharing may be established by informal or formal agreements or by contract and may operate locally, regionally, nationally, or internationally (Baker & Jackson 1994:3).

Kohl (1997:435-445) identifies the following access possibilities in resource sharing:

(a) Joining a consortium

This refers to broad-based co-operation of libraries in a certain region and, or mostly within the same field of interest. The main goal of consortia is the “pooling of their collective financial resources to leverage greater economic control over their marketplaces” (Morgan 1998:41). It also implies a sharing of catalogues and the procedures and technology for bibliographic control, such as, cataloguing processes and mechanisms for co-operative purchasing.

(b) Integrating the system

This means that key central functions of the cooperating libraries are linked. Catalogue information is the first thing members of a consortium share and this will be developed into an integrated catalogue. From this, central circulation can be organised and the user may request a known item from a known location within a single system.

(c) Physical delivery system

Materials must be delivered quickly and cheaply to wherever they are needed in order to make the virtual library of a consortium a reality.

(d) Electronic delivery system

Full-text journal articles are best delivered electronically but copyright issues and fees from publishers can make this a difficult task.

(e) Integrated collection development

This should be the last step in the formation of consortia as it is dependent on whether patrons are satisfied with the running of the consortium. Local collection development policies have to be changed to accommodate shared interests of consortial members. The role of the bibliographer changes, as materials do not have to be provided on-site but only the location and format determined.

In view of the above, it can be assumed that resource sharing focuses largely on the following three functions or tasks:

- Bibliographic access, that is, knowledge of what is available elsewhere by means of union catalogues or other bibliographic utilities.
- A system for making requests and providing delivery of information, chiefly through the interlending process and often strengthened by agreements among members of a consortium, and.
- Co-operative collection development, which attempts to ensure that libraries build complementary collections of resources so that

participants can gain through this procedure (Shreeves 1997:373; Bakker 1999:1).

3.2.2 Library co-operation and networking

Library networking refers to the exchange of information through common communication channels between two or more libraries, usually for the purpose of accomplishing shared objectives. It is well known that electronic networking is a powerful, speedy and inexpensive way to communicate and to exchange information and because of the relationship between information, communication and economic growth, the usefulness of networks are indisputable (Internet Society 1994:1).

Library co-operation should not be seen as a means to save money, as this is usually not the case, but as a strategy to expand the capacity of available titles. Resource sharing systems at the moment are often fruitless as large numbers of collections are still inaccessible. Future resource sharing systems will have to consider more complex issues such as those of identifying mutual benefits, the need for large databases, how to handle requests for owned, but not currently available items, contribution of unique titles to a pool of resources, dwindling materials budgets, growth of various core collections, choosing network types and ultimately the acceptance that libraries are interdependent from one another (Dougherty 1988:287-288). According to McGee (1998:14-15) library resource sharing in a network-centric world can stretch quite far to include the sharing of physical facilities; of people and expertise; of computer systems, hard- and software; of networked information services like catalogues, cataloguing services, library materials; and most importantly, of sharing one-time and ongoing costs.

The OCLC's (1994:5) resource sharing strategy states that "co-operation is one

of the enduring watchwords of librarianship. The next stage of the electronic library will see greatly expanded opportunities for library co-operation as electronic resource sharing fulfils the promise of providing information to users when and where they need it”.

3.2.3 Consortium

Reitz (2004:172) defines a consortium as “an association of independent libraries and,/or library systems established by formal agreement, usually for the purpose of resource sharing. Membership may be restricted to a specific geographic region, type of library or subject specialisation”. Nearly all library consortia attempt to cut back on the expansion and use of information resource collections through sharing, which boils down to the granting of access. This goal was extended in recent times to provide common access to electronic resources across the Internet and expanded to include the sharing of library automation systems and contracts for online databases (Balas 1998:42). Allen and Hirshon (1998:36) see the move from “organizational self-sufficiency to a collaborative survival mode as personified by the growth of library consortia” as the most important development in the last decade for academic libraries.

3.3 PREREQUISITES FOR RESOURCE SHARING

As already mentioned one of the functions of resource sharing is the ability to have bibliographic access via the knowledge of what is available elsewhere by means of union catalogues or national bibliographies. A union catalogue combines the contents of more than one catalogue or library in an alphabetical sequence while a national bibliography can be described as being a list of books and other material that is published in or about a specific country.

3.3.1 Union catalogues in South Africa and Namibia

In order to meet the growing demand of “just-in-time” remote access to supplement the provision of library collections, there has to be clear information about the holdings of other libraries.

A union catalogue is a centralised database in which bibliographic records from a number of participating libraries are incorporated. The distributed or virtual union catalogue is constructed by linking local catalogues through their respective servers and the Z39.50 protocol to form a virtual union catalogue (Hider 2004:18; Macgregor & Nicolaides 2005:227).

The norm for union catalogues is now the online version where holdings data are submitted electronically by all contributing libraries. Duplicate records are often eliminated and the resulting database is then made available to each of the participating libraries. The “virtual” union catalogue, also known as “clump” is the most recent development of the union catalogue. It consists of distributed catalogues where holdings are not submitted to a central database but in which individual library catalogues are linked. Searches can be made of each of the catalogues in a seamless way through the use of a specific protocol, namely Z39.50. That means that multiple catalogues are searched simultaneously, results are integrated and delivered to the user. The effect is the same as that of using a single union catalogue, although virtual union catalogues are not union catalogues in the traditional sense but rather a linked grouping of separate library catalogues (Gould 1999:116-117; Wade 1999:6-7; Breeding 2000:60-61; Hider 2004:17-19).

It must be stressed that a union catalogue can only be as effective as the accuracy of the holding information provided, which makes the whole process very labour-intensive. Its entries must be correct, up-to-date and the sources

named, accessible. New records must be added with additional locations added to existing ones, duplicate records have to be matched and eliminated and records or locations deleted when items are removed from participating libraries. The maintenance of a union catalogue requires long-term commitment, good planning and a budget (Gould 1999:116-119; Wade 1999:6-7; Breeding 2000:60; Hider 2004:19).

In the past union catalogues may have been seen as the last resort for items which could not be supplied through the common channels. However, the current trend toward resource sharing and library co-operation has brought with it a revival of union catalogues. It should be noted that without the existence of union catalogues, resource sharing would be extremely difficult if not impossible. In order for co-operation to work, access to information about a document or other item and its location in particular libraries is vital. It is therefore a prerequisite of resource sharing (Alemna 1991a:31; Gould 1999:116-117).

The South African Bibliographic Information Network (Sabinet) hosts the new South African union catalogue, SACat. In 1983 a system was bought from the United States to provide a central technology platform which could be used to identify and locate materials held in South African and later southern African libraries. Since then Sabinet members have been able to add their holdings to this database. In order to enhance the number of records available for adding holdings to, and for downloading from the database, records from the Library of Congress as well as the British National Bibliography have been added. The use of different Machine-readable cataloguing (MARC) formats meant that the quality of records in the database had to be compromised to ensure a complete database instead of a high quality but incomplete one (Sabinet 2010:1).

NAMLIT is a database that was started in 1986 in Germany and is a comprehensive union catalogue of all Namibian-related documents including

newspapers, cassettes, periodicals, periodical articles, books, grey literature, conference papers and research reports (Zulu 2007:1-6).

3.3.2 National bibliographies in South Africa and Namibia

A national bibliography implies that a country has control over its information. It should be each country's duty to expand its library stock in a balanced way and build its national and other union catalogues, holdings lists and consortia, which are essential tools for resource sharing (Rosenberg 1998:12).

Sidibe (2007:4) points out that 36 out of the 53 countries in Africa have a national bibliography. Although this number is encouraging, these bibliographies are not published regularly. The interim between editions is often 10 years or longer. Countries in the southern African region that publish national bibliographies fairly regularly are South Africa, Namibia, Botswana and Swaziland (Sidibe 2007:4).

The National Library of South Africa is responsible for compiling the South African National Bibliography (SANB). According to the Legal Deposit Act, no. 54 of 1997 the purpose of the SANB is "...to ensure...cataloguing of, and access to, published documents emanating from, or adapted for, South Africa; to provide access to government information...". High quality records should be provided so that libraries elsewhere in the world may use them for copy cataloguing as well as for support for document delivery purposes (National Library of South Africa 2006:1). The SANB consists of monthly lists from 1933 to 1958, and from 1959 to 1999 in printed annual formats and has been online since 2000. The SANB makes use of the Anglo American Cataloguing Rules (AACR) for bibliographic descriptions and since 1992 the Library of Congress Subject Headings were added. The Dewey Decimal Classification scheme has been used since 1958 and MARC 21 was introduced in 1999 (Battison 2007:1-

6).

The Namibia National Bibliography (NNB) which covers the years 1971 to 1979 was independently compiled by Eckhard Strohmeyer. In 1994 through a sponsorship, a librarian from the United States was designated to help in the setting up of a Namibian bibliography starting with publications issued from 1990 onwards. The standards used are the same as that used for the SANB but records for the period between 1999 and 2004 have not yet been updated to meet the above-mentioned standards.

3.3.3 Standards and protocols

In order for libraries to co-operate, share resources, have access to each other's catalogues and form networks or consortia, standards become crucial for computers to communicate, for the connection of networks, for the transferral of data from one location to another and for procedures such as interlending and document delivery. Technical standards of importance to libraries and publishers are prepared by the National Standards Organisation (NISO), a subgroup of the American National Standards Institute (ANSI).

There are several standards that libraries can apply to solve or at least ease the situation in respect of the above mentioned issues related to co-operation.

(a) Search and Retrieve Protocol Standard, Z39.50

The Search and Retrieve Protocol Standard, Z39.50, was developed to overcome the problems associated with searching many different and diverse databases, and having to know the unique features of each. Z39.50 is based on the client and, or server model of computing where two computers communicate in a peer-to-peer relation. It "allows the computer user to query a

remote information retrieval system using the software of the local system and receive results in the format of the local system” (Reitz 2004:782). It is only through ongoing research that it is now possible by means of the Z39.50 protocol to create a “virtual union catalogue” (referred to in section 3.3.1) which has the ability to execute a search on multiple servers simultaneously and then collate the results. One of the important features of a virtual catalogue is the ability to show not only the bibliographic information but also the circulation status of each item with detailed copy, location, and holdings information.

Although Z39.50 has a long history, it is far from outdated. Its recent offshoot initiative is known as ZING (Z39.50 International: Next Generation) and includes a search and retrieve web service (SRW) and a search and retrieve uniform resource indicator (SRU) (Wade 1999:6-7; Braid 2000:8-9; Breeding 2000:60-61; Moen 2001:4; Macgregor & Nicolaidis 2005:227).

(b) Interlibrary Loan (ILL) Protocol

Because of the possibilities the Z39.50 gateway is offering, it is only one step ahead to allowing users to obtain items at a location identified on the virtual catalogue. The use of this protocol permits the exchange of ILL messages between interlending systems, as well as supplying and tracking. There are great benefits in these user-mediated requests and although the benefits are recognised internationally and the ISO ILL standard approved, its implementation is not yet that widespread (Gould 1999:118-119; Braid 2000:9-10; Breeding 2000:60-61; Moen 2001:4).

(c) Circulation interchange protocol (NCIP)

“Both the rapid evolution of web-based library services and the growing number of resource sharing arrangements among libraries require an open standard

for the exchange of circulation data". This protocol focuses on the computer exchange of circulation information to support resource sharing by making it possible to lend items, to provide controlled access to electronic resources and to facilitate co-operative management of these functions (NCIP Standing Committee 2009:1).

(d) Electronic Document Interchange (EDI)

Although much standardisation work was done to facilitate electronic searching and requesting, little work has been directed at electronic document delivery. Electronic Data Interchange (EDI) is a set of protocols for conducting highly structured inter-organisation exchanges, such as for making purchases or initiating loan requests. The Group on Electronic Document Interchange developed a proposal in 1991 to specify how documents would pass between networks. The Ariel software system of electronic document delivery is a major user of the EDI protocol. EDI can be seen as the replacement of paper-based purchase orders with electronic equivalents (Clarke 2009:1).

(e) ARIEL document delivery system protocol

ARIEL has become a commonly used and popular document delivery system, which uses many Internet standards to give virtually instantaneous delivery of images and expedite document delivery among widely dispersed interlending partners. The MIME standard allows an ARIEL supplier to send requested documents via e-mail. The next generation of ISO ILL-compliant systems (as mentioned above) will use one integrated system for the management of all transactions (Lavigne 2000:3; Braid 2000:11).

(f) Machine Readable Cataloguing (MARC)

This is a standard for database records in electronic format. "Machine-readable" means a computer can read and interpret the data in the cataloguing record. The information from a catalogue card cannot simply be typed into a computer to produce an automated catalogue. The computer needs a means of interpreting the information found on a cataloguing record. The MARC record contains a guide to its data before each piece of bibliographic information (Gould 1999:118-119; Oyinloye, 1999: 220; Wade 1999:6-7; Braid 2000:8-11; Breeding 2000:60-61; Moen 2001:4; Macgregor & Nicolaidis 2005:227).

The more the processes of cataloguing and classification as well as interlending procedures and practices are standardised, the better the result of seamless access to and delivery of information resources will be. Unified cataloguing rules and classification systems, standard name and subject authority lists as well as correct bibliographic formats (for example the MARC format) are essential requirements for resource sharing to work. A certain bibliographic standard is essential for records to be used co-operatively, be it locally or internationally (Alemna 1991b:231; Behrens 1996:79; Karaomerlioglu 1997:59-65).

Standardisation becomes even more important when libraries are computerised or forming a consortium. It is then crucial for computers to be able to communicate, connect to other networks and to transfer data from one location to another. This also plays a role when a decision has to be made about library automation systems (Oyinloye 1999: 220; Breeding 2000: 62-63).

3.4 INTERLENDING AND DOCUMENT DELIVERY

Traditionally resource sharing was limited to interlending or interlibrary loan (ILL), where resources shared would be the information sources typically collected by libraries and made available under certain conditions to users not

normally part of the library's own patrons (Shreeves 1997:373). Interlending or interlibrary loans is a system of resource sharing or library co-operation in which documents are physically exchanged and shared between libraries. It is by no means outdated and still remains a common practice in libraries today (Behrens 1993:111).

3.4.1 Definitions of concepts

The term "interlending" is defined by the IFLA Section on Interlending as, "the process whereby one library obtains (i.e. borrows or requests a copy) from another specified library, material requested by its users and not available from its own stock. The requested material may be sent as a temporary loan or a copy may be supplied instead. Therefore, interlending means the borrowing or requesting of an item for one's users from another library (Alemna 1997:5).

The concept of interlibrary loan also embraces document delivery. Interlibrary loan may be defined as a transaction in which, upon request, one library lends out an item from its collection, or furnishes a copy of the item on loan to another library not under the same administration.

Document delivery is described as the furnishing of documents, published or unpublished, in hard copy or microform, and now-a-days also in electronic format at an established cost upon request, not including the on-campus delivery of documents to users' offices (Baker 1994:2-3). Document delivery, specifically is, "a special aspect of interlending, which is concerned with access to, and dissemination of non-returnable copies of library materials between libraries and information centres and their users" (Alemna 1997:5).

A term that is gaining recognition is "document access". These describe documents accessed from the Web which set them apart from documents

delivered as photocopies or an article delivered by a commercial document supplier (Fourie 2001:100).

The idea of lending materials between libraries began as far back as the eighth century, and contributed to the expansion of the world's library systems. The number of interlibrary loan transactions has increased steadily in the last half of the 20th century, mostly due to more accessible and easy-to-use bibliographic tools, a growing number of published items and the reduced buying power of libraries (Carrigan 1996:429). Interlibrary loan and document delivery are still the basic means of resource sharing in libraries and have continued to gain in importance in the 21st century library (Kohl 1997:435).

3.4.2 Functions of interlibrary loans

Research and academic libraries have felt the greatest need for resource sharing. The success of resource sharing has largely depended on the efficiency of the interlibrary loan system.

The type of resource sharing envisioned has moved beyond the limited undertaking of interlending to document delivery, and now incorporates sharing of resources and the delivery of information not only between libraries but within libraries, and also between libraries and information brokers. Document delivery utilises local collections in a much more dynamic way and provides access to information in alternative ways. This is largely due to the advances in computer technology, which has made quick and accurate delivery to the end-user feasible, "whether in a remote corner of the world or across the town" (Bluh 1993:49-51). She also cautions against viewing document delivery as a substitute for acquisitions; rather it should be viewed as a viable alternative. The feasibility of remote access to information rather than ownership must be measured by the performance criteria such as that of cost, turnaround time, and

fill rate. It must also prove itself to be reliable in order to gain the support of patrons, librarians and administrators (Lynden 1994:28-29; Truesdell 1994:201-204).

Jackson (2005:212) reports that resource sharing via interlending and document delivery is both increasing and decreasing. By that she means that there is an increase in the demand for copies of journal articles while the demand for document supply decreases as a result of increased access to electronic journals. She concludes that “increasing acceptance and adoption of resource sharing models – user initiated or unmediated ILL, circulation-based resource sharing, direct consortial borrowing – may be one of the key drivers in the near-term future. Lor (2001:1) describes the same phenomenon as a shift of the traditional inter-library lending to what he calls “instant universal access to information”.

Needless to say, the concepts of ‘interlending’ or ‘document delivery’ have been revolutionised by ICT and libraries will be able to provide users with document access. The newest development in that area was only recently discussed at the ISO ILL protocol update conference where a new concept of “GET-IT” was introduced. This feature will integrate search results from web pages, library OPACs, blogs, online booksellers, commercial document suppliers, as well as any other potential resource even with unknown origins. This means that libraries can stay relevant and not simply be replaced by search engines in this information age (Baker 2007:4-5).

3.4.3 Interlending and document delivery in southern Africa

The globalisation of information is a trend which seemingly threatens to disempower the developing world. But it could be the gateway to the information superhighway even for disadvantaged countries if properly exploited.

Despite sanctions against the former South African government prior to 1994, interlending from outside the borders was facilitated through the activities of the former State Library (now the National Library of South Africa, Pretoria Division) which acted as a clearinghouse for all interlibrary loans requests between libraries in South Africa and other countries abroad, such as, the British Library Lending Division. Within the southern African region the relevant countries were able to participate freely within the Southern African Interlending Scheme (SAIS). South Africa, Zimbabwe, Mozambique, Malawi, Namibia, Botswana, Swaziland and Lesotho were the participating countries (Lor 1999:1; Zambri 2005:2-3). A well developed interlending tradition still exists in South Africa with developments paralleling global trends. Interlending activities are monitored and organised by the National Library of South Africa, Pretoria Division (Raubenheimer 1998:72).

A positive impact on interlending and document delivery has been made by the existing library consortia which consist mainly of university libraries. Raubenheimer's (1998) survey showed that transactions between university libraries amount to 73% of ILL requests sent and 85% of requests received. The same survey showed that the use of new technologies which maximises greater access had a significant impact on interlending and document delivery. These include the use of online catalogues, open instead of unique library systems, full-text databases and the Internet to facilitate interlending. These possibilities for enhanced access to information have lead Raubenheimer and Van Niekerk (2002:17-24) to the conclusion that the three biggest consortia in South Africa showed a growth in the lending and borrowing of materials.

3.5 CO-OPERATIVE COLLECTION DEVELOPMENT

Co-operative collection development is "the sharing of responsibilities among two or more libraries for the process of acquiring materials, developing

collections, and managing the growth and maintenance of collections in a user-beneficial and cost-beneficial way” (Johnson 2004:236). Co-operative collection development is actually not easy to implement and to sustain. According to Branin, Groen & Thorin (2002:4) the reason for this is “the strong political pull of local library autonomy, combined with the technical difficulty of moving print material quickly and economically over geographic distances”.

Co-operative collection development policies (CCDPs) are often used in the new environment of consortia as a resource sharing possibility. According to Bakker (1999:4-5) this is the one option where co-operative projects are working by making information available to users. “The principle objective of a shared collection/shared resources program should be to increase access to specialised materials or to materials which users request which are not available in local collections” (Dougherty 1988:291). Baker and Jackson (1994:4) are of the opinion that co-operative collection development initiatives will only be successful if the interlending system is effective.

The purpose of co-operation among libraries can be summarised as providing “better, faster, easier access to more” (Allen 1994:9). The principal objective of a shared collection, or shared resources programme should be to increase access to requested materials not available in a library’s own collections. Through careful planning, it should be possible to co-ordinate collection development to increase the number of titles available and secure publications needed by the user (Dougherty 1988:288-291). Member libraries will continue to maintain a core collection at their respective libraries and agree to build collections in certain subject areas, which then will be inter-loaned to member libraries. Consortia usually agree on using the same database as well as certain standardisation in their procedures.

Another drawback in shared collection development planning is the human factor. Librarians as well as their clientele, especially in academic institutions,

are often not prepared to change their routines or their collections (Schroeder 1995:5). "The future of co-operative collection development is inextricably linked to the future of collection development itself" (Shreeves 1997:379). The traditional functions of collection development, namely of meeting local information needs, are the sole reason for the existence of co-operative collection development as well.

Union catalogues, national bibliographies, interlending, document delivery, co-operative collection development, consortia and electronic information networks all play an important role in supporting resource sharing and in ensuring access to information.

3.6 CONSORTIA

As already mentioned in section 3.2.1, the term 'library consortia' refers to a close co-operation of a number of identified libraries.

3.6.1 Functions of consortia

Apart from the sharing of physical resources by means of union catalogues, linkage of local systems, and the establishment of interlibrary loan and document delivery networks, consortia ensure a certain level of access to all users by means of shared databases. The best possible access to resources, for instance abstracting and indexing databases, full-text journals, reference works and sets of digitised images require high-speed workstations with access to capacious networks. The provision of access to electronic resources is made possible, either by mounting them on a local server, or by providing access on other platforms. In some cases the consortium takes over the responsibility of providing these workstations. The linking of circulation systems, which permits

users to determine the status of a book and make an online request, is a very valuable feature (Potter 1997:427; Morgan 1998:40; Hirshon 1999:126; Wade 1999:5).

Co-operative cataloguing and building of bibliographic standards and tools together with co-operative sharing of expertise in answering patron's reference questions can be seen as another function within a consortium.

Another very important function is the bargaining for licence agreements (Oyinloye 1999:218; Allen & Hirshon 1998:37, 41-42). As mentioned in section 2.5.4, entering license agreements with publishers enable libraries to gain access to journals via electronic networks. Potter (1997:429), Morgan (1998:41-42), and Thornton (2000:848) agree that this function is sometimes the only real "bargain" when forming a consortium, and the reason why consortia are growing in number.

The services offered by consortia have rarely replaced print material and have not resulted in cost savings. It has, however, provided resources to an audience that did not have them before as well as an increased level of service and convenience to its users. It is also able to offer new and necessary services to its members that they could not afford on an individual basis, as well as tapping consortia for a wider range of expertise (Potter 1997:416-417; Balas 1998:42; Hirshon 1999:125).

Currently, libraries are not the only information providers. Other information providers are increasingly economically motivated as many of them are businesses with no other goal than to make money. The goals of libraries and librarianship do not coincide with the goals of business. As Morgan (1998:43) states "since there is strength in numbers it is important to form consortia so you can have an effect on the marketplace. Consortia allow us to speak with a voice of authority rather than with a murmur". Consortia have a continuing role

to play in managing “traditional” resource-sharing projects. Emphasis must be placed on client-initiated access to information owned by the collective membership of the consortia as well as enhanced document delivery services and shared staffing efforts (Allen & Hirshon 1998:42).

3.6.2 Consortia in southern Africa

According to Alemna and Antwi’s (2002:234-238) study, there are only a few functioning consortia in Africa, most of which are in southern Africa. Reasons for this are seen as mainly financial, managerial and the inaccessibility of materials. In order for consortia to be developed and maintained a high level of managerial skills are required. Furthermore, the bibliographical tools, such as local databases and union catalogues are lacking and very often the support and commitment from higher governmental bodies and possible financiers is inadequate.

Because of the advanced development of national ICT infrastructures in the southern African region many academic and national libraries are much better positioned than their counterparts in the rest of Africa, to set up co-operative electronic networks (Ojedokun & Lumande 2005:67).

The existing and functioning consortia in southern Africa are:

- Cape Library Consortia (CALICO) the oldest of the consortia, established in 1992 which covers the Western Cape Province. The common library information system used is the Ex Libris Aleph 500 Integrated Library System.
- Gauteng and Environs Library Consortia (GAELIC) was established in 1996 and is the largest of the consortia with nine South African

institutional members as well as the University of Namibia Library. The common library system used is the Millennium System of Innovative Interfaces (III).

- South Eastern Alliance of Library Systems (SEALS) was founded in 1998 and covers the geographic area of the Eastern Cape Province in South Africa. SEALS also use the Millennium System.
- Eastern Seaboard Association of Libraries (esAL) is the library consortium serving the KwaZulu-Natal province. It was founded in 1997. esAL libraries predominantly use the SIRSI DYNIX System.
- Free State Library and Information Consortium (FRELICO) was established in 1996/1997 and also uses the Millennium System. As its name indicates it serves the Free State province (Alemna & Antwi 2002:234-236; Thomas & Fourie 2006:1-15).

According to Thomas (2004:16) the achievements on regional level of these South African consortia are as follows:

- facilitating use and maintenance of a common library system;
- resource sharing;
- improved access to electronic resources;
- reduced duplication of non-core materials;
- project management across member libraries;
- staff training and development;
- building collaborative relationships on regional, national and international level.

In most African countries, consortia are fulfilling the role of co-operation and purchasing of e-resources. However, consortia in South Africa have taken on a wider role. According to Rosenberg (2005:20) consortia “have organised purchase of common library management software, established union catalogues, provided training and designed a common information literacy course for students”.

A well-developed team initiative in South Africa that was created by tertiary education institutions is the Coalition of South African Library Consortia's Site Licensing Initiative project (SASLI). Libraries enter into license agreements with publishers or vendors to gain access to journals via electronic means. Its main benefit is to reduce the cost of purchasing electronic information (Veldsman 2003:3.14; Page-Shipp et al. 2005:4).

3.7 BARRIERS TO RESOURCE SHARING IN SOUTHERN AFRICA

The development of libraries in southern Africa, particularly those outside South Africa, is hampered by various problems. Rosenberg (1997:2-4; 1998:5-13) and Lor (2000: 215-16) identify particular problems pertaining to the publishing industry, educational and literacy levels, the communications infrastructure and quality of library collections as reasons for this situation. Whereas, viable national library systems existed in the 1960 and 1970s with good library collections and regional networks, much has been lost through war, political and economic upheavals, neglect in funding, lack of governmental commitment, and lastly lack of influence from information professionals to affect change (Sturges & Neill 1990; Bellamy 1996).

The book industry is poorly developed as a result of bureaucracy, monopolies and over-regulation. A result of this is that insufficient titles in indigenous languages are published. According to Britz [et al] (2006:34) there are more

than 1000 languages spoken in Africa. Some sources even estimate that there are between 2000 and 3000 languages in Africa of which some do not have a written form, and little scholarly work gets published in local languages (Joffe 2009:1). The multiplicity of languages makes it difficult to find enough information on various subjects in these individual indigenous languages. In the fourteen Southern African Development Community (SADC) countries there are seventeen official languages in use and approximately 139 ethnic or national languages. Resource sharing is difficult within this multilingual environment as each region has its own indigenous language which is spoken or in which materials are published and which might not be understood by all.

Literacy rates are still the lowest of all the continents with only 62.5% of the population of Africa being literate (UNESCO 2006). Coupled to illiteracy are the low educational standards and lack of a reading culture.

A common barrier to resource sharing in southern African countries may be the quality of national bibliographies or union lists, which could be poorly developed, outdated or non-existent. The problem may be further compounded by the absence of uniform cataloguing rules and classification schemes. User requirements of participating libraries may differ from one place to another; some require superior authority control and computerised formats, while others ask for basic bibliographic records and even the more traditional published formats (Behrens 1996:78).

Interlending and document delivery services also have their challenges. Shortcomings, which have hampered the performance of this system, include untrained staff, particular local policies, unavailable materials, outdated records, slow responses and the non-existence of union catalogues (Carpenter 1991:230-231). According to Cornish (2000:3) the problem often lies in the attitudes of libraries in various cultures, where those who have plenty see resource sharing as a reasonable activity but those who have little, see sharing

as something which takes away from them altogether. His opinion is that for very long many countries and libraries have relied not on resource sharing but on resource dependence; where “sharing” in its fundamental nature requires that all parties concerned put something into a common pool in order to be able to take from it.

Unified information professional associations could act as pressure groups to influence government thinking and action. However, information professionals are still divided and not outspoken enough about their own needs and the needs of their profession (Lungu 1992: 655).

The development of networking is often hampered by the unavailability of local expertise. There is often an insufficient pool of experts who are able to organise and develop information systems which again implies a lack of training for users (De Roy 1997:890).

Academic libraries in this region very often have inadequate collections. In collection development, emphasis is placed on the collection of multiple copies of prescribed textbooks whereas the purchase of other subject-related monographs or serials is poor. Academic libraries are usually equipped with enough trained staff but there is a lack of recruitment of professional library staff for the new information technological fields of expertise. While ICT development has brought benefits to libraries, it has also brought additional expenses. It is therefore excessively dependent on donor funding to be able to keep up with developments (Alemna 1993:26-28).

All the above-mentioned factors have resulted in academic libraries losing their central role within the university environment because other methods of information access are sought by users. While the advent of information technology is an expensive endeavour, university libraries which introduce it have the possibility of regaining their central role in the information sector and

as information providers for staff and students (Etim 2006:1-2). Regardless of reservations from a number of university management staff, library automation went ahead in the late 1980s, mostly in university and research libraries with the exception of special libraries and documentation centers. The compilation of in-house bibliographic databases was the main purpose of this early automation. Computerised Documentation Service / Integrated Set of Information Systems (CDS/ISIS), a software package that is developed, maintained and disseminated by UNESCO was the most popular software used (Chisenga 1999:6). In addition, the general public and policymakers do not appreciate the role that libraries and information centres can play in national development.

Rosenberg's (1997:29) report on the state of university libraries in Africa, found that only three of the libraries had neither hard- nor software or any other form of connectivity. Nevertheless she found that full-scale automation of library operations was rare. Furthermore, she concluded that the information technology that was installed actually helped in boosting both the library's services and its prestige.

Equipment such as photocopiers, fax machines and even telephones are essential for document delivery. Costs incurred through interlending cannot be met, due to the poor economic positions of many southern African libraries, particularly those outside South Africa. The wide variety of currencies and fluctuating exchange rates can further exacerbate costs. Bureaucracy and the national pride of particular nation-states create a barrier, which is seriously complicated by different laws such as copyright laws and trade and tariff agreements.

A major drawback is the inefficient transport and communication infrastructure due to the poor postal and telecommunications network as well as few working library networks (Rosenberg 1998:11-12; Alemna 1991a:30-35). According to Moahi (2002:347) interlending in developing countries "has been a very slow

and painful process for those waiting for material". Within this climate libraries struggle to develop.

3.8 ELECTRONIC INFORMATION NETWORKS

The most important step in rectifying the sometimes bleak situation in some libraries in southern Africa is for librarians to initiate and develop a system for information sharing in the region. The development of appropriate systems and networks should be facilitated.

3.8.1 Functioning information networks

As already mentioned in section 3.3.1 a good example of a functioning information network is Sabinet – the South African Bibliographic Information Network. It is the largest co-operative library network in southern Africa and links the majority of libraries in that region. Sabinet is located in Pretoria and was formed in 1983 to provide facilities for centralised co-operative cataloguing and acquisition of materials, bibliographic searching, interlending and document delivery to its members. In November 2006 the Southern African Interlending Scheme (SAIS) had 610 member libraries in the region (Lungu 1992:649-650; Baker 2007:10). The majority of these members are South African-based institutions. Libraries in Botswana, Zimbabwe and Namibia also have access to the network (Lungu 1992:657; Chisenga 1996:126; Alemna & Antwi 2002:235). These countries do their loans mostly through these systems and have the highest interlibrary loan figures in Africa (Rosenberg 1997:32). As Lungu (1992:656) mentions libraries in southern Africa have the advantage that Sabinet and SAIS were developed at an institutional level, not a national one. This means that it is not subject to any national limitations as would be the case if it had been organised from a national co-ordinating centre.

3.8.2 Requirements for an electronic information network

Better communication and delivery systems should be implemented to be able to supply material promptly. Sufficient library staff should be trained to carry out the specific duties of interlending librarians efficiently (Alemna 1991a:29). Networking in developing countries often has the same constraints as those already mentioned in respect of barriers to resource sharing in section 3.7. These are unreliable communications infrastructure; lack of expertise resulting in poor knowledge of network administration and design as well as information and financial poverty. Geographical distances also hinder the development of networking systems. However, the most serious barriers are the misperceptions.

Information technology should be adopted as it has the potential to increase across the border exchange and communication through the setting up of networks and will ultimately ensure that local and regional resources are utilised to the maximum. Magara (2002:241-246) learned in his survey that the majority of libraries in Africa implemented the use of electronic technology so that they could share resources across networks.

Networking is not well developed in many African countries but this state of affairs is readily acknowledged, as is the desire to rectify the situation. Of importance to the southern African situation is the observation that electronic networking is not only a technical but also a social process. Simply put, communication by its very nature is a social activity. Given this relationship, networking has to deal with both technical and social challenges (Grant 1995:3).

Experience has shown that high-cost approaches in many African countries most often failed because they were undertaken before the idea of networking had taken hold. Low-cost networking, especially based on the Fidonet protocol,

has proven popular, as it is affordable and easily managed. Top-down approaches only work if government officials themselves are in favour of the undertaking; otherwise they merely create obstacles in the implementation of networks (Internet Society 1994:5-11).

The following recommendations that were made by the World Bank (1995:9-11) as being important for successful network development in African countries are also applicable to countries in southern Africa.

- (1) African ownership of initiatives taken for network development is required with the assumption that they possess the required technical and human capacity.
- (2) Network development demands a unique response from individual countries.
- (3) Ongoing funding is required in the first years of the development of a project to allow for the gaining of experience. This kind of support should be continued until the user base is increased to the point where projects support themselves and a sustainable network must be run like a business.
- (4) Training is most essential for network engineers as well as end-users.

For a network to be successful it must be underscored by a policy. There should also be a closer collaboration between private, public, academic and funding sectors to avoid duplication and to ensure a consultative and participatory approach to ICT policy development (IDRC 1997:3-4).

Recommendations by the World Bank were that infrastructure development should be simple, low-bandwidth technologies (e.g. Fido), e-mail access to information resources and test-only interfaces which are within reach of a larger proportion of the African population. Furthermore, the development of mid-level “bridging” technologies should be examined (IDRC 1997:1-5).

3.8.3 Information network projects and initiatives

Many organisations and funding agencies have introduced information-networking projects in Africa. Most of these networks cover a wide area which includes southern Africa. Some focus on infrastructure building, such as, the Research and Information Network for Africa (RINAF) and Reseau Informatique de L'Orstrom (RIO). Others focus on information provision, such as, the African Virtual Library and Information Network (AVLIN) and HealthNet. Others, such as, GOVERNET, the African Regional Standards Organisation (ARSONET) and NGONet specialise in professional collaboration and information sharing (Grant 1995:1, Jegede 1995:220).

(a) Fidonet

Fidonet is a network which has gained increasingly more appreciation from professionals as it does not need powerful computer hardware and can tolerate poor telephone lines. "It is a "low-tech" and "low-cost" way of meeting communication needs" (Thapisa 1996:1). It is an extremely widespread network based on store and forward capabilities for the transfer of files, texts, and mail using switching lines (Abba, Giordano & Trumpy 1992:20).

(b) USAID Leland Initiative

This initiative is to be conducted on a five-year plan and involves a \$15 million U.S. Government effort to extend full Internet connectivity to 21 countries from all over the African continent. It aims to improve connectivity, increase access for sustainable development, strengthen African ability to find its own solutions and of making African-produced information available to the world (USAID, 1995). Assistance is provided in the furnishing of equipment, expertise, training and free circuits in the first year (Jensen 1999; USAID Leland Initiative 1998).

(c) Association for Progressive Communications (APC) African Strategy Development

Over the last ten years, a large number of small low-cost networks have emerged throughout Africa. Many of APC's African networks now encounter the real danger of extinction as they have always faced financial insecurity, the drawback of inadequate infrastructure and repeatedly changing technologies. The immediate need to build an African development networking strategy from within Africa is spelled out. With this in mind, the APC scheduled the African Strategy Development meeting, held in 1997 in Johannesburg, South Africa, with its primary objective of developing an action framework with an immediate action plan and recommendations to donor and regulatory agencies for the implementation of African information technology and the co-ordination of networking initiatives in the region.

The African Regional Symposium on Telematics for Development was the largest ever gathering of computer and telecom experts from 38 African countries and was held in April 1995. As a result, a "High-level Working Group" was formed with its task to lead the way for Africa's global information highway and draw up a vision document known as the African Information Society Initiative (Jensen 1999:11).

(d) African Information Society Initiative (AISI)

The implementation of AISI will take place at country level, starting with national information and communication infrastructure plans. Co-operation, linkage and partnership between African countries are the action plans of the Society. The first step is infrastructure development followed by human resource development (Jensen 1997:180-185).

As a result of this initiative, two conferences of the World Summit on the Information Society (WSIS) were organised in 2005 and 2006 with the aim of building African capacity to implement the outcomes of the World Summit on the Information society in the sphere of libraries and access to information and knowledge (Uneca 2006). It specifically wants to advocate a nation-wide development of library networks by bringing African librarians, documentalists, archivists and curators together.

(e) Research and Information Network for Africa (RINAF)

The RINAF project was started in late 1991 and funded with approximately one million dollars from the Italian and Dutch governments. Its mission is to assist in developing an electronic network interconnection among research and academic institutions within Africa and between Africa and the international research community. It also aims to facilitate dialogue, fight isolation and cultivate a process of co-ordination, integration and upgrading of African networks. RINAF is aware that each of the 16 countries involved has their own unique problems and circumstances, and strives to be flexible and modular in its technical approaches as the network grows (Abba, Giordano & Trumpy 1992:11-22; Jensen 1998:8). According to Abba, the solutions proposed for RINAF will make the best of the existing situation in terms of inter-operation, and will also aim at installing robust and easy to use systems. The integration into the Internet environment will be the priority.

(f) African Virtual Library and Information Network (AVLIN)

AVLIN is “a network of Internet-based information and knowledge resources and services that form a web of virtual libraries and knowledge exchanges and will link African libraries, information centres and specialised networks”. The Economic Commission for Africa (ECA) provided the initial funding for the operation in 2003. Its aim is to work closely with other regional organisations on

the continent like the African Union (AU), the African Development Bank (ADB), the Africa section of the International Federation of Library Associations and Institutions (IFLA) and the African Information Society Initiative (AISII) (Uneca 2006:1; Alemna 2006:6-9).

(g) South Atlantic 3/West Africa Submarine Cable (SAT-3/WASC)

This is a submarine communications cable linking Portugal and Spain to South Africa with connections to several West African countries along the route. Thirty-six countries are involved in the funding of the more than US\$600 million project. Africa has nine landing points, of which one is in South Africa. Telecom Namibia also holds ownership and will establish a landing point in 2011. SAT-3/WASC began operations in 2001 and is expected to be ready for service by 2011. WASC will provide Africa with faster and better connectivity to Europe and the world at far cheaper rates.

(h) East African Submarine Cable System (EASSy)

EASSy will connect 22 coastal and land-locked African countries to each other and the rest of the world with high-quality Internet and international communications services. EASSy is an initiative sponsored by 25 telecommunications operators, most of which are African. The project will construct and operate a submarine fibre-optic cable along the east coast of Africa that will run for 10,000 kilometers from the southern tip of the continent to the horn of Africa connecting South Africa, Mozambique, Madagascar, Tanzania, Kenya, Somalia, Djibouti, and Sudan. The cable was fully funded and was ready for service in mid-2010 (EASSy 2010).

3.9 SUMMARY

This chapter discussed resource sharing as a means of providing alternative access to information sources not owned by library and information centres. It was pointed out that resource sharing and networking enable libraries to deliver the best possible service to their clients since different forms of library co-operation offer alternative means for providing users with access to information. The basic prerequisites for successful resource sharing such as union catalogues, national bibliographies and standards and protocols were also identified.

Reference was made to the role of the National Library of South Africa in the past in ensuring that other libraries in southern Africa were able to cooperate by initiating, developing and maintaining the interlending scheme. Interlending and document delivery are still the basic resource sharing activities. Today new technologies and online access have given it a resurgence of importance. Traditional interlibrary activity will continue with the assistance of modern technology.

Sabinet as a competently functioning information network as well as union catalogues such as SACat, and national catalogues for instance the National Bibliography of Namibia and the South African National Bibliography are making resource sharing in that region successful.

Various resource sharing, networking and co-operative efforts in libraries in southern Africa were examined. The general state of resource sharing was described as well as the interlending practices in the region over the years. South Africa has a good track record when it comes to interlending practices which were even bettered with the advent of consortia. Major barriers to a fluent networking practice in southern African states are the inefficient communication

infrastructure, the lack of union catalogues, lack of unity in information professional associations and lack of local expertise.

It was pointed out that a wide spectrum of information networks were initiated in recent times to assist libraries in the southern African region in overcoming some of the problems they had experienced in the past of working together towards the common goal of getting relevant information to clients as fast and as efficiently as possible. However, some of these initiatives have failed mainly because of the fact that well trained specialists to maintain the network are scarce.

Academic libraries in southern Africa, and in particular South Africa, have shown an impressive growth in developing co-operative electronic networks particularly via their consortia. The largest consortium is GAELIC of which Namibia is also a member. The current state of the information and communication technology sector will determine to a great extent whether southern African libraries have the capacity to gain access to a variety of information sources. Therefore, the following chapter will determine the level of ICT development in the region, barriers to this development (the digital divide) and the use of ICT to ensure electronic access in libraries in southern Africa.

CHAPTER 4

THE IMPLEMENTATION OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) IN LIBRARIES IN SOUTHERN AFRICA

4.1 INTRODUCTION

In the previous chapters it was shown that in collection development the improvement of ICT allowed librarians to think in the direction of access to information sources that are not held locally as a possible solution to their financial dilemma. The previous chapter discussed resource sharing as a means of providing alternative access to information sources and it was pointed out that resource sharing and networking enable libraries to deliver the best possible service to their users. There was always a certain amount of access to “foreign” material by means of interlibrary loans. ICT has widened that horizon and increased and enhanced resource-sharing possibilities as well as access to electronic material.

The emphasis in this chapter is mainly on examining the development of information technology and accordingly the provision of access to information. The assumption is that the current state of the ICT infrastructure will determine whether academic libraries in southern Africa are able to provide access to information for their communities of users.

This chapter deals firstly with the telecommunications infrastructure and the state of Internet connectivity in southern Africa.

Secondly, the various problems and barriers in the implementation and utilisation of information technology in southern Africa are examined.

Thirdly, the use of CD-ROM technology in libraries and how information technological developments affect the library's traditional role of providing its users with access to information sources are dealt with.

4.2 TELECOMMUNICATIONS INFRASTRUCTURE IN SOUTHERN AFRICA

Access to relevant information depends, to a great extent on a functioning Internet connection. Electronic versions of journal articles, access to OPACs in other libraries as well as services like SDI (selective dissemination of information), interlending and document delivery are dependent on the Internet. It is therefore necessary to investigate the state of the telecommunications infrastructure in southern Africa; to determine whether academic libraries are able to extend their access to information sources by having access to remote electronic information as well as information collections in neighbouring libraries or countries.

4.2.1 Development of telecommunications

Telecommunication is the science and technology of communication at a distance by electronic transmission of impulses, by means of telegraph, cable, telephone, radio, or television. Telecommunication technologies have changed the nature of personal and business transactions tremendously. There is a close relationship between information service providers and telecommunication carriers. Telecommunication is more than a method of information dissemination but it also provides information users with a means of locating and interacting with information (Weiss 1998: 226).

“African telecommunications capabilities are currently hampered by limited connectivity between the nations on the continent and by limited intercontinental connectivity, both of which impede economic and social development” (Africa One 1997).

The Internet and other electronic services are only as good as the available telecommunications networks and this seems to be a critical problem in most African countries. Nevertheless, future prospects do not look bleak and many new projects are running to rectify this situation. Furthermore, the fact that telecommunications is seen as a fundamental tool for development bodes well for the future of ICT in southern Africa as well as Africa as a whole.

At a G7 conference Thabo Mbeki, at that time the South African Deputy President, pointed out that there were more telephone lines in Manhattan than in the whole of southern Africa. Roughly speaking this could mean that “half of humanity has never made a telephone call” (Holderness 1995:7). In percentages this means that 12,5% of the world population only have 2% of its telephone lines, or, one telephone line for every 235 people compared to one line for every two or three people in the industrialised world (Ubogo 1998:13). For sub-Saharan Africa, the figures for tele-density (ratio of telephones per 100 people) remain at less than 2.5% except for South Africa, Botswana and Namibia (Esselaar, Gillwald & Stork 2007:50).

Some African countries have, however, made telecommunications a priority. In 1998 Jensen (1998:10) stated that among the world’s most sophisticated national networks were those in Botswana and Rwanda where 100% of the main lines are digital, compared with 49,5% in the United States. (This percentage has probably changed since then). In other African countries Internet users urged their governments to buy

leased line connections for their respective countries, which would give them instant links to the Internet. These costs would have to be borne on a national level, as research institutions alone would never be able to afford these costs (Adam 1996a:1-2). Chisenga (1996:3) and Adam (1996a) were of the opinion that expensive dedicated telecommunication lines to access electronic services would not be needed in future, as low-cost store and forward electronic communication links could be established for local area networks.

By the end of 2000 all African countries had some form of low-cost local dial-up, store and forward e-mail services and a gateway to the Internet in operation. South Africa also has the largest telephone network and accounted for 72% of the 5,3 million lines counted in the region in 1997. Needless to say, tele-density in that country is the highest (92.2% in 2008) and 750 000 of Africa's estimated 1 300 000 users live in South Africa (Mureithi 1997:2; Ubogu 1998:13; Jensen 2001:1; ITU 2009:57). The telecommunication market in Namibia is one of the better developed markets in southern Africa. Namibia has one of the most modern and sophisticated telecommunications infrastructures in Africa. It has fibre-optic links connecting the length of the country on both the north-south as well as the east-west axes. Namibia has achieved 100% digitalisation of switching technologies. The tele-density for 2008 lies at 6.7 fixed lines per 100 people (ITU 2009:57; Mbendi Information Services 2010:2). When it comes to fixed line penetration in 2009 South African was classed in the second place behind Mauritius while Namibia ranked fourth (Business Monitor International 2010:90).

The amount of dedicated data networks, are meagre with only Mauritius, South Africa and Namibia in 1998, having established Integrated Services Digital Networks (ISDN). Improvement in technology better suited to the African environment and more progressive policies are

necessary for the establishment of a more efficient African connection. Asynchronous Transfer Mode (ATM) is heralded as the technology most suitable for Africa. It stands out because of its ability to combine transmission of data, voice and video. It is a silicon-based switching technology, which can escalate the speed and is applicable throughout the network, within a building and across the globe. It is able to carry all types of traffic and can be used in Local Area Networks (LAN) as well as Wide Area Networks (WAN) technologies (Bull 1996:1-2).

Given the high costs and low international bandwidth available in many African countries, the possibility of using satellites for Internet services, using very small aperture terminals (VSAT), has also come under the spotlight. Its advantage would be a reasonably high bandwidth of between 64k and 8Mbps and lower costs than most post and telecommunications organisations (PTO) charge for international leased circuits (Jensen 1998).

Cellular communications technology is gaining a strong position in Africa and is already available in all its countries. In the mid-eighties, no cellular networks were present in the region. The picture changed when South Africa in 1986, Zaire in 1988 and Mauritius in 1989 introduced this wireless communication technology. By the end of 1997 only six countries in Africa were without cellular networks. Mobile telephony is clearly dominating in Africa. Fixed telephone lines remain the exception and penetration is at 3 per 100 inhabitants, by far the lowest in the world. The limited availability of fixed lines has also been a barrier to the uptake of fixed broadband and it is most likely that Africa's broadband market will be dominated by mobile broadband. The International Telecommunication Union (ITU) started collecting data on mobile broadband subscribers in 2005 and data show that the fixed line sector remains the least dynamic sector. Mobile growth remains strongest in the

developing world (ITU 2009). The mobile penetration ranking in 2009 showed that Botswana ranked first in the region while South Africa was classed third and Namibia came fourth (Business Monitor International 2010:92).

Mobile technology may offer a more advantageous development channel than fixed-wired communications technology. The advantages of mobile cellular telephony are that they usually involve a private sector with more forceful start-up plans. It also requires relatively little fixed infrastructure when compared to a landline system. Cellular or wireless technology systems use low power consumption and can decrease their dependence on a centralised electricity supply by using solar power. On the other hand there is a big cost difference between high-priced cell phone systems and the traditional wire technology. However, costs are declining as the market and the competition expands (Jensen 1997:184; Mureithi 1997:5-6; Darch, Rapp & Underwood 1999:24; SADC 1999:21; Cheneau-Loquay 2000:219,224).

4.2.2 Initiatives for the development of the telecommunications infrastructure

Tremendous changes have taken place during the last few years in the telecommunications industry. A number of initiatives were started in order to create an infrastructure, which can ensure that Africa as a whole and southern Africa in particular can actively participate in the global information society by boosting the Internet infrastructure (Nawe 1998:1).

In 1996, all African governments committed themselves as members of the African Information Society Initiative (AISII), to the goal that “every man and woman, school child, village, government office, business can

access information and knowledge resources through computers and telecommunications". The following initiatives are some of the more well-known projects that attempted to connect the African continent to information technological progress.

(a) Pan African Telecommunication (PANAFTEL)

Panaftel is a continental, analogue, microwave network. It was first introduced in the 1970s to the telecommunications sector with the goal of linking 45 countries through a network of radio links, submarine cables and international switching stations. It tries to reduce the need to transfer intra-continental telephone calls (i.e. calls to other African countries) outside the continent mostly via Europe (RTR/USAID 1996; Mureithi 1997:4).

(b) Regional African Satellite Communication Organization (RASCOM)

The RASCOM initiative was established in 1993 and is a continent-wide satellite project with its aim to reduce transit fees by aiming to consolidate traffic from the present six satellites to one satellite. RASCOM had advanced plans to launch its own satellite in 1998. South Africa was approached by RASCOM to join the organisation in mid 1995. South Africa signed the RASCOM convention on 18 February 1997. The launch aboard an Ariane 5GS rocket took place in December 2007. In April 2008 it was announced that the satellite had reached its intended geostationary orbit (Mureithi 1997:4; Jensen 1998:10; *Wikipedia* 2010).

(c) Africa Optical Network (Africa ONE)

The Africa ONE network was the first major attempt to promote connectivity for Africa and a concept being advocated by AT&T submarine systems to provide increased global connectivity to the African continent with 39 000 km fibre optic cable that would form a ring around the entire continent. It would be integrated with other technologies to connect all the African nations. It was proposed as a three-tiered network: global, regional and national. The aim was to install the entire system so that it could be ready for service in 2002. The project collapsed because of the decline in the telecommunications industry and the subsequent breakdown of some of the major stakeholders (RTR/USAID 1996:1; Africa ONE 1997, 2000; Dhliwayo 2004:1).

(d) Fiberoptic Link around the Globe (FLAG)

This FLAG project provides expanded telecommunications capabilities and access to Africa, The Middle East and Asia with the help of a submarine cable (RTR/USAID 1996:2).

(e) South Africa - Far East (SAFE)

The SAFE project was announced by Telkom (South Africa's Post and Telecommunication Organisation) together with Malaysian Telecom to lay a fibre cable between Malaysia and South Africa with various spurs along the way. This would ensure that South Africa would become a hub for Africa's telecommunication traffic (Jensen 1998:10; SAFE-Sat3 n.d.:1).

(f) SEACOM

This undersea fibre optic network with its 1.28 Tbps and 17 000 km long submarine cable is linking south and east Africa to global networks via India and Europe. It was completed in July 2009 and provides affordable, high quality broadband capacities.

With these initiatives to improve the infrastructure in progress, the telecommunications infrastructure would improve tremendously and the future of ICT development in Africa would be possible (*Wikipedia* 2010).

4.2.3 State of Internet development in southern Africa

Internet development in Africa started along similar lines as in the United States namely, as an information provider to individuals in the academic field (RTR 1996:1). According to Jensen (1998, 2000) the growth and spread of the Internet has been dramatic with only eleven (11) countries with Internet access in 1996. However, by the end of the year 2000 all fifty four (54) countries have achieved permanent connectivity and the presence of local full service dialup Internet Service Providers (ISPs). Although most Internet services are still confined to the capitals and major towns, countries in southern Africa, such as Angola, Botswana, Namibia, Zambia and Zimbabwe, have established points of presence (POPs) in rural towns. Given that 70-80% of the populations of these countries still live in rural areas, this is a major advantage. South Africa, a major player in Internet access, has POPs in about 100 locations. Jensen (2000) states that in late 1998 there were close to 400 ISPs across the region, 100 of them in South Africa; by early 2000 there were about 450 public ISPs. Current Internet users in Africa are estimated to be about 86 million in total in 2010. According to Internet World Stats

(2005; 2010) the usage growth from 2000 to 2005 was 423.9% and from 2000 to 2009 it was 1809.8%.

One of the major problems in most countries is to obtain sufficient international bandwidth. As most of the traffic between neighbouring countries has to travel via expensive satellite circuits to Europe and the USA, ISP charges for dial-up access are much higher in Africa than anywhere else. In Africa the average cost of using a local dialup Internet account for 20 hours a month, is about \$68, whereas in the U.S. the costs would be \$29 for the same amount of time. One also has to keep in mind that the per capita income is at least 10 times greater in the United States than the average in Africa (Jensen 2000:2). Insufficient bandwidth also slows down the rate of delivery. At the present time South Africa is the only country that can act as a hub to its neighbouring countries.

Despite the low level of Internet connectivity, the African presence on the Internet is expanding rapidly. Jensen (1998) mentions that almost all countries have some form of local or internationally hosted web server unofficially or officially representing the country with varying degrees of comprehensiveness. Chisenga (1999:2-3) rates Internet development in southern Africa, as favorable in comparison with the rest of Africa. Jensen (2000:5) also claims that South Africa, followed by Angola, Botswana, Mozambique, Namibia, Swaziland, Zambia and Zimbabwe, are at the top end of the scale in terms of their use of ICTs (Mwinyimbegu 1993:28-30; Rosenberg 1998:10-12; Cullen 2003:248). Statistics from the International Telecommunications Union (ITU) show that South Africa is ranked third in Africa on the ICT Development Index of 2007 while Namibia is ranked seventh (ITU 2009:30).

Given that the majority of countries in sub-Saharan Africa are classified as the least industrialised countries with the lowest per capita income, it

comes as no surprise that Africa's information infrastructure is by far the lowest developed in the world. Thapisa (1996:1-3) was at that stage of the opinion that Africa is not capable of fulfilling anyone of the required resources for the Internet; be it software, hardware, skilled people, or published information. Further drawbacks are restricted access to computer equipment, primitive information networks, the smallest number of telephone lines per capita in the world and inaccessible media systems.

"Technological solutions are more readily available than the political will to implement them" (Kwankam & Ntomambang Ningo 1997:1). That is why Kwankam and Ntomambang Ningo anticipate that ICT development in African countries will be influenced by governments' abilities to understand the economic advantages of information technology, ICT policy, as well as the impact of it on government, business and society.

However, on a more positive note, Bellamy (1996) points out that the "information revolution" is in fact taking place in Africa. There are aspirations of active participation in the evolving global information developments and "new communication technology becomes a way of life and more liberal political regimes permit real freedom of information transfer through a wide range of media".

The cost of electronic systems and the need for technical and administrative management will remain the major challenge to African connectivity (Electronic Technology Group 1997:3).

4.2.4 Information elitism or the digital divide

Definitions of the term “digital divide” have changed during recent times. Initially “the digital divide” described the differences between various regions in terms of numbers of telephones, computers and Internet users per head. Lately the focus in the meaning of the term is shifting towards the skills and opportunities people must possess in order to use these tools. The term “the digital divide” now denotes a multi-dimensional phenomenon (Cullen 2003:247; Gudmundsdottir 2005:1-2, 6-7; Mutula 2005a:591-593; Mutula 2005b:122-123).

According to Salinas (2003:132) there are four factors that contribute to the digital divide. These include the following:

- access to technology (including hard- and software);
- skills to use the technology;
- relevant content; and
- becoming information fluent in today’s society.

The division of the so-called North (information rich developed countries) and the so-called South (information poor developing countries) is dependent on the amount of information that either side creates, has access to, and utilises. Information construction, packaging and supply has become a global activity. The term ‘globalisation’ is used to describe the capacity to access information by means of telecommunications-based Internet resources from remote locations across the globe within seconds (Oyinloye 1999:217).

To Mazrui and White (in Jegede 1995:219) “the most obstinate line of demarcation between North and South is not income (criteria of wealth) but technology (criteria of skill). The entire international system of stratification has come to be based not on “who owns what” but on “who knows what”. The same sentiments are expressed by Zulu (1994:79) who points out that it may be that we have arrived at a stage where the existing disparities in wealth and standard of living between nations is largely a function of technology.

4.3 BARRIERS TO THE IMPLEMENTATION AND USE OF ICT

Besides the lack of a highly developed telecommunications infrastructure already discussed in 4.2 the various problems of the digital divide and other factors create various barriers in the implementation and utilisation of information technology in southern Africa. These barriers are costs of information technologies, lack of technical knowledge and expertise, education and language barriers, lack of co-operation and co-ordination, transfer of obsolete technology, inadequate local content, the brain drain, and negative attitudes towards ICT as well as a lack of national information policy formulation.

4.3.1 Costs of ICT

Embarking on the information era is by no means a cheap venture and particularly so in the case of African countries. High transmission costs are immediately incurred as Internet access is for the most part, channelled through a foreign gateway. The result is that local Internet access providers pay for internationally leased lines, or satellite connection, from local access points to the gateway; a cost most likely to

be transferred to the end user (Littenberg 1997:2). According to a survey done in 2006 across 14 African countries cost was still the biggest obstacle to wider ICT usage (Stork & Esselaar 2006:127).

Another cost factor is the constant fluctuation in exchange rates. Scarce foreign exchange resources prevent the prioritisation of expensive ICT. A dilemma emerges whereby developing countries need ICT to raise their productivity and perform efficiently but are unable to afford to acquire and maintain it (Zulu 1994:82).

Then there are the expenses that the maintenance and update of both hard- and software bring. Libraries, in particular, must pay the added costs of subscription fees for online services or CD-ROM titles as well as membership fees for networks. The initial costs for technological implementations are usually well-planned with efforts at raising dedicated grants but it is sometimes forgotten that information technology is a long-term cost (Rosenberg 1998:10; Tebbetts 2000: 128). Darch (1998:1) sums it up perfectly when he says “the technology allows us to do what we want, but the economics of the technology may prevent us from doing it”.

4.3.2 Equal access

Apart from technological differences between the “information poor” and “information rich” there are controversies surrounding the opportunities provided by ICT within the context of access to information as being one of the basic human rights. As Nawe (1998:1) notes “it is very easy to equate accessibility to its application based on the assumption that once it is open to everyone then everyone uses it. Equal access does not necessarily imply equal benefit”.

4.3.3 Technical knowledge and expertise

The absence of a well established indigenous technical expertise is a major drawback. Africa has very few qualified ICT engineers to implement services and maintain hard- or software. The problem is further aggravated by the constant flow of trained individuals to countries overseas, the so-called “brain-drain” (see also section 4.3.8), where working and living conditions are preferable (Zulu 1994:81; Rosenberg 1998:10). The current state of affairs is characterised by the transfer of computer hard- and software but not the transfer of computing and technological know-how (Jegede 1995:219-224).

Furthermore, the numerous donor agencies operating in Africa may prevent or hinder a joint African effort to effectively plan the electronic linking of Africa. The problem is further aggravated by the fact that due to poor funding, libraries cannot attract computer programmers, network administrators or systems analysts. On the other hand no funds are available to use the existing staff and train them with the appropriate skills. This leads to an under-utilisation of installed systems and a lack of innovation in the use of information technology where available (Chisenga 1999:9; Stork & Esselaar 2006:127).

4.3.4 Education and language barriers

Given that a large percentage of people in Africa are semi-literate or illiterate the concept of the information era is light years away for most of the continent’s inhabitants. In the southern African region, the average literacy rate is 67%. In Africa as a whole the literacy rate is 62.5% of the population (United Nations Educational, Scientific and Cultural

Organisation 2006). It is expected that the computer literacy rate is probably much lower.

As already pointed out in Chapter 3, besides the four major language groups in southern Africa, there are thousands of indigenous languages and dialects. English is the predominant language used on the Internet but it is not the mother tongue for the majority of people in southern Africa. It is therefore a challenge to promote or facilitate Internet literacy in such a multilingual environment (Zulu 1994:81; Adam 1996b:3; Muswazi 2000:79; Stork & Esselaar 2006:127).

4.3.5 Co-operation and co-ordination

While the benefits of information exchange are easily recognised, the existence of successful networks of shared resources throughout Africa is still to be realised. As pointed out in Chapter 3, section 3.8, a number of networking projects have been launched in the past with very little success. This is due, in varying degrees, to a duplication of steps in the implementation of these networks as well as a lack of co-operation and co-ordination among technical staff (Jensen 1996:2). Sadly missing is the vision of regions working together, learning from each other's experiences and identifying issues of mutual interest. Adam (1996b:2) puts it quite bluntly when he says, "everyone wants to co-ordinate, but no one wants to be co-ordinated". There is also evidence of poor involvement of research institutions in network building and little commitment from the academic community.

Furthermore, the implementation of different network technologies, topology and protocols makes the establishment and maintaining of links difficult. Critical to regional co-operation is the co-ordination of physical

connections, infrastructure and the networking of technical staff. Better co-ordination should also exist between donors, local role players and government to prevent the operation of parallel projects often in the same town or institution without the knowledge of existence of the other (Adam 1996b:2-4; Khalid 2000:57-60).

4.3.6 Transfer of obsolete technology

The use of some African countries for the dumping of obsolete technology has caused great controversy. Certain African countries' use and dependency on donor aid in the information technology field has not, on the whole, been a positive experience; either through ignorance, or lack of communication and consultation, or even through the deliberate dumping of inefficient and obsolete hardware.

In the seventies, a number of developed countries used the concept of "appropriate technology" to sell their surplus technological products to developing countries at exorbitant prices. Although these actions have been criticised by the International Development Research Centre (IDRC) the overall efficiency of a product is usually dependent on the operational environment (IDRC 1997:5). Furthermore, what is "virtually" obsolete in a capital-intensive high-labour-cost environment can be an efficient solution in a capital-weak low-labour-cost environment. The improvement of efficiency in the developing environment is the criteria according to which appropriate technology must be judged.

It has been suggested that the kind of appropriate donor aid, be it by means of a cash-injection or pre-selected technology is dependent on a thorough investigation of a country's socio-political, as well as techno-economic environment (IDRC 1997:5).

4.3.7 Local content

Although countries in southern Africa are rich in indigenous cultures and traditions, inadequate locally published content is problematic in this region. Therefore, most information is obtained from external sources. However, most local people will choose not to access the Internet if its content is not relevant, applicable or meaningful to them (Cullen 2003:256).

The same is also valid for the technology being used. As Mutula (2005b:126) puts it “technology is evolving without successfully integrating with its local cultural practices”. This means that much of the technology introduced in countries in southern Africa was transplanted without the provision for re-engineering to suit local conditions (Mutula 2005b:125-126). Only if the information reflects the values of developing countries will it have an impact (Gilbert, Nostbakken & Akhtar 1994:10; Amoake 1996:5).

4.3.8 Brain drain

The brain drain, as pointed out in section 4.3.3, or migration of well-educated people from Africa to the developed world, is identified as one of the biggest challenges facing Africa. It was mentioned at a South African Network Skills Abroad seminar that about one third of the key professionals and students at African universities’ are “exported” to the West. Initiatives have started all over the continent to tap the knowledge of expatriates without them having to return to their home countries permanently (Mutula 2005b:127; Britz et al. 2006:37).

4.3.9 Attitudes

“Without an educated, ICT-aware population, no community can fully participate in the networked world” (Mutula 2005b:128). People have to be educated about the potential benefits of information technologies and change their attitudes. They tend to think that computers are only for the young, intelligent people or belong to a “white” culture (Cullen 2003:252). Closely related to this is a lack of information literacy skills.

4.3.10 Information literacy education

To make the most of what information is available information literacy skills are a necessity. Information literacy is the ability to find relevant information for a particular situation or problem, and to interpret that information effectively. Reitz (2004) describes information literacy as the

“skill in finding the information one needs, including an understanding of how libraries are organized, familiarity with the resources they provide (including information formats and automated search tools), and knowledge of commonly used research techniques. The concept also includes the skills required to critically evaluate information content and employ it effectively, as well as an understanding of the technological infrastructure on which information transmission is based, including its social, political, and cultural context and impact”.

To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information. Reitz (2004) describes information

literacy education as being “all the activities involved in teaching users how to make the best possible use of library resources, services, and facilities, including formal and informal instruction delivered by a librarian or other staff member one-on-one or in a group. Use is made of online tutorials, audiovisual materials, and printed guides and pathfinders”.

4.3.11 National information policy formulation

Several African countries have devoted a great deal of professional time and energy in formulating national information policies but with very modest returns. The reason for this is not surprising, as most African decision-makers do not perceive information as an important national resource, crucial for national development, effective decision-making, development, education and recreation. Various authors feel that information cannot be properly managed in a society where there is no policy to protect its information industry.

It is of paramount importance for countries in Africa to formulate their own national information policies. In order to do so, policy-makers have to consider what their nation’s information needs are, how to acquire it and what information technology to employ (Boon 1992:89; Zulu 1994:82; Nwokocha 1997:344; Lor 2000). Without a clear and enforceable policy, the information industry is likely to develop in a chaotic manner without any co-ordination of processes (Kwankam & Ntomambang Ningo 1997:1).

Africa has to participate in the global information society not only as a consumer but also as a producer. A pre-requisite for the Information Age is the adoption of a learning culture. The information policies of respective African countries should thus include educational issues and

information has to gain a place next to critical priorities such as health, agriculture and food (Gilbert, Nostbakken & Akhtar 1994).

According to Zulu (1994:88-90), Kwankam and Ntomambang Ningo (1997:2-3) as well as Yumba (2002:241) an ICT policy should include the following elements and this could be applied to southern Africa or any other African country for that matter:

- (a) Education: information technology should be included in all schools and the curricula for teachers' training colleges.
- (b) Vocational training: ICT-related courses for human resources development should be introduced.
- (c) Information technology: the stipulation of acquisition, use and application of information technology.
- (d) Information awareness: the perceptions of policy makers should change from an attitude that information is "good" but not essential.
- (e) Legal instruments: information laws should provide guidelines for the formulation of ICT policies.
- (f) Duty and tax relief on ICT hard- and software should be given. High taxation inhibits the growth of local computing industries and makes computing too expensive.
- (g) Telecommunication infrastructure: existing facilities should be improved.
- (h) Research: ICT should be a topic for research and a proper mechanism for linking research institutions and industry should be found so that research findings have practical implications.
- (i) Local information should be generated and captured.
- (j) Conducive labour environment so that trained personnel remain in a particular country.
- (k) Retraining of existing work force for better operation in a changed work environment.

- (l) Establishment of national ICT councils and directorates to address ICT issues; for management, regulation and deregulation purposes.

4.4 THE CURRENT USE OF CD-ROM TECHNOLOGY IN LIBRARIES

As noted earlier, academic libraries in southern Africa are still lagging behind in their ICT development and another option for information access would be the use of CD-ROMs. CD-ROM technology has been adopted and is highly valued in the information and research scene. It can provide access to important databases without the country having to lay cables (Bellamy 1996; Nwalo 2000:7).

Phiri (1993:346-348) advocated CD-ROM use in Africa over and above the use of online sources because of advantages like high-storage capacity, durability, one world-wide standard, no telecommunication costs while using this technology and user-friendly retrieval software. It is also cheaper than most online sources and can be a good stepping-stone for Third World countries to get a foothold to the world of ICT. Adam (1997:212) also feels very strongly that with an increase of user-friendly software and multimedia authoring, CD-ROM is a powerful tool for the distribution of information. He feels that “combined with scanning technology and networking, CD-ROM’s potential for changing the face of African information exchange and producing public archives accessible to individual users is outstanding”. Rosenberg mentioned in her 2005 survey on the status of academic libraries in Africa that although some libraries started providing CD-ROMs in the 1990s, many of them only offered this facility after 2000. The trend seems to be similar to trends in the rest of the world whereby CD-ROMs are displaced with online resources (Rosenberg 2005:8-9).

CD-ROM databases are also helpful in making information available about the commercial availability of books in print and the book trade (e.g. Books in Print), bibliographic data relating to articles published in primary journals (e.g., MEDLINE, Inspec), full-text articles (e.g. BPO - Business Periodicals Online), company information (e.g. Jordans), and multimedia products (e.g. McGraw-Hill's Encyclopedia, Encarta) (Tedd 1998:201). CD-ROM has undoubtedly brought about rapid access to journal literature and made users attentive of otherwise unknown literature sources (Rosenberg 1997: 28).

CD-ROM is nevertheless no match for the attractiveness of online access to resource sharing. Telecommunications, computers, satellites and fibre optics are the technologies that are prerequisites for online access to information. The rapid and continued decrease in the cost of processing, storing and transmission of information together with an expansion in the technical and human ability to access and use information, promise to make information available anywhere, anytime and in any language (World Bank 1995).

4.5 IMPLEMENTATION OF INFORMATION AND COMMUNICATIONS TECHNOLOGY IN SOUTHERN AFRICA

At library level, ICT is becoming the norm rather than the exception (Rosenberg 1997:2). The capacity, resources and will already exist in Africa to meet many of the requirements of modern and appropriate systems at national and regional level. As in industrialised countries, technology offers libraries in the Third World an ideal solution for a number of problems of managing a modern research library. This

includes speed, efficiency and accuracy of processing and retrieval of catalogue information (Banjo in Garcha & Buttlar 1996:25).

4.5.1 Advantages of ICT

As already mentioned in Chapter 3, information technology has immense advantages for African libraries particularly in respect of resource sharing and bibliographic control and most writers stress this point. The Internet could improve the status of libraries in Africa (Suttie 1997:284). It has assisted libraries in achieving effective bibliographic control over holdings. Computers made the compilation of national bibliographies as well as indexing and abstracting services much easier. It has improved in-house processes, which formerly were done manually and made the production of conventional catalogues effortless by means of searchable machine-readable databases. It offers speed, precision, and efficiency in the processing, presentation and retrieval of catalogue information.

As the discussions in Chapters 2 and 3 have shown, the Internet has gone further in reshaping the library. It is used for a myriad of functions (Chisenga 1996:3-5; Okiy 2005:312) to list a few:

- Electronic communication: for official communication, transmitting of interlibrary loan requests, order inquiries and despatches, reference questions and answers, participation in discussion groups and access to electronic conferences.
- Collection development: to get hold of detailed information on the availability of materials and their bibliographic description as well as their ordering.
- Access to other library resources: electronic centralised Union Catalogues have been set up in some cases and can be accessed

through modems. This makes resource sharing and library co-operation much easier.

- Electronic publishing: libraries are publishing electronically on web servers and use WWW facilities to provide users with easy access to their OPACs or other Internet resources.
- Access to experienced and expert individuals in many fields is provided.
- Access to regular updates on topics of interest is ensured.

4.5.2 Disadvantages of ICT

However, it is also reasonable to expect voices of dissent to ICT implementation in libraries in developing countries as critics argue that money must rather be spent on important concerns, such as health care and basic education. As with every new development people tend to be sceptical. Some would argue that a library should not waste its meagre budget on information technology, which will be difficult to maintain in future. The feeling is that money should rather be spent on developing literacy. The costs of implementing ICT are cited as a major drawback. While most of the information services currently provided by libraries are free of charge for their users, this type of service cannot be maintained indefinitely as telecommunication and electronic database charges are bound to be paid for by users at a later stage (Zulu 1994:86; Raseroka 1997:493).

An efficient ICT structure would, for instance, require privatisation of telecommunications, and the result would be a loss of much needed revenue for African governments. The donor aid needed to make ICT implementation a reality in Africa brings with it “colonial baggage” that

Africa has long struggled to rid itself of. English as the predominant language of the Internet forms part of that history.

Olden (1987:298-302) argues that given the fact that 40% of adults in sub-Saharan Africa are illiterate, libraries can only serve a few fortunate segments of the population. According to him, less than that number of people could be served by electronic libraries, even if they function adequately. He is of the opinion that “one has to start with the people and how their lives can be improved, then consider the knowledge and information that is available”.

Tiamiyu (1989:325) wrote that African information sectors need information technologies, but of a kind that African information professionals and users can understand, maintain, nurture, develop, and ultimately internalise. He agrees with Sturges and Neill (1990) that libraries should not be the only ones held responsible for fighting illiteracy. They have other obligations as well which could be assisted by modern computer and telecommunication technologies. Furthermore, libraries are bound by an ethic code to provide accurate and up-to-date knowledge and the Internet is part of that knowledge (Raseroka 1997:491). As Cullen (2003:257) puts it “libraries, with their commitment to freedom of access to information, and promotion of life-long learning, have an important role to play”. However, in spite of the abovementioned arguments, most authors agree that the benefits by far outweigh the disadvantages.

Kwankam and Ntomambang Ningo (1997:6-7) are optimistic when they state that developing countries in Africa can learn through the experiences of the developed world and are not forced to replace obsolete technology. The latest technology can be utilised and mistakes that have been made in countries that are light years ahead in

information technology may be avoided. Another benefit is that emerging new technologies like satellite communication, fibre optic cables, and wireless information equipment would enable Africa to close the communication gap at a much lower cost (Oyinloye 1999: 220; Britz 2006:30). According to Nawe (1998:1) “the Info-poor get the opportunity of using it (i.e. ICT) for development without having to re-invent the wheel”.

The role of the library is thus crucial to developing nations. Solutions to many of its problems depend on an adequate supply of accurate and timely information. The saying that knowledge is power is even truer in this century. Mabandla (1996:173) stresses that the role of libraries is greater in developing countries than in the developed world as a result of the lack of individual access. Libraries have the challenging task to empower communities to participate in the Information Society.

4.5.3 Role of libraries as information providers

The role of the library is manifold in helping to bridge the digital divide (defined in section 4.2.4) according to Shibanda & Musisi-Edebe (2000:232) and Mphidi (2004:5-6).

- It can provide access to computers and the Internet to those who do not have these facilities.
- Users can be trained in the use of modern information retrieval systems like the World Wide Web, electronic databases and various catalogues.
- An efficient resource sharing system will assist in meeting user information needs consequently reducing the digital divide.

- Libraries must ensure that curricula within library and information education entail ICT programmes in order to ensure a steady output of manpower for the information sector.
- Libraries must be strong supporters of ongoing research.
- Cost-effective services must be promoted through networking and online access and by maximising the use of ICT to advocate integration and resource sharing within Africa.

Were (2006:1) is of the opinion that with adequate support, libraries in Africa can be used as information access points as they have the potential to “develop quality content for indigenous research; provide access to quality information for research; provide access to information for informed decisions; provide information for basic needs in all communities; enhance information literacy programmes and support national development projects”.

Certain trends have emerged in libraries all over the world. Whereas the “old” library consisted for the most part of a print collection the “new” library includes online databases, and extensive e-resources. It can be foreseen that integrated library systems of the future will feature interfaces customized for the client with visualised searching (to communicate information clearly and effectively through graphical means) and multi-media resources. Access to information tends to get remote and wireless and thereby replacing physical walk-ins to OPACs, PCs and stacks. Information literacy training via hands-on learning is likely to replace tutoring by an instructor and the orientation of the library shifts from local to regional and or consortial and even global.

4.6 SUMMARY

The review of the Internet infrastructure in southern African countries gives an indication of the status of electronic connectivity. Access to information resources other than through ownership of these resources is made possible when access is provided through electronic channels. As mentioned earlier, the level of development of the ICT infrastructure in southern African will determine whether academic libraries will be able to provide remote access to information if ownership is not possible.

The benefits of information and communications technology are not realised if the telecommunications network is not efficient. A lot of African states have made telecommunications a priority. A number of network building initiatives were launched of which the SAFE (South Africa - Far East) and SEACOM projects should make a huge difference in connectivity to the whole continent.

Needless to say, without the required resources such as telecommunications, networking infrastructures, budgets and technical know-how, libraries in southern Africa will not be able to provide remote access and will have to rely on their own holdings. If they cannot meet these requirements, other means will have to be found to improve information services to users in this region, such as improved interlending facilities.

Apart from examining the state of Internet development as it is, an effort was made to highlight some of the unique African problems related to the implementation and utilisation of ICT within this region. These include a lack of technical skills and knowhow as well as lack of co-operation and

co-ordination, brain drain, education and language barriers and high costs of ICT.

This chapter also looked at the reasons for the so-called digital divide where Africans have to learn to create more native information instead of merely using sources produced by developed countries. The necessity of national information policies was highlighted and the role of libraries in connection with the use of information technology was studied. Without a clear and enforceable policy, the information industry is likely to develop in a chaotic manner without any co-ordination of processes.

The following chapter will explain the research methodology used for this study.

CHAPTER 5

RESEARCH METHOD

5.1 INTRODUCTION

As explained in Chapter 2, providing remote access to information sources is necessary because of shrinking library budgets as well as the growing quantity of published material. Today access can be more easily provided because information technological developments have made this possible.

As pointed out in Chapter 1, the purpose of this study is to explore the provision of access to information in academic libraries in southern Africa through ownership of information sources, resource sharing and remote access to electronic resources. Therefore collection development policies and practices, networking and resource sharing activities and the development of in-house electronic databases, software and systems in academic libraries are investigated.

In previous chapters it became evident that access to remote information sources is to a great extent dependent on factors outside the library's domain. One of the most important factors is a well functioning telecommunication system. Although Africa's information infrastructure is at a very low level of development, there are many initiatives that should improve this situation in due course. Factors within the library sphere that have to be investigated are whether various library resources such as the necessary facilities and equipment, a dedicated budget, professional staff, relevant collection development policies and other appropriate

processes and services are in place in order to support the provision of access to information. These resources are the backbone of the library, or the input required to provide services. Therefore the empirical study has to determine whether academic libraries in southern Africa have the necessary financial, human and technological resources to provide electronic access to remote information sources.

In this chapter the research design and method adopted for the empirical study, indicating the target population, the process of data collection and data analysis is discussed.

5.2 RESEARCH APPROACH

The empirical investigation was conducted by means of questioning methods in two case studies. In this study the research aim is descriptive in the sense that it attempts to determine the current situation and to describe it. It explores the status quo in two academic libraries. "Descriptive research examines a situation as it is. It does not involve changing or modifying the situation under investigation, nor is it intended to determine cause-and-effect relationships" (Leedy & Ormrod 2005:179).

The two major research approaches that can be adopted in social research are either qualitative or quantitative. The case study is usually qualitative in nature. However, data can be gathered by various means which could include quantitative aspects (Best & Kahn 1993:193; Mouton 2001:149-150).

5.2.1 Quantitative research

“Quantitative research is the gathering and analysis of data that can be expressed in numerical form” (Bnet Business Dictionary 2010). Quantitative research involves data that is measurable and can include statistical results, financial data, or demographic data. Quantitative research is research involving the use of structured questions where the response options have been predetermined.

Quantitative elements were included in the questionnaire where numerical data on the size of the collections, types of facilities and equipment, composition of the user body, resource sharing activities, information technology infrastructure, budget allocations as well as staff qualifications and training were gathered.

5.2.2 Qualitative research

The term qualitative research refers to a “variety of educational approaches variously labelled as ethnography, naturalistic inquiry, case studies, fieldwork, field studies, and participant observation” (Ary, Jacobs & Razavieh 2002:421). Sarantakos (1998:45) and Mertens (1998:11) emphasise that qualitative research involves an interpretive approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of phenomena in terms of the meanings people bring to them.

Creswell (1994:145) emphasises the following characteristics of qualitative research: qualitative researchers are concerned primarily with process rather than outcomes of products. In qualitative research the

researcher is interested in meaning and understanding gained through words or pictures.

Against the features listed above, this study has qualitative research elements because it investigates details of real world systems or cases. The study also demonstrates further qualitative features such as describing the reality as it is, is interested in how things happen, and employs an inductive approach. It attempts to provide an in-depth description of two cases.

The advantages of qualitative research include the informative nature of this type of approach and the fact that it is possible to collect a large variety of data. It is sometimes the only way to study some things and often a necessary first step before using other types (pre-scientific) of research (Key 1997; Mason & Bramble 1989:35; Leedy 1997).

5.2.3 Case study design

In case-study research the researcher tries to conduct an in-depth investigation into various characteristics of a small number of cases over a specific period of time. These in-depth investigations look into the interaction among factors influencing explanations or changes which are then analysed. In this type of research use is made of logical or analytical induction which means that the researcher will study one case or a specific number of cases regarding a specific topic and will then analyse the information obtained in detail (Neuman 1997:29-30).

Certain steps in case study research are applicable to this study (Kratwohl 1993:312-320).

- Cases must be selected and data collecting and analysis techniques must be determined. Possible tools could be interviews, email, surveys, observations and the review of documents.
- The researcher must collect the data which must be categorised and referenced or coded to facilitate their analysis and use.
- The data has to be evaluated and analysed by finding common themes, categories and linkages between the research object and the research questions.
- A narrative style could be used for reporting the findings.

The questions posed in the questionnaire as well as in the interviews were composed to investigate the trends in respect of the development of collections, and the provision of access to information resources not housed in the collections of two academic libraries in the southern African region.

The cases selected were limited to two academic libraries. Academic libraries serve strong research-based populations that rely on access to a wide spectrum of information sources and are usually not willing to wait a long time for information. Furthermore, the two participating libraries are situated in Namibia and South Africa. These two countries have developed and developing communities.

One of the participating academic libraries is the University of Namibia Library. One of the reasons for selecting the latter is that it is an academic library situated in the researcher's home country. Apart from the Polytechnic of Namibia Library, Namibia has only a few college libraries that are mainly underdeveloped and have very limited collections. Because of Namibia's geographic isolation it is particularly

important that information should be easily accessible. Information is essential for any development, be it human, economic or political.

The other academic library investigated is the UNISA Library. There are 23 higher education institutions in South Africa which include 18 universities and five universities of technology. UNISA was chosen because it is the largest university library in South Africa with a large budget at its disposal. Furthermore, its user community mainly consists of distance education students who are even more dependent on remote access to information than “fulltime” students of other academic libraries (South Africa.Info 2009).

A comparison between the two libraries is not possible since the Unisa Library has by far the more comprehensive collection and its student body is different to that of a residential university. Unisa Library could be viewed as representative of the ideal against which academic libraries in southern Africa could be measured, particularly in respect of remote access and resource sharing.

Initially, a third university library in a neighbouring southern African country was included as a case study as it would have been possible to compare it to the UNAM Library both in size, student population and budget. However, the feedback from the aforementioned library even after repeated efforts were made to collect the data was so limited that an in-depth investigation of the institution was not possible. Inadequate documentation compounded the problem. Thus, the researcher was obliged to exclude this neighbouring university library as a typical example of an academic library in southern Africa.

In essence data from case studies are comparable meaning that two cases might be similar in some respects (otherwise it would not be

meaningful to compare them) but differ in others and these differences become the focus of examination. As Routio (2007:1) says, “descriptive comparison aims at describing and perhaps also explaining the invariance of the objects. It does not aim at generating changes in the objects; on the contrary, it usually tries to avoid them”. However, this study does not attempt to compare the two cases for the reasons outlined above.

The case study method was selected because it presented the most appropriate means of gathering, categorising, analysing and reporting on collection development policies and practices, ICT infrastructures, resource sharing activities, and changes in budget allocations to make provision for both physical collections and remote access to electronic information resources.

The case study method does not form a good enough base for scientific generalisation mainly because of the limited number of cases. It can also be biased because of the researcher’s intense exposure to the study and thus a lack of systematic handling of data might occur (Yin 1994; Soy 2006:1). The subjectivity of the inquiry could lead to difficulties in establishing the reliability and validity of the information (Key 1997:1).

Nevertheless, the case study research method is used frequently in social science research and with good reason. Case studies help to explain real-life situations or to describe an object or phenomenon. “Case study results relate directly to the common reader’s everyday experience and facilitate an understanding of complex real-life situations” (Soy 2006:9).

5.3 DATA COLLECTION METHOD

The data was collected by means of questionnaires and interviews. The data-gathering instruments used, were a structured questionnaire and an interview schedule. The advantages of using questionnaires as a method of data collection are the fact that they produce quick results, they are less expensive than other methods and they can be completed at the respondent's convenience. Questionnaires are standardised to ensure that the respondents answer the same set of questions at a particular point in time. Questionnaires are also able to reach geographically isolated respondents and are an easy tool to collect mainly quantitative as well as qualitative data (Sarantakos 1998:223; RSC201-H 2000:175-185).

Interviewing is one of the oldest and most widely used data-gathering practices in research. Interviews can be highly structured, semi-structured or completely open and unstructured. In a structured interview specific lists of question are asked similar to those used in questionnaires. An unstructured interview allows respondents to give their reactions to general issues in the absence of specific questions. For the sake of this specific study a semi-structured interview schedule was used meaning that the researcher used pre-defined interview questions but allowed openness for additional information following the interrogations (Rubin & Rubin 2004:13).

5.3.1 Design of the questionnaire

Questions were aimed at finding out how, and in what direction library collections had grown, whether there was an increase in the amount of

audio, visual and electronic equipment, and possible budget increases. Other questions endeavoured to find out whether any progress had been made in acquiring information technology facilities to facilitate users' access to information. These questions were asked in order to determine the trends in respect of the participating libraries' approaches to dealing with problems in the provision of access to information.

An example of the questionnaire is included in Appendix B. The questionnaire was subdivided into two sections. Section A consists of questions about the number of users and staff populations of the libraries, the size of the collections, the amount of equipment and the extent of resource sharing. Section B consists of questions relating to information technology. Questions posed were about the library budget, collection development policies, e-resources, qualification of staff and Internet connectivity.

Closed questions were mainly used with several options that had to be ticked off, which means that there was a limited number of responses to be indicated. This method was chosen, as it is easier for participants to complete and easier to analyse. Some open questions were included to allow respondents to sketch their own experiences in respect of the factors that contribute to, or hinder the improvement of access to information. In this sense the questionnaire allowed for a limited amount of qualitative data that could be interpreted. Additional qualitative data was gleaned from the interviews.

5.3.2 Interview schedule

Most of the questions included in the interview schedule were of an open-ended nature which is designed to permit free response from

participants rather than ones limited to specific alternatives (Powell 1997:87). Open-ended questions are especially useful for exploratory studies and according to Welman and Kruger (1999:157) offer a versatile way of collecting information. It allows the interviewer to use probes with a view to clearing up vague responses, or to ask for elaboration on incomplete answers. This should contribute to the validity and reliability of the responses to the interview questions.

Face-to-face interviews were conducted with librarians in both institutions. The researcher made formal appointments with the library personnel. Examples of the interview schedules are included in Appendix D and E. The follow-up questions for the interviews conducted at the two institutions were not exactly the same. The reason is that only questions that were not answered in the questionnaire, or that were unclear or unexpected, were followed-up by means of interview questions. These questions and responses were not necessarily the same for both the institutions.

Questions based on the responses from the questionnaires were sent to the interviewees before the interviews were conducted. The interviewees were not necessarily the same persons that were responsible for the completion of the questionnaire but were nevertheless specialists in different fields of expertise. In the case of Unisa Library, for example, the researcher had a single contact person signing responsibility for the completion of the questionnaire. Responses to the interview questions were also obtained from specialists in the field of e-resources and information technology. Interviews were conducted in the offices of library personnel at Unisa Library as well as UNAM Library.

The accepted method of conducting interviews is to make use of a tape recorder to ensure that data is recorded accurately and is not lost. The

researcher made use of a tape recorder while conducting the interviews and the responses were also written down immediately during, and after the interview sessions but not transcribed word by word. The recorded responses were sent back to the respondents who participated in the interviews so that they could check whether the interviewer had interpreted their comments correctly. This method is acceptable according to Fassick 2001 and Wellard and McKenna 2001 (in Halcomb & Davidson 2006:40-41) who state that recordings are good as a back-up but that the process of transcription should be more about interpretation of the data than the clerical task of copying what was said.

5.3.3 Pilot study

The questionnaire was pre-tested in a pilot study. The pilot study was conducted at the Polytechnic of Namibia in order to improve the quality and effectiveness of the questionnaire and to ensure that the questions asked would be understood. A pilot study can also be the pre-testing or 'trying out' of a particular research instrument (Baker 1994: 182-3). One of the advantages of conducting a pilot study is that it might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated. When pilot studies are conducted as part of a research process, they can be useful in many ways by for example, improving the internal validity of a questionnaire, or by assessing the feasibility of the main study, by establishing whether the sampling frame and technique are effective and by giving feedback on the logistics of data collection (Nyatanga 2005;1).

Therefore, the wording of some of the questions where they appeared to be ambiguous or difficult to understand, were changed. For instance the

question “Did your collection development policy change since the introduction of ICT” was changed to “Did your collection development policy change since the introduction of e-resources”.

Some of the questions appeared to be superfluous (e.g. the number of items of equipment for library staff such as printers, PCs with Internet connection etc.) and were removed. A few question items were added to ensure more specific feedback, such as Internet-specific questions (e.g. the existing bandwidth of the library’s Internet connection) or including the number of distant education students especially in view of the number of students who make use of the Unisa Library.

5.3.4 Administering the questionnaire

As the two libraries have well-established e-mail access it was decided to take that route of contact for transmitting the questionnaire. The use of e-mail as an alternative to postal services for research purposes has advantages as well as disadvantages. The two most dominant disadvantages of e-mail are that addressees or recipients might treat the questionnaire as SPAM or junk mail and delete it. Furthermore, it is virtually impossible to guarantee respondents’ anonymity as their e-mail addresses will automatically be included in their reply. Both disadvantages do not play a role in this specific case as a telephonic follow-up could ensure that respondents received the message and anonymity is not an issue in this study.

The obvious advantages are low costs both in money and in time, a favourable response rate, the fact that the sender of the message can opt for a notification when the recipient has received the message, and a greater means of “control” (Selwyn & Robson 1998:1-3; Michaelidou &

Dipp 2006:289-294). For the purpose of this questionnaire time was the important issue as postal services tend to be unreliable and are often very slow.

A covering letter (an example of which appears in Appendix A) in which the subject of, and reason for the investigation was explained was sent to the directors of the selected university libraries by e-mail or by hand in the case of UNAM Library. The letter also included contact details of the researcher as well as a request that the questionnaire should be completed within a month from the date of receipt. Although the questionnaire was sent to the directors of the libraries concerned, it was made clear that specialists in certain areas of expertise were required to complete the various sections, such as the Interlending Librarian, Head of User Services and, or the Systems Librarian.

5.4 DATA ANALYSIS

In order to make the process of analysing the data manageable, three steps were involved: organising, summarising and interpreting of the data (Ary, Jacobs & Razavieh 2002:455). As the amount of data to be analysed from the responses to two questionnaires was easy to interpret, it was decided to neither build in a coding system on the form itself, nor to use software like SPSS to interpret the outcome. The results from the questionnaire were thus hand-counted. Data was then interpreted to describe collection development policies and practices, resource sharing activities, budget allocations, staff qualifications and the current state of development in respect of ICT facilities and equipment in the two academic libraries. The aim was to draw conclusions about the capacity of the two libraries to provide access to information sources outside their own collections. The resources that enables this to be done are financial

and human resources, facilities (including buildings, equipment, shelving) and media and information resources (including books, periodicals, electronic and other media).

In order to achieve a more complete picture of the current situation in each library in respect of the libraries' resources data gathered from the findings of the questionnaire, interviews, policy documents, annual reports, and the library web pages were combined to come to certain conclusions.

Transcribing responses recorded involves creating a written text of the interviews which implies bringing together all information-gathering approaches into one written form. It is the usual practice to transcribe recorded interviews for data analysis. This is not a pre-requisite as it is very time-consuming. The notes taken have to be expanded into descriptions or raw notes have to be transformed into a narrative. These observations are then combined with the rest of the data gathered (Guion 2006:3). For the purpose of this study the interview was not transcribed but noted down immediately during and after the interviews were conducted and their correctness confirmed afterwards by sending the questions and answers again to the interview participants in order to enhance the validity and reliability of the responses.

5.5 SUMMARY

The research methods used to conduct this study were discussed in this chapter. The empirical study involved case studies of two academic libraries and questioning methods were used to collect both quantitative and qualitative data. The data-gathering instruments used were a questionnaire and an interview schedule dealing with various aspects in

connection with the library collections, resource sharing activities, budget allocations, staff qualifications and the state of connectivity at two academic libraries in southern Africa, namely the University of Namibia and the University of South Africa. The resources required to support the provision of access to information, either from the library's own collection or from remote locations, were also covered in the questionnaire and interview schedule. In addition, information was gathered from web pages, policy documents and annual reports.

The responses to the questions in the questionnaire were analysed and interpreted and the findings are reported in the next chapter. Chapter 6 also sketches the history, level of development and current situation at the selected libraries as a background to the report as well as the findings of the empirical research.

CHAPTER 6

FINDINGS OF TWO CASE STUDIES ON THE PROVISION OF ACCESS TO INFORMATION IN ACADEMIC LIBRARIES IN THE SOUTHERN AFRICAN REGION

6.1 INTRODUCTION

In the previous chapter the research methods used to conduct this study were discussed. The empirical study involved a case study of two academic libraries. Questioning methods were used to collect data. The data-gathering instruments include a questionnaire and interviews based on an interview schedule. Additional information was selected from the annual reports as well as websites of both institutions.

The findings of the empirical study on the collection development policies and practices, resource sharing activities, budget allocations, staff qualifications and the current state of electronic connectivity of two academic libraries in South Africa and Namibia are presented in this chapter. Their capacity to provide access to information from remote locations is important. Therefore, findings on ICT facilities and equipment, staff qualifications and training and budget allocations will reflect the technological, human and financial resources of these libraries. This information is provided against the background of the history of the two participating libraries in order to gain a better understanding of the local conditions.

Quantitative data about the size of the collections, types of equipment, the constitution of the user body, resource sharing activities, information

technology infrastructure, budgets, staff training and collection development or ICT policies were collected by means of self-administered questionnaires (see Appendices B and C). This has been supplemented by qualitative information gleaned from participants in face-to-face interviews which also serves to explain the situation in both libraries in respect of these aspects. The interview schedules appear in Appendices D and E. The main concern was: how did the two libraries approach the whole question of provision of access to information?

6.2 HISTORICAL BACKGROUND OF TWO ACADEMIC LIBRARIES IN SOUTHERN AFRICA

A description of the historical background of the two participating libraries and their parent organisations will give an idea of how the institutions have developed during a particular time-frame. It will also cast light on the local conditions and how specific circumstances may have influenced the expansion of the two libraries and how these circumstances may have influenced collection development.

6.2.1 University of Namibia (UNAM) Library

The University of Namibia (UNAM) is one of the most recently founded universities in the southern African region having been established by an Act of Parliament on the 1st September 1992. The library was taken over from the Academy, a forerunner of the University.

The mission statement of the University of Namibia is

“to engage in socially and nationally relevant, academic and technical training, research and educational programmes with the involvement of all stakeholders in a conducive environment for learning, innovation, knowledge creation, professional development, functional skills development and development-related competencies, within the cultural context of the Namibian people” (UNAM 2009).

The library experienced problems initially as it was administered as a unit of the Registrar’s department. This had the implication that the university librarian could not have a seat on policy-making committees, particularly those committees that decided on budget allocations. As a result, the library was poorly financed as it was allocated only 4% of the institution’s budget. Another problem at its inception was the poor physical facilities as the library was housed in an apartment building that was unsuitable as a library building. It was only able to seat 85 people and its technical services section was housed in a different building on the other side of the campus. Furthermore, the library did not house a balanced collection because certain subject areas were over-represented while others were inadequately represented. A small staff with limited subject knowledge backgrounds also added to the library’s problems.

With the change from an academy to a university in 1992, the prospects for the library and its staff improved considerably. University management recognised the library as an important extension of the lecture room. Despite fierce opposition from some members of the university corps, academic status was granted to librarians and this is embedded in the University of Namibia Act, 1992.

Financing improved significantly when the Executive Committee of the University allocated a 10% of recurrent expenditure budget to the library.

The stock increased substantially not only because of the budget, but also with the help of generous donations from organisations such as the British Overseas Development Agency (ODA) and the Belgian government. Another major boost came through the addition of the United Nations Institute for Namibia (UNIN) Library of 40 000 volumes with its valuable Namibiana collection and UN documents (Avafia 1993:114-121).

In 1995, the University moved its premises to a new campus. This included a dedicated library building, a great improvement on the previous building in functionality and space.

It was recommended that the university library's operations be computerised from the onset. In 1988, a librarian was appointed to work out the tender specifications and in 1992 the URICA system became operational. The library staff situation changed in size and range with 16 professional librarians and 28 library assistants on the pay roll.

The library of UNAM established access to the Internet in June 1996 through a Point of Presence (POP) server located at the University Computer Centre (World Bank 1995; Chisenga, 1999; SADC 1999: 40). Since 1997, all the professional librarians have been allocated their own Personal Computers (PC's) including CD-ROM facilities and Internet stations. In addition, ten Internet accessible machines were set aside for students as well as 20 word processing machines.

The INNOPAC Millennium system was introduced in 2006 following a grant from the Andrew Mellon Foundation. In contrast to the URICA library system previously in use, INNOPAC is accessible via standard Web browsers. For the first time copy cataloguing through OCLC was possible (UNAM annual reports 2006-2009).

The University Library is seen as the most sophisticated and advanced library in Namibia, but it is still the mandate of the National Library to coordinate library co-operation in Namibia.

6.2.2 University of South Africa (Unisa) Library

The University of South Africa (Unisa) is one of the largest and oldest universities in Africa. It has been in existence since 1873 but the Library only came into being in 1946 when UNISA introduced distance teaching as a mode of tuition (Unisa Library 2009). In the 1940s a growing number of African students were in dire need of a university education as they could not be accommodated or afford an education in the then limited possibilities at the South African Native College. UNISA took charge of correspondence education in South Africa after the Higher Education Amendment Act was passed on the 8th May 1946.

The mission statement characterises Unisa as a comprehensive, open learning and distance education institution which provides quality general academic and career-focused learning opportunities underpinned by principles of lifelong learning, flexibility and student centeredness. It undertakes research and knowledge development. Unisa sees itself as being accessible to all learners specifically those on the African continent and addresses the needs of a diverse student profile by offering relevant learner support, facilitated by appropriate information and communications technology. Unisa aims to develop and retain high-quality capacities among its staff members and commits itself to promote and contribute to culture and society [shortened version by researcher of Unisa's mission statement 2010]

It is clear that the provision of suitable and up-to-date books to students not living in the vicinity of Pretoria was the most pressing problem facing the library at that stage. The growth of the collection started at an unsatisfactory pace in the early years with a small library budget and inadequate staffing. However, by the end of 1960 the book stock had reached a total of 80 799 monographs (Suttie 2006:284-288).

In 1959, the decision to use the Dewey Decimal Classification (DDC) system for classification was taken and in 1967 subject librarians were appointed. It was also in that year that the Unisa Library was seen as one of the fastest growing libraries in South Africa. In 1968, an automated loan system was implemented and a beginning was made in efforts to automate the Study Collection catalogue. In doing so, the Unisa Library “had become the first computerised university library in South Africa and remains a leader in this field in the new millennium” (Suttie 2005:109).

Although no attempt is made to compare the two institutions, the historical background of the two libraries outlined above highlights the differences between them in respect of period of existence, the size of the two institutions, their characteristics and challenges, particularly those faced by the UNAM. This will help in interpreting the data gleaned from the questionnaire and interviews.

6.3 CHARACTERISTICS OF USERS AND NUMBER OF USERS

The characteristics of a particular user group determine their information needs. Library resources, facilities and services are developed to meet these user needs. For instance, the characteristics of the user body, such as students' levels of study will influence the academic library's

interlending activities. The student number can indicate the ratio between the collection and the user community as well as the amount of electronic equipment available for the library's users.

In question 1 of the questionnaire, respondents were asked to indicate the number of users in the following categories: academic and administrative staff, fulltime undergraduate and postgraduate students as well as distance education undergraduate and postgraduate students for the years 2005-2007.

6.3.1 Characteristics of users and number of users at the University of Namibia Library

UNAM has until now been mainly a campus for fulltime students attending classes. Responses from the questionnaire indicate that the student population (excluding the distant education students) grew from 5,368 in 2005 to 6,256 in 2007. Only 435 students in 2005 and 634 students in 2007 were studying by means of distance education. These figures constitute 15% of the UNAM student population. Of these fulltime students only about 65 (1%) are postgraduate students with the vast majority being undergraduate students. This is due to the fact that UNAM is a fairly newly established university. The majority of graduates already in employment do their postgraduate studies through correspondence courses or at their alma maters mainly in South Africa. Until recently only a limited number of departments offered postgraduate courses (UNAM annual reports 2006-2008). The academic and administrative staff contingent at UNAM is nearly the same. The results show that the ratio of staff to students is about 20 students to one lecturer (20:1).

6.3.2 Characteristics of users and number of users at the University of South Africa Library

The questionnaire shows that the administrative staff component at Unisa is more than double its academic counterpart. The reason is that only a few classes in which students have face-to-face contact with lecturers are offered in each course each year whereas the administrative function of serving students that are spread all over the world make high demands on staff.

A characteristic of the Unisa student body is that only distance education students are accommodated. The responses to the questionnaire show that 10% of the total student population are studying for postgraduate qualifications. At Unisa the ratio of students to lecturers is high. For instance, in 2007 there were 1300 academic staff members assisting 263 877 undergraduate and postgraduate students making the ratio of students to lecturer 203 to one (203:1).

6.4 COLLECTION DEVELOPMENT

In question 2 of the questionnaire, respondents were asked to indicate the size of their collections by giving the number of items in their collection according to the following categories: books, audio- and audiovisual materials, print journals and electronic resources. The respective collection development policies were also investigated as they could give an indication of the scope of a library's existing collection, plans for the continuing growth of collections as well as the type of resources the library aims to acquire. This in turn would indicate whether the respective participating libraries are preparing to improve the

provision of access to remote information resources besides adding to their own physical collections.

6.4.1 University of Namibia Library

As the collection development policy describes the current state and future direction of the collection, the UNAM Library's collection development policy is dealt with before the size of the collection is determined.

6.4.1.1 *Collection development policy*

In early 1996 professional librarians at UNAM Library acknowledged the need for a collection development policy. This was by no means an easy task as it was being done for the first time. A written acquisition policy already existed which guided the emerging collection development policy. The operational collection development policy gives guidelines in respect of all the different material types with their specific characteristics. One should bear in mind that the university caters mainly for undergraduate studies with less emphasis on postgraduate studies and, or research.

In 2003 the collection development policy was revised for the first time in order to incorporate electronic resources which had not been mentioned in the earlier policy. A copy of the relevant section in the policy document appears in Appendix F. It is pointed out in the policy that many of these resources would not physically reside in UNAM libraries and although most of these resources are subjected to similar selection criteria, unique

aspects, such as performance, access speed, compatibility, licensing and the life of a product must be considered (Viljoen 2003).

By 2009 the library had not yet bought any electronic (e-) books to complement their collections. During the interview the respondent was asked in question 2 of the schedule to provide an explanation for this. The response was that the Internet connection is slow and that the branch libraries had not been connected to the Internet at all prior to 2007. A further reason for not acquiring e-books was because of financial factors. As a consequence e-books have not yet been mentioned in the collection development policy.

6.4.1.2 *Size of collections*

The growth of the book collection at UNAM was 2.8% between 2005 and 2006 and 3.1% in the following year. The ratio of books to users shows that UNAM had 23 books per user (23:1) in 2005. Based on the aforementioned data in response to the questionnaire, a question was included in the interview schedule (question 3) that would reveal whether a policy in respect of the number of books to be acquired per number of registered students exists. The response was that there is no policy in this regard. However, the acquisitions policy gives guidelines for prescribed material to be bought, namely one copy for every 20 students with a maximum of five copies for one specific title.

It would appear from the answer to the relevant question in the questionnaire that the serials collection at UNAM Library did not grow significantly. Based on this response, the researcher attempted to determine the reasons for the lack of growth in the serials collection in the follow-up interview (question 2 in the interview schedule). The

interviewee revealed that this situation could be ascribed mainly to the problems experienced in paying for renewals of the existing journal subscriptions as the cost of journals continue to escalate on an average of approximately twenty percent (20%) per annum. In contrast the book and periodical budgets for the library have not increased notably.

6.4.2 University of South Africa Library

As already mentioned, the size of the collection is determined by the collection development policy. Therefore, it is dealt with before the scope of the collection at the Unisa Library is discussed.

6.4.2.1 *Collection development policy*

In answer to questions 5, 6, and 7 in the interview schedule about the history and content of Unisa's collection development policy, certain facts were established. The Unisa Library had a collection development policy for each subject or department before its current policy was written in 2005. A copy of the relevant section in this policy appears in Appendix F. Unisa divides its collection between a research collection and a study collection. The research collection consists of monographs, print journals, electronic resources as well as a limited collection of other formats. The study collection is closely linked to the current teaching programmes of Unisa and includes multiple copies of monographs.

The Unisa Library mentions in its collection development policy that their membership of the GAELIC consortium is taken into account when decisions are made about the acquisition of certain material. Another distinctive characteristic is that digitisation of items in the library's

collections is spelled out in the policy. According to the Unisa Collection Development Policy (University of South Africa 2005:1) "This [process] would provide greater access to digital information through a variety of avenues in order to enable academics and students using workstations located elsewhere to gain access to a wide variety of digital information sources". The policy spells out that print and electronic sources of information need to be integrated in order to provide clients with seamless access to information. There is also a section on the evaluation criteria for choosing electronic databases (University of South Africa 2005:1-11).

In the questionnaire it was indicated that Unisa's collection development policy is in the process of being changed. During the interview, the interviewee was asked in question 5 of the schedule how far the process of that change is. The answer was that the 2005 policy was revised and completed in 2009. The adjustments were made mainly to cater for the duplication of formats, that is print and online journals. The interviewer was informed that there is a separate collection development policy for serials.

An examination of the web pages of various other university libraries in South Africa shows that collection development policies have changed to incorporate electronic resources. Examples of academic libraries in the region that have recently changed their collection development policies to expand on their inclusion of electronic resources are the University of Cape Town (2001), the University of the Witwatersrand (2010), Rhodes University (1999), the University of Pretoria (2007), and the University of Johannesburg (2010). The Nelson Mandela Metropolitan University, Port Elizabeth revised their policy in 2005 and the University of Stellenbosch mentioned in their strategic plan of 2007-2009 that they want to establish

a revised document. The Polytechnic of Namibia's collection development policy also has a section on electronic formats.

6.4.2.2 Size of collections

Unisa had a book collection growth of 1.2% in the years 2006 and 2007. This percentage growth was established by calculating the figures provided in response to the questionnaire. However, when the collection size is compared to the number of users it becomes clear that about eight books per user were available in 2005; 7.8 books per user were available in 2006 and this number decreased to 6.6 books per user in 2007.

One could conclude that a decrease in the number of book acquisitions is a reflection of an increase in the provision of electronic resources. However, a follow-up answer to question 1 in the interview schedule about the reason for the decrease in the percentage of books per user in 2007 revealed that student numbers have grown considerably, particularly after the university mergers in 2004. The answer to the interview question shows that books are still the main information source acquired and are therefore not regarded as less important than e-resources. (The situation in respect of e-journals is different as explained in the next paragraph.) The interviewee also mentioned that there is no policy in respect of books per number of registered students apart from guidelines in respect of acquisitions for the study collection.

The increase in serial titles at Unisa Library was considerable, namely, from 3.3% between 2005 and 2006 to an increase of 20.7% in 2007 as was shown in the response to the questionnaire. This result is even more significant when the total of 32 000 e-journal titles that were added in

2007 is considered. After consulting the appropriate staff member about the reasons for this increase (question 4 in the interview schedule) it was pointed out that there was actually a decrease in print journal titles but an increase in e-journal titles. The growth in e-journal titles can be ascribed to the fact that a number of e-journal packages are currently being bought. The target for Unisa is to achieve complete electronic access to journals by 2012.

These findings in respect of collection development policies and the size of collections correspond to those of Van Zijl (2005) who investigated collection development and management trends in case studies of two University of technology libraries (one in New Zealand and one in South Africa, both unnamed). She found that the South African institution was not successful in extending its collection in order to meet the increasing demands of its patrons. She recommended that collection development policies as well as standards and guidelines have to be upgraded and then backed financially. Van Zijl (2005:283-287) drew up a model collection development policy that includes guidelines for keeping a balance between the various formats (e.g. print, audio-visual, serial, and electronic media).

The abovementioned findings show that collection development policies play a role in planning the size of collections and identifying formats.

6.5 AVAILABLE INFORMATION AND COMMUNICATIONS TECHNOLOGY RESOURCES

In the previous chapters it was shown that the increasing emphasis on the provision of remote access to information in collection development is mainly a direct result of shrinking library budgets as well as rapid

development in information and communications technology (ICT). Improvements in ICT has allowed librarians to move in the direction of providing access to information sources that are not held locally and thereby creating the possibility for a tremendous increase in the provision of access to information.

ICT resources include the necessary technical and electronic equipment and facilities required to provide for, or gain electronic access to information sources outside the mother institution. Question 3 of the questionnaire asked respondents to indicate the number of items of equipment that were made available to staff and to other users in the years 2005 to 2007 in the following categories: word processing stations, printing facilities, or computers with Internet connection. Respondents could also indicate any other items, such as DVD players.

In Chapter 3 section 3.8.2, it was pointed out that for a network to be successful it must be underscored by a policy. Questions 15 (UNAM) and 20 (Unisa) in the interview schedule inquired about the existence of an ICT policy and whether it addresses the financial, human and technological resource implications for the library.

6.5.1 Available equipment at the University of Namibia

Responses from the questionnaire indicate that the UNAM Library is relatively well equipped with an increase of 105 new workstations to form a total of 150, which includes Internet connection in 2007. Thus, the ratio of students to computer terminals is one terminal for 50 (50:1) students. These computers were bought via a soft loan that the University received from the African Development Bank (ADB) and were part and parcel of

an agreement which included a new library building for UNAM as well (Viljoen 2003).

Information gleaned from question 14 in the interview schedule on the reason why the library invested so heavily in computer equipment showed that the loan by the African Development Bank for the new library building stipulated that a certain number of computers for users had to be housed in that building. There was sufficient space allocated in the new building for the electronic facilities. On the other hand, the University does not have a computer centre or laboratory to house an adequate number of workstations for student use.

According to responses to the questionnaire other available equipment at UNAM are video machines (2), TV monitors (3), overhead projectors (2), DVD player (1), scanners (4), laptop computers (2) as well as heavy duty printing machines for the students.

Question 15 in the interview schedule dealing with the existence of an ICT policy and whether it addresses financial, human and technological resource implications for the library, revealed that the University of Namibia has an ICT policy in place which was published in 2003. A chapter is dedicated to the Library and Information Services which includes a description of the Information and Learning Resource Centre (library) concept and its mandate to achieve effective support in the teaching, learning, research and administrative activities of the University. A reliable ICT structure, connectivity as well as competent library staff are a prerequisite for its success (Kiangi 2003: 22-25).

With a bandwidth of 5 MB the speed and reliability of the Internet is adequate at UNAM Library. UNAM Library provides free Internet access to its users from the 150 stations available in the library building.

6.5.2 Available equipment at the University of South Africa

Unisa serves the distance student and, therefore, equipment, such as photocopiers, microcomputers, CPU towers with CD-ROM drives, and software, such as, word processing packages and the Internet as well as printing facilities are not as essential for student use as it is the case at a residential university.

The information given in response to question 3 in the questionnaire, namely, that the Unisa Library has no electronic equipment for users at all was queried by the interviewer and found to be incorrect. There are 40 computers with Internet connections in the main library as well as additional ones at the branches. Facilities for word processing are available in the ICT laboratories on campus. The library has an audio-visual section including video facilities as well as reader printers for the use of microtext material.

It goes without saying, that Unisa cannot provide electronic equipment for all its students. However, it provides access to information through a wide range of information sources in a comprehensive collection of its own, a variety of electronic databases that students can use, a well-developed webpage, fast Internet connections and an interlending service (Unisa Library 2009; Unisa Library annual reports 2006-2008).

Unisa has an ICT policy for the whole institution as was revealed during the interview in answer to question 20. The policy does not mention the library specifically. It is mainly concerned with data privacy and information security as well as broad band and backup policies. Systems librarians at Unisa felt that although there is a policy in place it is not really enforced.

With a bandwidth of 28 MB, Unisa indicated that they rate their Internet connectivity as very fast and reliable. Limited free workstations for walk-in users are provided for at the Unisa Library.

Electronic university networks are often bought or developed in-house. Frequently systems engineers who are not qualified librarians are then required to develop a library module for operations (including circulation, acquisition, cataloguing, and serials). These in-house library modules seldom perform as effectively as dedicated electronic library systems. Both academic libraries in this study have a dedicated electronic library system.

The current situation of academic libraries in respect of ICT infrastructure will determine whether they have the capacity to provide remote access to information. Agaba (2007) and Mawindo and Hoskins (2008) studied the use of electronic information resources in their respective institutions, namely, Makerere University, Uganda and the University of KwaZulu-Natal, South Africa. They came to the conclusion that print resources still got preference over the electronic versions because of inadequate ICT equipment and facilities, for example, slow bandwidth, a lack of computer equipment, and low levels of computer literacy. Users are also unaware of the existence of certain electronic databases to which their libraries subscribe.

Both university libraries have electronic equipment and facilities available for staff and users and fair to good bandwidth capabilities. ICT policies are available at each of the libraries.

6.6 RESOURCE SHARING

In Chapter 3, it was stated that provision of access to information will not succeed without resource sharing between libraries. Resource sharing in whatever form is a predominant means of providing access. Expansion of one's own collection to gain enhanced access to information is mainly achieved in this way. Resource sharing occurs through co-operation and networking, interlending activities and the possible formation of library consortia.

6.6.1 Interlending and document delivery

In questions 4 to 7 of the questionnaire respondents were asked to indicate the number of interlibrary loans (temporary loans) or document delivery (non-returnable items) transactions processed during the years 2005 to 2007.

6.6.1.1 *Interlending and document delivery at UNAM Library*

The amount of material being lent within Namibia itself is significant whereas the number of interlending transactions between the UNAM Library and other libraries outside Namibia are hardly worth mentioning. Many interlending transactions occur between UNAM's main library and its eight (8) centre libraries and two (2) branch libraries which are situated all over the country. UNAM Library is also the largest library within the country. Therefore, other libraries make use of what is available within Namibia's borders if possible.

A reason for the insignificant number of interlending transactions with countries outside Namibia's borders was established in answer to question 7 during the follow-up interview. The response showed that national transactions are preferred for the obvious reasons of distance, accessibility and convenience. The branch and centre libraries also use UNAM transport which means that shipment is not dependent on the unreliable national postal services. Personal messengers are utilised for interlending and document delivery operations between local libraries.

One would expect that the UNAM Library would depend much more on the borrowing of material from elsewhere to satisfy their users' demands. As previously discussed in Chapter 3, the reasons for a non-functioning interlending scheme may be due to the non-existence of a working national resource sharing network, inadequacy of the national bibliography and costs involved. This is also the case in Namibia. During the interview it was revealed that uncommitted and ill-trained staff members, unreliable postal services between South Africa and Namibia, and problems in regard to customs regulations were some of the reasons for a lack of interlending transactions between UNAM Library and its counterparts outside its borders.

Interlending is one of the more traditional and "conservative" methods of sharing resources, but it is still of great importance to a developing country, such as Namibia, because electronic access to information is still in its initial stages. However, responses to questions in both the questionnaire as well as the interview revealed that the interlending service is one of the most inadequate services at the UNAM Library.

6.6.1.2 *Interlending and document delivery at Unisa Library*

The characteristics of the user body of each library have a bearing on its interlending activities. As Unisa Library has to serve a clientele that is physically absent most of the time, the amount of interlending as well as document supply is very high. Responses to the questionnaire showed that there were, for instance, 3947 items received through interlending and document delivery in 2007. A total of 15 143 items were sent via interlending and document delivery to users elsewhere. As could be expected, the Unisa Library lends about twice as many items in its collection to other libraries and its own distant students as they borrow. It should be noted that loans to distant students are counted as part of the circulation statistics and not interlending statistics. In addition the library lends material to and borrows material from institutions abroad.

As already mentioned, the Unisa Library has one of the most comprehensive collections in the whole of southern Africa. It has a large customer base consisting of other library users in the region as well as users abroad who make use of its outstanding interlending service. According to feedback from the interview Unisa conducts the greatest number of interlending transactions in South Africa as well as in the SADC region.

6.6.2 National bibliographies, electronic databases and consortia

Prerequisites of a well functioning resource sharing system are a working database and a national bibliography. Consortia are a modern way of easing resource sharing. As explained in Chapter 3 section 3.5, a consortium is an association of independent libraries that has been

established by formal agreement, usually for the purpose of resource sharing. Certain standards and protocols such as the Z39.50 protocol (as discussed in Chapter 3 section 3.3.3) are important tools in modern day resource sharing.

Marais' (2004:118-128) studied the role and functions of a union catalogue and found that the Z39.50 information retrieval protocol gives the user the ability to search multiple databases and thus makes it unnecessary to send records to a central point to be assembled. She stressed that without a union catalogue, library functions such as the co-ordination of acquisition and collection development as well as interlending is difficult.

In questions 8 to 12 of the questionnaire, respondents were asked to indicate whether they add holdings to a national database or bibliography or manage institutional and regional repositories. They were also asked why they decided to join a consortium and to give an indication of how they are benefiting from being part of one.

6.6.2.1 *UNAM Library's contribution to national bibliographies, electronic databases and consortia*

Holdings of the UNAM Library are irregularly added to Sabinet, that is, there was a once-off batch upload as was revealed in answer to question 5 in the interview schedule. Thereafter, the Urica library system which was previously used did not facilitate the uploading of holdings in a seamless way. With the introduction of the Millennium library software package in 2006 this was made possible but the uploading of holdings was never integrated into the workflow in the event of ordering or cataloguing.

Additions to the Namibian National Bibliography (NNB) are also done irregularly. The NNB is being compiled by the National Library of Namibia and its latest edition was published in 2007 covering the years 1990-1998. As uploading of holdings cannot be done seamlessly from the one system to the other, this process is still done manually. As pointed out by Zulu (2007:1-6) the responsibility of compiling a national bibliography lies with the National Library and not with UNAM Library.

Access to e-resources has been provided since 2003 at UNAM Library. The library produces databases with the help of Greenstone which is a suite of open-source software for building and distributing digital library collections. Databases of staff publications by UNAM staff members, the Namibian HIV/AIDS Literature database, and an index of Namibian journals available at UNAM Library were developed. The UNAM Library also digitises the full texts of local publications and collections. Examples of digitised local collections are past examination papers (1389 by the end of 2007), Namibian theses and dissertations (3347 in 2007), newspaper clippings, pamphlets and brochures and a United Nations Institute for Namibia (UNIN) photo collection. All of these digitised collections can be logged onto via the library's webpage. In 2007 the University of Namibia was selected as the coordinating centre for the Greenstone Support Project for southern Africa (Namibia, Zimbabwe, Malawi and Lesotho).

The UNAM Library is part of the Gaelic consortium although it is geographically isolated from the other consortia libraries which are all situated in Gauteng, South Africa. According to correspondence from 2001 to 2003 between the former University Librarian, Ms R Viljoen and the Foundation, this development took place because the Mellon Foundation showed interest in supporting the installation of an integrated

library system such as Millennium. Its intention was to focus on academic library consortia rather than on individual libraries. The suggestion was to form a consortium with the Library of the Polytechnic of Namibia and the National Library of Namibia. A meeting with prospective Namibian partners revealed that a proposal of this nature touched on unexplored ground and that much more time and discussion would be required to come to a decision of any kind (Viljoen 2003).

Usually libraries benefit from this affiliation by having shared access to electronic databases and shared cataloguing, consortium discounts on e-resources and purchasing agreements. Responses to question 9 in the interview schedule (Appendix D) revealed that the only advantage that UNAM Library gained through its membership of the consortium is that it became part of the Innopac User Group (IUG). It also benefited from the initial financing of the Millennium system and maintenance support for the first three years. UNAM Library has no access to the electronic databases bought by the other libraries within the Gaelic consortium. To date no library consortia has been established in Namibia.

Although UNAM Library creates its own repositories and databases, it can improve resource sharing by adding its holdings to Sabinet and other bibliographic information networks on a more regular basis. New workflow procedures in regard to the addition of holdings have to be looked at.

6.6.2.2 Unisa Library's contribution to national bibliographies, electronic databases and consortia

Unisa Library adds its holdings to the South African National Bibliography (SANB) on a daily basis.

Access to e-resources has been offered at Unisa since 1999. Full text databases such as Emerald, ACM Digital Library, Institute of Physics, American Chemical Society, and Cambridge Journals Online are just a few examples of e-resources to which Unisa Library is subscribed. During 2005 provision of access to electronic books as well as full text dictionaries and reference books were added.

In 2006 a database of electronic theses and dissertations was launched which consisted of 791 items by 2007. Various unique collections were conserved by digitisation, such as the Arthur Nortjé (the South African poet) collection as well as scanned records. These records contribute to the Bleek and Lloyd archives held at the University of Cape Town which collect materials about the oral history, language, narratives and ideas of the !xam and !Kung peoples (Unisa annual report 2007).

In accordance with a new Online course development policy at the university an Electronic Reserves Service was introduced which is aimed at providing an additional or alternative service to the traditional Recommended Book Service for the development of course material (Unisa annual report 2007).

Unisa is a member of the Gaelic consortium. Correspondence with Dr Judy Henning (Deputy Executive Director Unisa Library) who was involved in the setting up of GAELIC, revealed the history behind this development. At the same time that Unisa was in the process of assessing library systems, the University of the Witwatersrand approached the AW Mellon Foundation for financial support to buy a system and was informed that they would consider a grant if the system was intended for a consortium. Libraries in Gauteng were invited to discuss the option and the consortium was formed by the universities

(Foundation of Tertiary Institutions of the Northern Metropolis - FOTIM) with a project named GAELIC. The aims of the consortium were discussed and agreed upon and the focus was the assessment of systems, implementation of these, and collaboration on other aspects such as training, workshops and joint purchases of e-databases.

Further information gleaned from the interview was that a benefit for Unisa was that the consortium would buy the Millennium library software package collectively. Other benefits were mainly financial, such as grants for hardware and software, data conversion, expert advice and support, project management as well as training of staff. There are advantageous cost savings in pooling purchasing and negotiation power for electronic database licences and services. Other advantages include affordable training sessions and workshops, system maintenance and expertise and assistance to ensure effective problem-solving.

Disadvantages involve decision-making about certain database acquisitions which can sometimes be difficult and time-consuming. Furthermore, staff time is usually a constraint as the work in the consortium is done on a voluntary basis.

As part of their contributions to resource sharing facilitation both libraries partake in their respective national bibliographies and build their own electronic databases. Participation in consortial activities like the sharing of electronic databases, purchasing advantages and co-operative organisation is only done by the Unisa Library while UNAM Library is a passive member of the same consortium but without real benefits or obligations.

6.7 FINANCIAL RESOURCES

In order to facilitate a shift from a physical collection to a hybrid one of paper-based and other media as well as electronic information resources, budget allocations have to be made to accommodate ICT products and services as well as maintenance of facilities and equipment. Respondents were asked in question 15 to “indicate whether your collection development budget within 2005-2007 has been expanded to accommodate ICT services and products”. They were also asked in question 16 as follows: “What proportion or percentage of your total library budget is allocated to ICT maintenance and services...)?” In question 17 they were asked whether ICT equipment (such as computers) is subtracted from the library’s or the university’s budget.

In addition, collection development policies have to reflect adjustments in budget allocations. Questions 20 and 21 in the questionnaire gleaned information about policies that make provision for the acquisition of e-resources. The aim was to find out if a possible change in the collection development policy brought about a modification in the allocation of the budget.

6.7.1 Library policies and budget allocations at UNAM Library

At UNAM Library the ICT equipment is obtained via the university’s budget and not the library’s budget. Its collection development budget has not been expanded to accommodate information technological services and, or products. As pointed out in section 6.4, the collection development policy was changed to make provision for the acquisition of electronic resources. No policy has been formulated that stipulates what

proportion of the budget should be allocated to electronic resources, on the one hand, and what proportion of the budget should be allocated to books and other hard copy documents, on the other. Electronic resources have up to now been paid out of the budget assigned to serials.

6.7.2 Library policies and budget allocations at Unisa Library

ICT equipment in the Unisa Library is provided for in the university's budget and not the library budget. The collection development budget has, therefore, not been expanded to accommodate information technological services and, or products.

According to the responses to the questions about collection development in the questionnaire, Unisa Library's collection development policy is in the process of being changed. During the interview the researcher was informed that the process has been finalised. Policy changes came about mainly because of duplication of print versus online journal formats. A separate collection development policy has been formulated for serials. The previous policy dates from 2001 and included a section on e-resources.

Responses to questions during the interview made it clear that there is no policy that stipulates that a certain proportion of the budget should be allocated to electronic resources and electronic access, on the one hand, and a certain proportion should be allocated to books and other hard copy documents, on the other. The amount varies according to the demand. The print journals are acquired by means of a separate budget. There is a specific budget for e-resources such as databases and e-journals. For instance, in 2009 approximately 40% of the operational

budget was allocated to e-resources. The money is subtracted from the operations budget as electronic resources are not seen as library assets.

The responses from the questionnaire show that the growth in electronic resources is considerable. After enquiring about the reasons for that occurrence in the interview, the researcher was informed that prior to 2008 the Unisa Library had an electronic book budget which catered for the procurement of resources which were identified by the subject librarians. From 2008, with the establishment of the collection development department, Unisa worked differently in identifying needed resources. Groups are formed within colleges including the subject specialist librarian and the collection development specialist. These groups identify gaps and then budget for possible e-resources to fill the gaps.

The responses in respect of financial resources therefore clearly show that collection development policies of both institutions include e-resources. Electronic resources are paid out of the operational budget in the case of Unisa Library and out of the serials budget in UNAM Library's case.

6.8 HUMAN RESOURCES

Academic librarians provide support to members of an academic community including students, researchers and lecturing staff. As academic libraries change, staff will have to acquire new skills and transfer their expertise to the user community.

6.8.1 Staff required to support electronic library systems

As explained in Chapter 2, electronic applications enable libraries to gain access to information via commercial vendors and co-operative networks. In the final section of the questionnaire, questions 13, 14 and 18 dealt with the electronic library systems and the staff employed to support it. If academic libraries develop their own electronic databases specialised staff are required to build and maintain it.

Both the UNAM Library and the Unisa Library obtained the Innovative library software package through an Andrew Mellon Foundation grant. This could imply that librarians in these institutions were well aware of how important a dedicated library system is for its staff and clientele. The fact that both libraries employed a qualified systems librarian stresses this point as well.

In 2007 UNAM Library had two librarians working in the Library Systems section both with degrees in Library and Information Science. In addition one library assistant with a technical diploma worked in that section.

Unisa failed to provide answers to questions in the questionnaire about the personnel situation in its ICT or Systems section of the library. However, responses to questions 16 and 17 in the interview schedule showed that the Unisa Library employed five qualified librarians working in the Library Technology Services department as well as three application support staff. All the librarians held degrees in Library and Information Science and one of them had an additional Microsoft Certified Systems Engineer (MCSE) certificate.

Recruits with a background in the computer or ICT field usually earn a better salary in the private sector. Indeed, both libraries indicated that they experience problems in appointing or recruiting suitably qualified systems librarians although the advertisements for these vacancies stipulate training in the ICT field. This could be due to the fact that the curricula of Library and Information Science courses do not include the possibility of specialising in the ICT field. This implies that the curricula of future Library and Information Science courses should include a module providing instruction in technological skills or allowing for specialisation in library systems work. The necessity for redesigning curricula to keep track of the latest developments in the field of Information Science was also stressed by Ocholla and Bothma (2007:76) in their investigation of the current Library and Information school trends in the region.

6.8.2 Training in the use of information and communications technology

The academic library has an important role to play in promoting the use of information technology as part of its user education or information literacy instruction programmes. As mentioned in Chapter 4, section 4.3.10, information literacy is the skill in finding the information one needs and critically evaluating information content and employing it effectively. Information literacy is the aim of user education which is part of user services. It includes bibliographic instruction, library orientation, instruction in on-line searching and education in media and computer literacy. It also includes training courses which help library users to use the library more effectively.

In question 19 respondents were asked whether training programmes for the use of information technology were offered to users.

At the UNAM Library, training programmes in the use of various types of ICT equipment are done through the Computer Centre on campus. Training sessions for the use of the library catalogue and electronic databases are done by librarians for both staff and students at the beginning of each academic year as well as on special request.

According to the Unisa website, information skills training is given in respect of library skills, mouse and keyboard skills, Internet skills, and so on. These training sessions are face-to-face. During the interview it was mentioned, in answer to question 21 in the schedule that the library offered online training courses but when these became outdated the suitable personnel were not available to upgrade these courses. Unisa is aware of this problem and is in the process of rectifying it.

New developments in the information technology pose a challenge to academic libraries as far as staffing is concerned as the technology moves faster than the knowledge of how to work or use this technology. Academic librarians have the mandate to provide support to members of an academic community. New skills have to be constantly acquired to keep up-to-date and this know-how has to be transferred to users via bibliographic and information literacy programmes.

6.9 FACTORS THAT PROMOTE OR HINDER THE PROVISION OF ACCESS TO INFORMATION

At the end of the questionnaire (questions 29 and 30) respondents were asked to write down any problems or obstacles they have encountered in providing users with access to information, such as problems with information technology or related costs. They could also indicate what

factors promoted the acquisition of electronic resources and the provision of access to electronic services or sources.

As expected, both libraries indicated that they followed worldwide trends in opening up their access to these information resources. The fact that many good electronic resources are still available free- of- charge, means that these new types of material can be introduced without cost. Both libraries also mentioned that they acted on raised expectations and pressure from academics and students for e-resources.

The Unisa Library strives to meet the demands of their distance students and academics as well as to promote online distance learning. The mission of their Open Distance Learning policy is the driving force to adhere to this focused move towards e-resources. This was gleaned from responses to a question during the interview about considerations that initially motivated the library to acquire electronic resources and access to electronic services.

The UNAM Library and Unisa Library have indicated a slow Internet connection, particularly in the initial stages as an obstacle in the development of access to electronic information sources. Both libraries also mentioned the cost of electronic resources as one of the biggest problems in this regard.

As already mentioned in section 6.5.1, UNAM Library has a slow bandwidth. A slow bandwidth is not only frustrating for the user who has to wait for a long time to get any search results but also makes it impossible to buy certain electronic databases that may, for instance, include a large amount of visual data or graphs. This is for instance also the reason that UNAM Library has not bought any e-books as yet. UNAM Library with its very limited and mostly undergraduate student numbers

cannot afford a wide range of databases. UNAM also has a problem with a high proportion of students who are not computer literate. The implication is that much more emphasis must be given to information literacy programmes.

The Unisa Library is also faced with the problem that many of their students do not own a computer with Internet connections that would give them access to these electronic information sources.

Both the Unisa Library and the UNAM Library attempt to keep up with global trends of providing more and more remote information sources by electronic means. However, limited bandwidth and financial resources as well as students that are computer illiterate or cannot afford computers with Internet connections hinder a more vigorous move towards electronic access to even more e-resources.

6.10 SUMMARY

In this chapter the findings of the empirical research on the provision of access to information in two academic libraries in South Africa and Namibia were presented. Their capacity in terms of the human, technical and financial resources required to provide access to information from remote locations was also investigated. The data was collected by means of self-administered questionnaires. This information has been supplemented by qualitative information gathered from participants in face-to-face interviews as well as the use of supporting memoranda, annual reports and information from the web pages of the respective libraries.

A short historical background of both libraries was given in order to outline the conditions under which they operate. The number of users and the composition of the user body also play a role in understanding the findings of the research, for example, why UNAM Library has not acquired any e-books as yet. The University of Namibia was only established in 1992 giving its librarians academic status despite some opposition. The library has been computerized since it was established in 1992 and Internet connections were established in 1996. UNAM Library is the biggest and most sophisticated library in Namibia and attempts to fulfil its institution's mission of creating a conducive environment for learning, innovation, knowledge creation, professional development, functional skills development and development-related competencies within the cultural context of the Namibian people.

The Unisa Library was established in 1946 as the information centre of one of the oldest and largest universities in southern Africa. The mission statement characterises Unisa as a comprehensive, open learning and distance education institution which provides quality general academic and career-focused learning opportunities underpinned by principles of lifelong learning, flexibility and student centeredness.

It was found that both libraries have adapted their collection development policies in recent years to accommodate electronic resources and possible duplication of formats (i.e. print and electronic journals). Their budgets did not necessarily increase to accommodate more e-resources but it appears as if print has in some instances been replaced by electronic material, particularly journals.

Internet workstations are relatively well represented in the UNAM Library because of an agreement with sponsors and because few other student computers are available elsewhere on campus. The recruitment of ICT

knowledgeable staff has proved to be a problem at both libraries but particularly at UNAM Library.

Both libraries are part of the Gaelic consortium. UNAM Library merely uses the consortium to be part of the Innopac User group but has otherwise no real benefit from this arrangement. Its geographical separation from other substantial academic institutions makes consortial co-operation complex. Unisa Library actively participates in its consortial duties by pooling with other libraries in the consortium for purchasing and negotiation power in order to acquire electronic database licences and services. The libraries in the consortium also bargain for affordable training sessions and workshops and system maintenance. In the area of resource sharing, more specifically interlending and document delivery, the Unisa Library is the model in the southern African region.

UNAM Library's participation in adding records to the national bibliography as well as to Sabinet are of an informal nature but it is able to show the creation of a few electronic databases with local content. The Unisa Library follows a strict procedure of adding holdings to the national bibliography. It also develops its own electronic databases and participates in digitisation projects.

The UNAM Library is in a much more fortunate position than other libraries in Namibia and is doing all in its power with the resources at its disposal to reach an acceptable standard as an academic information provider. Developments that have taken place at Unisa Library in terms of resource sharing facilities such as interlending and consortial co-operation and information technological know-how could serve as the ideal towards which UNAM Library could strive in future.

The next and final chapter will include the summary of the findings of the entire study as well as conclusions to be drawn from this and possible recommendations.

CHAPTER 7

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

7.1 INTRODUCTION

The first problem that was investigated in this study is the extent to which academic libraries in southern Africa provide access to information by developing their collections of electronic and paper-based resources and engaging in the sharing of their resources. In addressing this problem the following sub-problems were studied:

- (a) changes in collection development policies and practices to incorporate electronic access to information sources;
- (b) the networking and resource sharing activities that have been initiated;
- (c) the extent to which academic libraries develop their own electronic databases.

The second problem that was investigated concerned the difficulties that academic libraries experience in providing electronic access to information sources in terms of financial, technological and human resources. In this regard the following sub-problems were investigated:

- (a) changes in budget allocations to cover additional costs for electronic resources;
- (b) library resources in respect of information and communications technology (ICT) facilities and equipment and the provision of

- instruction in the use of these technologies;
- (c) the qualifications of systems librarians and their training in the field of ICT.

These research questions were investigated in a literature review and an empirical study.

7.2 PROVISION OF ACCESS TO INFORMATION IN ACADEMIC LIBRARIES IN SOUTHERN AFRICA: LITERATURE REVIEW

Academic libraries develop their own information collections but also provide remote access to information not owned. Based on a survey of the literature, the researcher identified a selection of concepts that underline both access to, and ownership of information resources. The ultimate aim was to develop a theoretical framework incorporating the basic requirements for the provision of access to information.

7.2.1 Theoretical framework

A framework of the most important components for the provision of access to information could include:

- resource sharing including networking with the help of consortia and interlending as well as the prerequisites for resource sharing, such as international standards or protocols for consistency, union catalogues and national bibliographies;
- collection development and management policies that make provision for both access to remote electronic resources and ownership of own information collections;

- adequate library budgets for the financing of paper-based and other media and electronic information resources;
- an information and telecommunications infrastructure that is a prerequisite for electronic connectivity;
- qualified staff to implement and maintain the technological and networking equipment necessary for electronic access, apply the necessary software, digitize information, build electronic databases and educate users in the necessary information literacy skills.

The abovementioned elements have been included in Figure 7.1 below.

Figure 7.1

Basic requirements for the provision of access to information

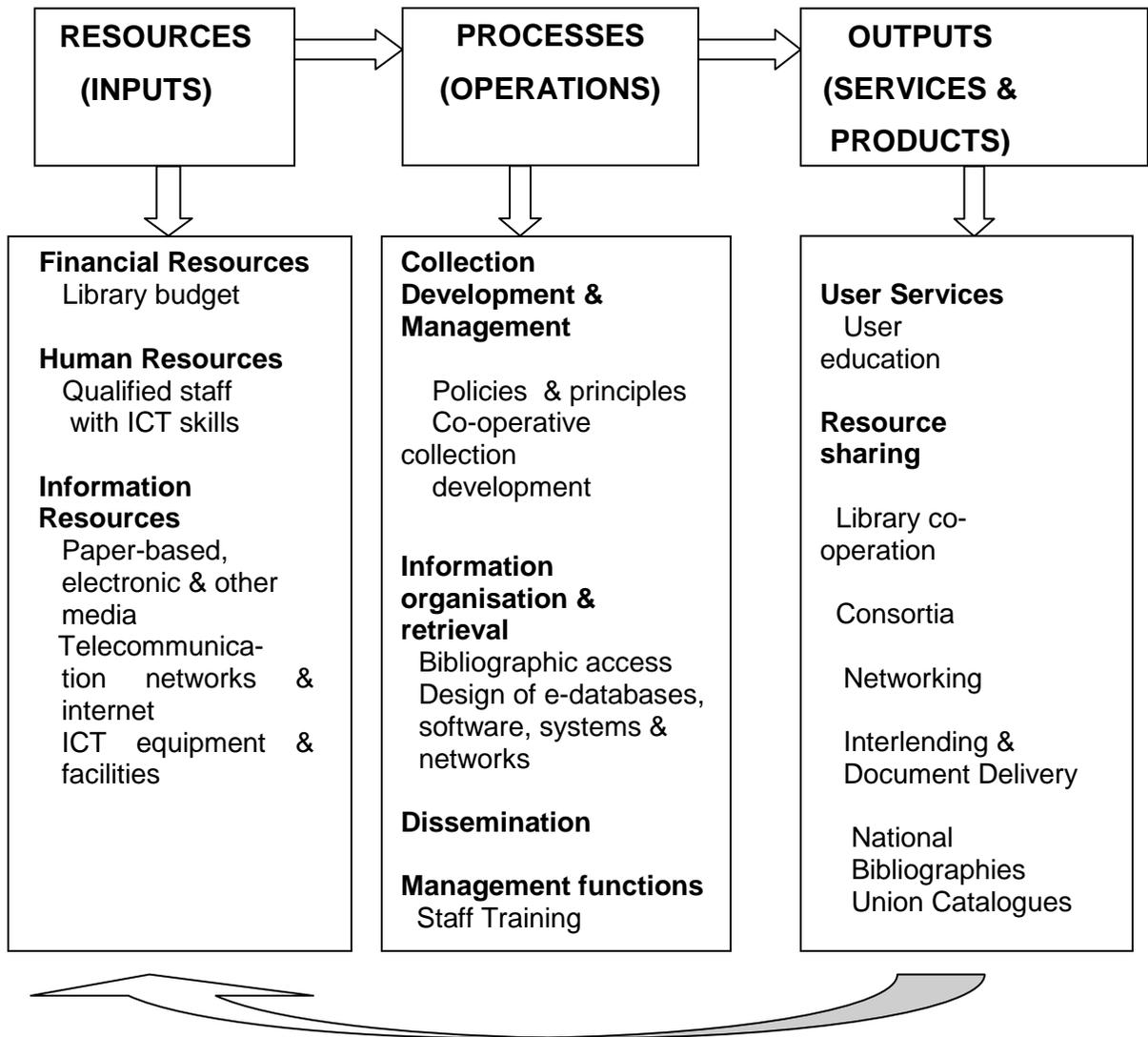


Figure 7.1 shows the necessary resources (or inputs) and processes (operations) required to deliver services (or outputs) to the user. Feedback about the effectiveness of the service will again have an influence on the resources and processes. Hence the arrow pointing from outputs back to inputs. These concepts are borrowed from the systems

approach in the field of Management Science (Smit & Cronje 1998:63). Thus, the library is represented as an information system.

The essential elements shown in the figure are the human, financial and information resources required to provide access to information. The processes are supporting functions, namely, collection development and management, information organisation and retrieval, dissemination and management which are also necessary for providing access to information. Services include the education of users in the use of information technology and sharing resources with other libraries. Products are, in this case, national bibliographies and union catalogues that are made accessible electronically to other libraries that wish to locate and borrow information material that they themselves do not own on behalf of their users. To be able to do this successfully, standards and protocols have to be adhered to for the co-ordination and co-operation of systems and networks.

A literature review on the various methods of acquiring alternative access to information other than through ownership in Africa in general and within the southern African context was conducted. Thus, collection development and management issues as well as different resource sharing methods, the state of ICT development in the southern African region and the resources required to support the provision of access to information not owned by a specific library were addressed.

7.2.2 Resource sharing

Resource sharing in whatever form is the predominant way of gaining access to external information sources to expand one's own collection. This is done through co-operation and networking, interlending activities

and the possible formation of library consortia.

Interlending and document delivery processes are well organized in the southern African region. A positive impact on interlending and document delivery has been made by the existing library consortia which consist mainly of university libraries. Alemna's and Antwi's (2002:234-238) study found that the few functioning consortia in Africa are situated in southern Africa.

There are five well-functioning academic library consortia in South Africa which fulfil the role of co-operation by the purchasing of e-resources as well as common library management software, by establishing union catalogues and the provision of training in the use of ICT. Information networking initiatives that provide access to union catalogues such as the well-functioning Sabinet network contribute to a great extent to resource sharing in the southern African region.

In order to gain remote access to supplement the provision of library collections, there has to be clear information about the holdings of other libraries. This can be done by means of union catalogues as well as national bibliographies. These tools are not well developed in Africa as a whole but both South Africa and Namibia are contributing by adding holdings to their respective bibliographies on a regular basis.

Another prerequisite is the use of standards and protocols. These are necessary tools for computers to communicate, for the connection of networks, for the transferral of data from one location to another and for procedures such as interlending and document delivery. International standards such as the Z39.50 information retrieval protocol, MARC as a bibliographic standard for cataloguing and EDI (electronic document interchange) as well as Ariel for interlending transactions makes access

and delivery of information easier and often seamless. All these elements are prerequisites for resource sharing.

7.2.3 Collection development policies

Today each library attempts to keep a balance between developing their own physical collections and providing remote access to information sources.

The fundamental decisions pertaining to collection management are incorporated in collection development policies. The issue of “access versus ownership” is directly related to these decisions and reflected in these policies. Information and communications technology has influenced the way in which collection management is practiced today. Form is not as important as content in collection development and management decisions. That means that collection managers have to concentrate on the content of the information provided, regardless of the actual format in which the information is packaged.

Academic libraries are in the process of creating electronic or digital libraries where various media including print as well as electronic information sources are represented. Therefore, the issue of access and ownership has to be an essential element in all collection development decisions. Collection development policies have changed so that the management of electronic resources is incorporated as well. Most probably the biggest change occurs when electronic journals replace printed journals.

Several academic libraries in southern Africa have incorporated the acquisition of electronic resources into their collection development

policies. These include the libraries of the universities of Cape Town, Johannesburg, Limpopo, Port Elizabeth, Rhodes, Pretoria, Stellenbosch, and the Witwatersrand.

7.2.4 Financial resources

Library budgets are part of library management and the size of the library budget will determine whether the library has the capacity to acquire sufficient up-to-date information resources, information and communications technological facilities and equipment and to employ qualified trained staff.

7.2.5 Information and communications technology resources

The most basic requirement for access to remote information sources is a functional information telecommunications infrastructure, such as working telephone and data lines as well the necessary requirements for Internet connections. The benefits of electronic access are those of speed, accuracy and efficiency.

Available telecommunications networks seem to be a critical problem in most African countries. Nevertheless, future prospects look promising and many new projects are running to rectify this situation. Internet service providers served all 54 African countries by the end of 2000. The barriers to faster and better ICT connections are mainly the costs of ICT, technical knowledge and expertise, education and language barriers, lack of co-operation and co-ordination, the so-called brain drain of ICT experts and a lack of national information policy formulations to stress the importance of

information transfer. The situation in southern Africa especially South Africa is of the most advanced of the whole continent.

Cellular communications technology is gaining a strong position and is already available in all African countries. Mobile technology may offer a more advantageous development channel than fixed-wired communications technology.

A number of ICT and networking initiatives were instigated in order to create an infrastructure, which can ensure that Africa as a whole and southern Africa in particular can actively participate in the global information society by boosting the Internet infrastructure.

7.2.6 Human resources

Access to the new forms of information resources needs new skills and expertise from library staff. Added technologies and information systems functions are relatively new in the traditional library field and create challenges for staff and management of libraries.

Africa still has few qualified ICT engineers to implement services and maintain hard- or software. The problem is further aggravated by the “brain-drain” of trained individuals to countries overseas. Because of under-funding libraries struggle to attract computer programmers, network administrators or systems analysts. On the other hand no funds are available to use the existing staff and train them with the appropriate skills.

7.3 FINDINGS OF THE EMPIRICAL STUDY

The empirical investigation consisted of case studies of two academic libraries in southern Africa, namely the University of Namibia Library and the University of South Africa Library. Data was collected by means of a self-administered questionnaire and an interview schedule in face-to-face interviews. Information was also gathered from annual reports, websites and policy documents.

7.3.1 Introduction

UNAM Library with its relatively recent history struggled in the beginning to gain recognition from the university management as an important part of the whole academic set-up. This status has changed in recent times and is visible not only in the academic status of professional library staff but also in the budget allocated to the library. Its user population consists mainly of undergraduate students.

The Unisa Library can look back to a much older history. Its mandate evolved into serving students on a distance or correspondence basis and it has an Africa-wide if not global student base. This poses unique challenges to lecturing and library staff who have to serve clientele that in most cases do not stay in the vicinity. The Unisa Library became the first library in southern Africa to computerize part of its catalogue in 1968.

7.3.2 Provision of access to information

Collection development policies and practices, resource sharing initiatives, as well as financial, human and technological resources ensure maximum access to information, be it in paper-based or electronic format.

7.3.2.1 Collection development policies and practices

Collection development policies give an indication of the scope of a library's existing collection, plans for the continuing growth of collections as well as the type of resources the library aims to acquire. Therefore, the collection development policies of the two participating libraries were examined in order to reveal whether improvements in the provision of access to remote information resources are envisaged.

Both UNAM Library and Unisa Library have a collection development policy which has already gone through various revisions to include electronic information resources. UNAM Library's collection development policy was initially created in 1996 with its first and last revision in 2003. The Unisa Library revised its collection development policy in 2009.

At UNAM Library book acquisitions increased at about 3% per annum since it is still developing a basic study collection. The Unisa Library with its already well developed collection showed a recent growth in the print collection of about 1%. The acquisition of serials at UNAM Library showed a non-growth. The increase in the acquisition of serials at Unisa Library was considerable. Although UNAM Library acquires e-journal databases, its journal growth has not been significant over the past few years because of a lack of adequate financing. Furthermore, the Library's

financial situation does not allow for the addition of e-books to its collection. At Unisa Library with its goal of having a one-hundred percent online journal collection by the end of 2012, the growth of electronic journals has been extensive. Nevertheless, physical ownership of information resources in the form of books, hard copies of print journals and audio-visual material is still the main information source in both academic libraries investigated.

The development of “home own” or in-house electronic databases and the digitisation of certain collections broadens users’ access to the library’s own collection, particularly to those patrons who are not part of its user community.

UNAM Library’s electronic databases showed an increase and so did its “home grown” in-house electronic databases. Unisa Library puts an effort into the digitisation of items held by the library for preservation purposes and this is also spelled out in its collection development policy.

Van Zijl (2005:258-264, 267-283) also found in her study conducted at two universities of technology that collection development policies and standards in academic libraries in southern African should be upgraded and adapted in order to adjust to the new information environment. She recommends that “academic libraries should gradually move towards the just-in-time model” (Van Zijl (2005: 260) but that important research publications still be acquired in print format. She endorses a balance of different formats which have to be revisited regularly.

The abovementioned findings show that collection development policies play a role in planning the size of collections and identifying formats.

7.3.2.2 Resource sharing

Each academic library participates in resource sharing by means of interlending and document supply. UNAM Library mainly shares its resources between its own central library and branch libraries. It also shares its resources with other libraries within Namibia's borders. However, due to transport and postal constraints the UNAM Library shares limited resources outside its own borders. Unisa Library actively participates in interlending and document supply activities because of its well-developed collection as well as its distance teaching mandate.

As pointed out in section 7.2.1.1, a basic prerequisite for resource sharing is that libraries should add their holdings to a national bibliography and a union catalogue. The UNAM Library adds holdings to its Namibian National Bibliography as well as Sabinet only on an irregular basis. The reason for this state of affairs is because of technical problems. Holdings can only be added manually because the different library software used cannot communicate with each other. Unisa Library adds its holdings to the South African National Bibliography on a daily basis.

Both of the two participating libraries are part of the Gaelic consortium. UNAM is a silent member as it only benefitted originally from financial support for its library software. Unisa is a full member with shared buying power and use of electronic databases, training sessions and workshops. Each library builds its own electronic databases. UNAM Library has had access to e-resources since 2003. Unisa Library has had access to e-resources since 1999.

7.3.3 Financial, human and information communications and technological resources

Access to information and, more significantly, electronic access to information cannot be successful if one or more of the three resources, namely financial, human or technological resources are absent.

7.3.3.1 Financial resources

The research has shown that library budgets have not grown comparatively in order to accommodate electronic resources or equipment. The onus is, therefore, on the library to shuffle the book budget in such a way that the percentage of print material acquired decreases while increasingly a greater percentage of the budget is spent on electronic databases. This is the case in both the libraries in question. At the moment very often new technologies are bought via the budget of the university as a whole. This process makes it more difficult to obtain money for library purposes because all of the faculties and departments petition for money for themselves and the library has to compete for funds. Electronic resources are paid out of the operational budget in the case of Unisa Library and out of the serials budget in UNAM Library's case.

Although it was not the aim of this study to determine whether electronic information resources are more expensive or cheaper than print resources, it is clear that electronic access is a costly endeavor. This was also reported by Petrick (2002 in Van Zijl 2005:160) who found that the additional expenses for e-resources do not necessarily mean less costs for print and other media.

7.3.3.2 Information communications and technological resources

Accessibility of e-resources is only possible if ICT equipment such as computers, servers, video machines and overhead projectors together with the necessary telecommunications support and requirements for Internet connections are at hand. Each academic library bought information technological equipment through the university's overall budget.

The amount of workstations available at UNAM Library in 2008 for users is one workstation for every fifty students (50:1). Unisa Library has 40 workstations which would give a ratio of one workstation for every 5 900 students (5900:1) but it should be borne in mind that Unisa mainly caters for distant students. UNAM Library provides a relatively large number of computers for accessing the Internet and making use of word processing software for two reasons. Firstly, there are no other well-stocked computer laboratories or facilities on campus for student use. Secondly, a loan from the African Development Bank (ADB) included this type of facility in its provisions.

The Unisa Library provides access to the Internet, databases and OPAC by means of computer facilities within the library on the main campus. These facilities are strictly controlled and are for study purposes only. The Sunnyside Campus (Learner Commons) has several computers that can be used by students to type and print their assignments, and gain access to the Internet, databases and the OPAC. In other words, the typing and printing of assignments is not allowed at the Main Campus facilities. The aim is to provide a Learner Commons at each regional office.

An advantage of being a member of a consortium is that the consortia's

collective buying power ensures better prices paid for electronic databases. Unisa Library is such a consortia library. UNAM Library benefitted solely from the initial financing of the library software. The fact that UNAM Library is geographically remote from the other consortia members makes a real partnership complicated.

It would appear as if the amount of technological resources and equipment owned by each library is sufficient for each library's unique requirements. The bandwidth which determines the speed and capabilities of the Internet is important when it comes to providing access to electronic information resources. The bandwidth at UNAM Library is 5 MB. At Unisa Library the bandwidth is of a high speed and capacity, namely 28 MB.

7.3.3.3 *Human resources*

Without people who are trained and equipped with the necessary skills to make use of information and communications technology, access to relevant information will be hampered and sometimes even impossible. Academic libraries are usually equipped with adequately trained staff but there is a problem relating to the recruitment of professional library staff to fill positions in the new information technological fields. It is difficult to find personnel that are both trained in librarianship as well as in computer skills. This also applies to the two academic libraries in the study. The skills of professional library staff should be developed and the necessity for a change of library school curricula has been emphasized by Ocholla & Bothma (2007). Library schools should, therefore, re-design curricula so that it includes training of qualified systems librarians.

7.4 THE IMPLICATIONS OF THE STUDY IN RESPECT OF THE ISSUE OF ACCESS OR OWNERSHIP

The ultimate purpose of the study was to find out if academic libraries in southern Africa have changed their policies in recent years in so far as ownership of, or access to information resources is concerned, and to investigate the extent to which they provide electronic access to information, develop their collections, and engage in the sharing of their resources.

The findings in regard to collection development, resource sharing, ICT facilities and equipment and know-how, budgets and e-resources discussed above appear to show that the provision of access to information is a main concern of academic libraries. This is revealed by the efforts shown by both libraries in changing their collection development policies in recent years in order to include electronic resources. Electronic resources now form a significant part of their collection growth. The importance attached to the acquisition of information and communications technological equipment, the acquisition of software and databases, the design of in-house electronic databases and the increase in resource sharing activities also bears proof of attempts to extend information access to library users.

Despite all the efforts to increase the provision of access to electronic information, the physical ownership of information resources in the form of books, print journals and audio-visual material is still the main information source in the academic libraries investigated. Budgets have not increased in order to accommodate more e-resources but parts of the budgets are re-routed for the acquisition of electronic information resources. Preference is still given to paper-based or printed information sources.

Because of its remote locality, the UNAM Library has to deal with its problems in isolation with little collegial support. It is difficult to solve information technological problems with library staff that are not knowledgeable about the field or are inexperienced in that area of expertise.

The Unisa Library is in the fortunate position of having good financial backing for its operations and collections. A well-educated and specialized staff contingent is able to give the necessary back-up services to maximize information access. Consortial and collegial support is in close proximity. The Internet speed and bandwidth is excellent. Other libraries in the region can regard the Unisa Library as the ideal towards which they should strive, particularly in the areas of resource sharing via interlending and document delivery and consortial and collegial co-operation.

7.5 RECOMMENDATIONS

Based on the findings of this study, the following recommendations are put forward that could be made applicable to academic libraries in Namibia and other southern African countries.

(a) Collection development policies

A set of collection development policy guidelines addressing the choice of format(s) when more than one format (i.e. print or electronic) is available should be developed. Collection development policies could incorporate instructions on agreed-upon decisions about what format to choose in particular instances.

(b) Resource sharing

The possibility of a consortium within Namibia's own borders should be re-considered to improve resource sharing. This would require either a union catalogue or an improved and more up-to-date national bibliography. Extra finances, additional and more modern ICT equipment and most probably extra staff would be necessary. The UNAM Library as well as other academic libraries in southern Africa must promote instructions on how to use existing databases for users and staff as part of user education programmes so that the money spent on these databases leads to the use of these information resources.

(c) Human resources

Staff development and training in the southern African region has to be adapted to face the new challenges of the changed library and information services field. It is still difficult to find qualified systems librarians with both an education in the field of Library and Information Science as well as knowledge of the systems or information technological field. Library schools should re-design curricula which would enable library students to train as qualified systems librarians. Curriculum improvements in library schools are necessary to prepare new professionals for the digital environment.

In-service training in information systems and in the application of relevant software and the design of electronic databases as well as the utilization thereof should be offered to current library personnel.

(d) Information policies

Countries in southern Africa should formulate their own national information policies in order to stipulate information as an important national resource crucial for effective decision-making, development, education and recreation. Policy-makers have to consider what their nation's information needs are, how to acquire it and what kind of information technology to employ. Information has to gain a place next to critical priorities such as health, agriculture and food. Although the perception of policy makers should change their attitudes towards information, namely, that information is essential; this has not been the case in some countries. It may be important for the UNAM Library to support the National Library in this regard and it should also contribute to drawing up an information policy for the country as a whole.

The National Library's information policy should stress the importance of information as a tool for national development. Academic libraries in Namibia also have an important contribution to make in educating the youth in this regard.

(e) Financial resources

The main challenge for the UNAM Library is the improved management of electronic resources starting with bargaining for more financial resources to enable the library to purchase ICT facilities and equipment, to hire the qualified staff required to maintain these resources and to provide the training programmes required for staff and users to use these technologies.

7.6 FURTHER RESEARCH

Current research that could determine real cost comparisons of print and online information would assist academic libraries in lobbying for an expansion in the library budget for more online resources. Some research has already been done on this topic but as the demand for e-resources rises, the price structures of information providers tend to change and greater competition in the market could lead to different fee arrangements.

Another theme that could be investigated is the issue of copyright in respect of electronic resources and what cost and legal implications it has on libraries. This is closely linked to the availability of full text articles in electronic format and in most cases the reason put forward by publishers as justification for the high prices of electronic products. It would be an important topic if cost analysis is being investigated.

Although users' preferences for print or electronic resources have been investigated, this area of research requires further investigation in order to determine whether academic libraries could function with less and less print resources. The question is, whether access to information is the only goal for users.

The extent to which other types of libraries, for example, public and community libraries in developing countries, or in rural areas in more developed countries, cope with providing access to information in paper-based and, or electronic formats could be a further area for investigation. Can libraries that do not even have enough print resources think about acquiring e-resources?

7.7 CONCLUSION

In this chapter a summary of the literature study and the empirical findings in respect of the research questions set out in the first chapter are presented.

Provision of access to information is an important function of any library. The results show that academic libraries in southern Africa attempt to keep up with international trends by supplementing their physical collections with resources in electronic format. This is being done by channelling a higher percentage of the budget to electronic resources, by building their own databases and trying to network with fellow institutions. The issue of the provision of access to information and ownership of information sources is linked to collection development, ICT infrastructure and implementation, resource sharing and staff qualifications and training. Libraries continue to wrestle with attempting to achieve a balance between providing access to local physical collections and information in electronic format.

The empirical research attempted to determine the current state of ICT development in two academic libraries in southern Africa and the adjustments in the provision of access to information they have made. It was found that collection development policies have changed to incorporate electronic resources, that the libraries are part of a consortium and are active partners in resource sharing, and contribute to both their national bibliographies and union catalogues. The UNAM Library as well as the Unisa Library are typical examples of academic libraries in southern Africa and the study shows that each of these libraries attempts to satisfy the information needs of their clients with the resources at their disposal.

This study revealed that academic libraries are increasingly trying to gain increased and improved access to information resources. The capacities of academic libraries in southern Africa differ in terms of their technological, human and financial resources. South African academic libraries seem to be in the fortunate position of having well stocked collections, qualified staff members with ICT expertise, adequate budgets with which to work and connections to modern state of the art electronic equipment.

UNAM Library and other academic libraries in southern Africa cater for their own unique body of users. Nevertheless, it is possible for these libraries to find answers to the problems they face in respect of providing access to information for their users by taking into account the ways in which well-established academic libraries in South Africa, such as Unisa Library, approach the challenges they have faced in this respect.

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APPENDIX A – Questionnaire coverletter

Questionnaire: Access and ownership in the southern African context

I am a librarian at the University of Namibia Library in Windhoek, Namibia and currently undertaking research on the above-mentioned subject in order to receive my M.Inf. (Masters in Information Science) through the University of South Africa (UNISA).

The objective of this research is to learn to what extent academic libraries in the southern African region are addressing access to information sources not available in their own collection. This questionnaire thus intends to investigate at the three chosen university libraries of Botswana, Namibia and the University of South Africa (UNISA) if the necessary financial, human and technological resources to provide access to remote information sources are available.

Questions were aimed at finding out how and in what direction, library collections have grown, whether there was an increase in audio, visual and electronic equipment, the possible budget increase, resource sharing activities as well as whether any information technological progress has taken place over the last three years

I would be grateful if you I am a librarian at the University of Namibia Library in Windhoek, Namibia and currently undertaking research on the above-mentioned subject in order to receive my M.Inf. (Masters in Information Science) through the University of South Africa (UNISA).

The objective of this research is to learn to what extent academic libraries in the southern African region are addressing access to information sources not available in their own could fill out the questionnaire and send it back to me by the Specialists in certain areas are allowed to fill in the various sections of the questionnaire, e.g. the Interlending librarian, Head User services and/or Systems librarian. If you are interested in the summary of the results, I will be honoured to send it to you as soon as my research is completed.

Should there be any enquiries about the questionnaire do not hesitate to contact me at:

Tel. (+264)–61–206 3870 (w)

Fax (+264)-61-206 3876

e-mail: ibuchholz@unam.na

My sincere thanks for your effort.

Best wishes

I. Buchholz

APPENDIX B – Questionnaire UNAM

Access and ownership in a southern African context

Please indicate your answers to each question by writing in the spaces or blocks provided.

NAME OF UNIVERSITY : University of Namibia Library

NAME OF UNIVERSITY

LIBRARIAN : Ms Ellen Namhila

**POSTAL ADDRESS : P/Bag 13301
Windhoek
Namibia**

TELEPHONE : +264 61 2063874

FAX : +264 61 206 3876

E-MAIL : enamhila@unam.na

SECTION A: RESOURCES: COLLECTIONS AND EQUIPMENT

1. Indicate the number of potential library users in each group listed below in the appropriate block for each year (please give numbers; estimates will do)

Number of users per year

	2005	2006	2007
Academic staff	330	336	340
Administrative staff	320	324	
Undergraduate students	5368	5699	6256
Postgraduate students	60	365	378
Distant education students	435	533	634

2. Indicate the number of items in your collection in the appropriate block for each year (give numbers please)

Size of collection per year

	2005	2006	2007
Books	162046	166715	172025
Audio- and audiovisual media (e.g. Video, DVD, Cassettes)	230 CD 380 Video		
Serials or journals (print)	257	289	290
Electronic resources (e.g. CD-ROM, Online or e-journals)	75 356 videos	107 373 videos	133 388 videos

3. Indicate the number of items of equipment for users only (give numbers please)

Size of equipment per year

EQUIPMENT for users	2005	2006	2007
Computers with Internet connection		45	150
Wordprocessing stations	120	120	150
Printing facilities	21	19	21
Other: specify (e.g. DVD players) (a) DVD (b) Video machines (c) CD-towers (d) Laptops ...		Servers 8 PC staff 42 Laptops 2 Printers 26 Scanners 4 Barcode scanners 8	DVD 1 Video machines 2 CD-towers 1 Servers 9 PC staff 42 Laptops 2 Printers 26 Scanners 4 Hand-held barcode scanners 8 Overhead projectors 2

SECTION B: RESOURCE SHARING

4. Indicate the number of items received on interlibrary loans in each year

INTERLIBRARY LOANS	2005	2006	2007
Borrowed from within own country			
Borrowed from within SADC	28		26
Borrowed from international sources	0	0	0

5. Indicate the number of items sent on interlibrary loans in each year

INTERLIBRARY LOANS	2005	2006	2007
Loaned within own country	194		21
Loaned within Africa	0	0	0
Loaned internationally	0	0	0

6. Indicate the number of items received through document delivery in each year

INTERLIBRARY LOANS	2005	2006	2007
Borrowed from within country	31		57
Borrowed from within SADC	54		57
Borrowed from international sources	0	0	0

7. Indicate the number of items sent through document delivery in each year

Loaned within own country			
Loaned within Africa			
Loaned internationally			

8. Does your library send its holdings to a centralized national database for compiling the national bibliography (e.g. SANB)?

Yes	X
No	
Other (write in space provided)	
Namibian National Bibliography Sabinet (once-off)	

9. If your answer to question 8 was “yes” please indicate how frequently holdings are submitted

Weekly	
Monthly	
Bi-monthly	
Bi-annually	
Other (write in space provided)	
Irregular	

10. Does the library manage an institutional or regional repository for local publications?

Institutional repository	X
Regional repository	

11. Is your library part of a library consortium?

Yes	X
No	

12. If yes, did you gain any benefits by being part of a consortium? Mark any applicable block/s

Access to electronic databases	
---------------------------------------	--

Interlending free of charge	
Shared cataloguing	
Cooperative collection development	
Linkage of library catalogues	
Other (specify) (a) Innopac User Group (b) (c)	

**SECTION C: INFORMATION TECHNOLOGY, INFRASTRUCTURE,
BUDGET, STAFF TRAINING AND POLICIES**

13. Indicate whether you have a dedicated library system (i.e. especially designed for libraries) or is the system only one of the modules of a whole university network?

Dedicated	X
Module	
Other (write in space provided)	

14. Indicate whether your electronic library system was donated, bought on tender, or by aid of a grant or any other means?

Donated	
Bought on tender	
Obtained by aid or grant	X
Other (write in space provided)	

15. Indicate whether your collection development budget within 2005-2007 has been expanded to accommodate Information and Communications Technology (ICTC) services and products?

Yes it has been expanded	
No it has not been expanded	X
Other (write in space provided)	
Internal decision to give greater amount to e-	

resources	
-----------	--

16. What proportion or percentage of your total library budget is allocated to ICT maintenance and services (rough estimates will do)?

Percentage of budget for ICT	2005	2006	2007
%			

17. Is ICT equipment (like computers) subtracted from the library's or the university's budget?

Library budget	
Univ. budget	X
Combination	
Other (write in space provided): Grant Fotim/ADB	

18. Indicate the qualifications of the person/persons working in the ICT/Systems section of the library? Mark any applicable block(s) and indicate the number of persons

Qualification	No. of staff members
Degree in Library/Information	2

Science	
Degree in Computer Science	
Technical diploma	1
Other (specify)	

19. Indicate whether you offer training programmes to users and staff for the use of various ICT equipment and/or services? Mark any applicable block(s)

Staff training offered	X
User training offered	X
Training to staff only offered on request	
Training to users only offered on request	
Other training (write in space provided) (a) (b) (c)	

20. Indicate whether you have a policy that makes provision for the acquisition of e-resources.

Yes	X
No	
Other	

21. If your answer to question 20 was “yes” indicate whether it is part of the collection development policy or is it contained in a separate document?

Collection development policy	X
Separate e-resources document	

22. How would you rate the speed and status of Internet connectivity for the library? Mark only one block

Very fast and reliable	
Quite fast and reliable	
Acceptable speed and reliability	X
Generally low speed infringe on the usefulness of the connectivity	
Slow network speed and reliability are real	

barriers to connectivity	
--------------------------	--

23. What is the bandwidth of the library's Internet connection?

5 MB dedication

24. When did the library begin offering access to e-resources? 1991

25. Has the library produced any database/s of local content? Give details

- Online full text examination papers
- Newspaper clippings
- Theses and dissertation of UNAM staff/students
- Bibliography of UNAM publications
- Pamphlets
- Nam journals
- HIV/Aids database

26. Has the library digitized the full text of local publication or local collections? Give details

- UNIN photos
- National register of theses and dissertations
- NDJ (Namibian Development Journal)

27. Which electronic services have been developed or are in use by the library for its users? Mark applicable block(s)

OPAC	X
Library website (give URL)	http://library.unam.na
SDI (Selected dissemination of information)	

Single search tool for all resources (physical, in-house, regional or digital)	
Online training packages	
Others (specify)	

28. Is Internet free for users or fee-based?

Free Internet access	X
Fee-based Internet access	
Other	

29. What were the positive factors that promoted access (as opposed to ownership) of information sources in your library?

Free access or access at very reduced costs to certain databases because of membership through the consortium and SANLIC

30. What were the obstacles (e.g. problems in document delivery, resource sharing, information technology) in the development of a greater ratio of access (as opposed to ownership) of information sources in your library?

Mainly financial factors – limited budget and high cost of electronic resources. Undergraduate users who are computer illiterate and not so dependent on research databases.

Thanks very much for your input.

APPENDIX C – Questionnaire Unisa

Collection development, resource sharing and ICT facilities in academic libraries in southern Africa

Please indicate your answers to each question by writing in the spaces or blocks provided.

NAME OF UNIVERSITY	: University of South Africa (Unisa) _____
NAME OF UNIVERSITY	
LIBRARIAN	: Dr Buhle Mbambo-Thata _____
POSTAL ADDRESS	: PO Box 292 _____
	UNISA _____
	0003 _____
TELEPHONE	: +27-12-429-3131 _____
FAX	: +27-12-429-2925 _____
E-MAIL	: mbambtb@unisa.ac.za _____

SECTION A: RESOURCES: COLLECTIONS AND EQUIPMENT

1. Indicate the number of library users in each group listed below in the appropriate block for each year (please give numbers; estimates will do)

Number of users per year

	2005	2006	2007
Academic staff	1297	1314	1300
Administrative staff	2888	2793	2764
Full time undergraduate students	0	0	0
Full time postgraduate students	0	0	0
Distance education undergraduate students	196 283	2068 29	23891 0
Distance education postgraduate students	21 873	23 344	24 967

NOTE: All Unisa staff and registered students are registered as library users, but not all utilize the Library's services.

2. Indicate the number of items in your collection in the appropriate block for each year (give numbers please)

Size of collection per year

	2005	2006	2007
Books	1 586471	1 605 761	1 586 439
Audio- and audiovisual media (e.g. Video, DVD,	348 613	348 793	297 834

Cassettes)			
Serials or journals (print)	280 214	289 681	349 797
Electronic resources (e.g. CD-ROM, Online or e-journals)	ejournals: not available databases: 211	ejournals: not available databases: 216	ejournals: 32 000 databases: 245

3. Indicate the number of items of equipment for users only (give numbers please)

Size of equipment per year

EQUIPMENT FOR USERS	2005	2006	2007
Computers with Internet connection			
Wordprocessing stations	0	0	0
Printing facilities			
Other: specify (e.g. DVD players)			
(a)			
(b)			
(c)			
(d)			

SECTION B: RESOURCE SHARING

4. Indicate the number of items (i.e. books) received (borrowed) on interlibrary loans in each year

INTERLIBRARY LOANS	2005	2006	2007
Borrowed from within own country	1 800	1 834	1 737
Borrowed from within SADC	not available	not available	not available
Borrowed from international sources	275	316	146

5. Indicate the number of items (i.e. books) sent on interlibrary loans in each year

INTERLIBRARY LOANS	2005	2006	2007
Loaned within own country	8 793	7 950	7 978
Loaned within Africa	not available	not available	not available
Loaned internationally	226	177	273

6. Indicate the number of items (i.e. articles) received through document delivery in each year

INTERLIBRARY LOANS	2005	2006	2007
Borrowed from within country	3 713	2 783	975
Borrowed from within SADC	not available	not available	not available
Borrowed from international sources	3 851	2 920	1 089

7. Indicate the number of items (i.e. articles) sent through document delivery in each year

Loaned within own country	7 132	6 913	6 423
Loaned within Africa	not available	not available	not available
Loaned internationally	317	402	469

8. Does your library send its holdings to a centralized national database for compiling the national bibliography (e.g. SANB)?

Yes	X
No	
Other (write in space provided)	

9. If your answer to question 8 was “yes” please indicate how frequently holdings are submitted

Weekly	
Monthly	
Bi-monthly	
Bi-annually	
Other (write in space provided)	
Daily	

10. Does the library manage an institutional or regional repository for local publications?

	Yes	No
Institutional repository	X	
Regional repository	X	

11. Is your library part of a library consortium? If not, go to question 13.

Yes	X
No	

12. If yes, did you gain any benefits by being part of a consortium? Mark any applicable block/s

Access to electronic databases	X
Interlending free of charge	
Shared cataloguing	X
Cooperative collection	

development	
Linkage of library catalogues	
Other (specify)	
(d) Consortium purchasing agreements	X
(e) Consortium discounts on e-resources	X
(f)	

**SECTION C: INFORMATION TECHNOLOGY, INFRASTRUCTURE, BUDGET,
STAFF TRAINING AND POLICIES**

13. Indicate whether you have a dedicated library system (i.e. especially designed for libraries) or is the system only one of the modules of a whole university network?

Dedicated	X
Module	
Other (write in space provided)	
More space for responses	
(a)	
(b)	
(c)	

14. Indicate whether your electronic library system was donated, bought on tender, or obtained by aid of a grant or any other means?

Donated	
Bought on tender	
Obtained by aid or grant	X
Other (write in space provided)	

15. Indicate whether your collection development budget within 2005-2007 has been expanded to accommodate Information and Communications Technology (ICT) services and products?

Yes it has been expanded	
No it has not been expanded	X
Other (write in space provided)	

16. What proportion or percentage of your total library budget is allocated to maintenance and services (rough estimates will do)?

Percentage of budget for ICT	2005	2006	2007
%			

17. Is ICT equipment (e.g. computers) subtracted from the library's or the university's budget?

Library budget	
University budget	X
Combination	
Other (write in space provided)	

18. Indicate the qualifications of the person/persons responsible for ICT/Systems? Mark any applicable block(s)

Type of qualification of ICT personnel	No. of staff members
Degree in Library/Information Science	
Degree in Computer Science	
Technical diploma	
Other (specify)	

19. Indicate whether you offer training programmes to users and/or staff for the use of various ICT equipment and/or services? Mark all applicable block(s)

Staff training offered	X
User training offered	X
Training to staff only offered on request	
Training to users only offered on request	

20. Indicate whether you have a policy that makes provision for the acquisition of e-resources.

Yes	
No	
Other - process	X

21. If your answer to question 20 was “yes” indicate whether it is part of the collection development policy or is it contained in a separate document? If your answer is “no”, continue with question 23.

Collection development policy	X
Separate e-resources document	

22. How would you rate the speed and status of Internet connectivity for the library?
Mark only one block

Very fast and reliable	X
Quite fast and reliable	
Acceptable speed and reliability	
Generally low speed infringe on the usefulness of the connectivity	
Slow network speed and reliability are real barriers to connectivity	

23. What is the bandwidth of the library’s Internet connection? _____

24. When did the library begin offering access to e-resources? 1999 _____

25. Has the library produced any database/s of local content? Give details

- Index to South African Literature on Library and Information Science
- A Select Online Bibliography of South African History (SOBiBSAH)

26. Has the library digitized the full text of local publication or local collections? Give details

- Arthur Nortjé Papers

- CM Doke Collection of Personal Letters from MK Gandhi

27. Which electronic services have been developed or are in use by the library for its users? Mark applicable block(s)

OPAC	X
Library website (give URL)	http://www.unisa.ac.za/default.asp?Cmd=ViewContent&ContentID=17
SDI (Selected dissemination of information)	
Single search tool for all resources (physical, in-house, regional or digital)	
Online training packages	
Others (specify)	

28. Is Internet free for users or fee-based?

Free Internet access	
Fee-based Internet access	

Other - limited free workstations for walk- in users	X
--	----------

29. What were the factors that promoted the acquisition of electronic resources and access to electronic services?

- World-wide trends

30. What were the obstacles (e.g. lack of information technology) in the development of access to electronic information sources in your library?

- Insufficient Internet bandwidth
- Remote students without Internets access
- Cost of e-resources

Thanks very much for your input. Please, remember the return date of 10th July 2008

APPENDIX D – Interview schedule UNAM

INTERVIEW : UNAM

A. Collection development and management

1. How does the collection development policy make provision for the acquisition of e-resources?

There exists a section on Electronic resources in the Collection development policy which mainly gives a definition of the term. It however also mentions that the physical carriers as well as the access methods for electronic resources will change quickly and that the library thus has to maintain hardware and network infrastructure which are necessary to make access possible.

2. UNAM library does not buy any e-books at this stage? What is the reason?

The reasons for not buying e-books are that the Internet connection is slow, the branch libraries were not connected to the Internet at all until 2007 and because of financial factors. E-books have until now not been mentioned in the collection development policy.

3. Is there a policy in respect of the number of books acquired per number of registered student?

No there is not. The acquisitions policy gives guidelines for prescribed material to be bought, namely one copy for every 20 students with a maximum of five copies for one specific title.

4. Is there a policy that stipulates that a certain proportion of the budget should be allocated to electronic resources and electronic access and a certain percentage should be allocated to books and other hard copy documents?

No there is not. Electronic resources are usually paid for out of the serials budget which is a different budget to the books budget. No decision is made yet from which budgets e-books will be paid from.

5. What is the reason for the poor periodical growth over the last couple of years?

The main reason is that it is already a problem to pay for renewals of the existing journal subscriptions as the cost of journals continue to escalate on the average of approximately twenty percent (20%) per annum. In contrast the book and periodicals budgets for the library have not increased notably.

6. What were the obstacles (e.g. lack of information technology) that hindered the development of access to electronic information sources in your library?

UNAM Library with its very limited and mostly undergraduate student numbers cannot afford a wide range of databases. UNAM also has a problem with a high proportion of students that are computer illiterate.

B. Interlending and document delivery

7. According to the responses to the previous questionnaire, UNAM library adds their holdings to Sabinet on an irregular basis. Is there a reason for this?

There was a once-off batches upload. Thereafter the Urica library system which was previously used did not facilitate the uploading of holdings in a seamless way. With the introduction of Millennium this was made possible but the uploading of holdings was never integrated into the workflow in the event of ordering or cataloguing.

8. According to the responses to the earlier questionnaire there is a fairly low volume of interlending and document delivery activities. Could you explain why this is so as one would expect that the UNAM library would depend much more on the borrowing of material to satisfy their user's needs?

The reasons for a non-functioning interlending scheme may be due to the non-existence of a working national resource sharing network, poor state of the national bibliography and costs involved. Uncommitted and ill-trained staff as well as poor postal services between South Africa and Namibia and problems with customs regulations.

9. The interlending figures for transaction within Namibia are much higher than with South Africa. Apart from the question of distance, accessibility and convenience is there any other reason why this is the case?

The branch and centre libraries also use UNAM transport which means that shipment is not dependent on the poor national postal services. Personal messengers are utilized for interlending and document delivery operations between local libraries.

10. Why did UNAM decide to join the Gaelic consortium?

This development took place because the Mellon Foundation showed interest in financially supporting the installation of an integrated library system such as Millennium with the intention of focusing on academic library consortia rather than individual libraries. The suggestion was to form a consortium with the Library of the Polytechnic of Namibia and the National Library of Namibia. A meeting with prospective Namibian partners revealed that a proposal of this nature touched on unexplored ground and that much more time and discussion would be required to come to a decision of any kind.

11. In what way does UNAM benefit from its membership of Gaelic?

The only advantage UNAM gained through the consortium is that it became part of the Innopac User Group (IUG) and the initial financing of the Millennium system and maintenance support for the first three years.

12. What problems are experienced, if any, in respect of UNAM's membership to Gaelic?

UNAM is actually only a consortium member on paper. There are no problems involved but except for the library software and personal contact with other Gaelic librarians UNAM does not really benefit like the other Gaelic libraries do.

C. Staff

13. How many qualified systems librarians does the library employ?

In 2007 UNAM had two librarians working in that section both with degrees in Library and Information Science. In addition one library assistant with a technical diploma worked in that section.

14. What kind of qualifications do/es the Systems librarian/s have? (e.g. Degree in Library/Information Science; Degree in Computer Science, Technical diploma etc.)

See above

15. Does the library experience problems in appointing or recruiting suitably qualified systems librarians?

Yes very much so. There do not exist any librarians in the country at the moment except the one working there at the moment that has both library and computer skills.

D. ICT equipment

16. The amount of computers with Internet connection is considerable for the size of the university. Were these machines bought via a donation, the library budget or UNAM budget? Why has UNAM invested so heavily in computer equipment?

These computers were bought via a soft loan that the University received from the African Development Bank (ADB) and were part and parcel of an agreement which included a new library building for UNAM as well. The reason that the library invested so heavily in computer equipment was mainly because there was sufficient space could be allocated in the new building for the electronic equipment. The loan of the African Development Bank for the new library building stipulated a certain amount of computers for users to be housed in that building. On the other hand the University does not have a computer centre or laboratory to house an adequate amount of workstations for students to use.

17. Does the library have an ICT policy in place? If so does it address financial, human and technological resource implications also for the library?

The University of Namibia has an ICT policy in place which was published in 2003. A chapter is dedicated to the Library and Information Services which include a description of the Information and Learning Resource Centre (library) concept and its mandate to achieve effective support in the teaching, learning, research and administrative activities of the University. A reliable ICT structure, connectivity as well as competent library staff are a prerequisite for its success

APPENDIX E – Interview schedule Unisa

INTERVIEW : UNISA

A. Collection development and management

1. According to the responses to the earlier questionnaire the size of the book collection was as follows: In 2005 there were 8 books per user available; 7.8 books per user in 2006 and even less namely 6.6 books in 2007. Unisa had a book collection growth of 1.2% in both of the years 2006 and 2007. Why did the percentage of books per user “decrease” in 2007?

The student numbers have grown immensely especially after the university mergers in 2004 and that should be the explanation of the “decrease” in book-student ratio.

Can one assume that a decrease in the number of book acquisitions is a reflection of an increase in the provision of electronic resources?

No books are still the main information source bought.

Is there a policy in respect of books per number of registered students?

No policy about books per number of students except guidelines for acquisitions in study collection.

2. The increase in the acquisition of serial titles at Unisa was considerable namely 3.3% from 2005 to 2006 and a remarkable 20.7% towards 2007. What were the reasons for the growth?

There was actually a decrease of print journals but an increase in e-journals.

3. The growth of e-journals within the 3 years was 70 %. In 2007, 32 000 e-journals were available. Does this number indicate titles or issues?

Titles

4. To what do you ascribe the growth in e-journal titles/issues?

Lots of e-journal packages are/were bought. The target for Unisa is to get a 100% e-access to journals by 2012.

It is difficult to measure via statistics if students prefer electronic instead of print journals.

5. In response to the questionnaire it was indicated that Unisa's collection development policy is in the process of being changed. How far is the process?

The process is finalized. Policy changes mainly because of duplication of formats – print/online journals. There is a separate collection development policy for serials.

The previous policy was from 2001 and already had a section on e-resources included.

6. How does the collection development policy make provision for the acquisition of e-resources?

7. Is there a policy that stipulates that a certain proportion of the budget should be allocated to electronic resources and electronic access and a certain percentage should be allocated to books and other hard copy documents?

No stipulated percentage is spelled out for the different resources. The amount varies according to the demand. There is a certain budget for e-resources like databases and e-journals. The print journals come from a different budget. In e.g. 2009 circa 40% were allocated to e-resources but they are subtracted from the operation budget as they are not seen as library assets.

8. The responses from the questionnaire show that the growth in electronic resources is considerable. Did the budget grow accordingly to be able to finance these resources including subscription and licensing fees?

9. What were the important considerations that initially motivated the Unisa library to acquire electronic resources and access to electronic services?

To go with the flow and to cater for distance students as well as going along with Unisa's ODL (Online Distant Learning) policy.

10. What were the obstacles (e.g. lack of information technology) that hindered the development of access to electronic information sources in your library?

The obstacles were on the one hand the provision of access and on the other the development of the service to provide access.

B. Interlending and document delivery

11. According to the responses to the earlier questionnaire there were for instance 3947 items received by Unisa through interlending and document delivery in 2007. A total of 15143 items were sent via interlending and document delivery to users outside Unisa which means that a much higher number of items were lent out on ILL than were borrowed. Why is that so? As Unisa serves a distant student population one would expect a higher number of ILL requests on behalf of these users?

Usually it is only the postgraduate students that make use of interlending. More and more students rely on online journals for their research. On the other hand there are lots of requests coming in from other South African libraries because of Unisa's huge collection.

12. Is it correct to say that Unisa is the biggest provider of interlending transactions in the country or the SADC region? If so why?

Yes. See above

13. Why did Unisa decide to join the Gaelic consortium?

Gaelic is the regional consortium and there are the usual benefits of cost sharing for database packages.

14. In what way does Unisa benefit from its membership of Gaelic?

The consortium bought the library software (Millennium) collectively. Some databases are purchased as a group although most of them are purchased through the Sanlic agreement. The database providers have a formula according to which each library within the consortium is charged separately. The libraries within the consortium do not have a coordinated collection development policy.

15. What problems are experienced, if any, in respect of Unisa's membership to Gaelic?

Decision making about certain database acquisitions can sometimes be difficult and time consuming.

C. Staff

16. How many qualified systems librarians does the library employ?

5 qualified librarians are working in the Library Technology Services department as well as 3 application support staff

17. What kind of qualifications do/es the Systems librarian/s have? (e.g. Degree in Library/Information Science; Degree in Computer Science, Technical diploma etc.)

The librarians have a Degree in Library/Information Science and one of them an additional Microsoft Certified Network certificate.

Does the library experience problems in appointing or recruiting suitably qualified systems librarians?

Yes it is difficult although the advertisements for the jobs stipulate training in the ICT area.

D. ICT equipment

18. According to the responses to the questionnaire Unisa does not seem to have ICT equipment for their users. If ICT equipment is an indication of the availability of access to “remote” information this would mean that Unisa is lagging behind UNAM. This certainly is not the case. How is it possible to have such good access with such limited electronic equipment for the user?

The information given in the questionnaire is incorrect. There are 40 computers with Internet in the main library as well as additional ones at the branches. Wordprocessing machines can be used in the ICT laboratories on campus.

19. Unisa indicated on their questionnaire that they rate their Internet connectivity as very fast and reliable. What is the existing bandwidth?

28 MB

20. Does the library have an ICT policy in place? If so what does it address? Does it address financial, human and technological resource implications?

Unisa has an ICT policy which is not really enforced.

21. According to the Unisa website information skills training is given in respect of library skills, mouse and keyboard skills, Internet skills, etc. These training sessions are face to face. Are there any online training courses offered that students can do from their homes?

The library had training courses available online but when they became outdated the right personnel were not available to upgrade them. But the problem gets attention again.

APPENDIX F – E-resources in collection development policies

COLLECTION DEVELOPMENT POLICY – ELECTRONIC RESOURCES

UNAM

10.2.5

For collection development purposes the term electronic resources refers to materials that require computer mediation in order to access their contents. It covers materials acquired for University Library collections available to users and may include bibliographic, full text and primary indexes, journals, application software and electronic books. Electronic resources are collected in 3½" diskette, CD-ROM, and DVD physical carriers. In addition, many of the resources may not physically reside in UNAM libraries, but are accessed through the Internet. This type of access is most common for bibliographic and full-text indexes. The physical carriers and access methods for electronic resources are dynamic and will change quickly, making it imperative that the University Library maintain hardware and network infrastructures that make access to electronic resources possible. In many ways, electronic resources are like any other library material and the same selection procedures for printed material such as scope, authority or cost, should be used. There are however some unique aspects to electronic resources that must be considered, namely performance and access speed, compatibility, licensing and the life of a product.

UNISA (draft)

6.3 Journals

6.3.1 The overall percentage of the Information Resources Budget allocated to journals should be reviewed annually.

6.3.2 There should be a degree of flexibility within subject areas with regard to the division of funds between printed journals and other formats.

6.3.7 Subscriptions to online journals, where available, should be considered in preference to subscriptions to printed journals.

6.5 Commercial electronic resources

Commercial electronic resources refer to bibliographic databases, full-text databases and electronic journals.

6.5.1 If an electronic resource duplicates parts of another resource already available, the proposed electronic resources should provide some value-added enhancement in terms of content, searching or format.

6.5.2 In addition to the price of the resources, all hidden costs should be considered when taking a selection decision. This can include: licensing fee, hardware and software required, cataloguing costs, updates, maintenance and any other costs that may be identified.

6.5.3 Priority will be given to commercial electronic resources with full-text content.

6.5.4 The electronic resource should meet minimum standards as described in the evaluation criteria.

6.5.5 Electronic resources should adhere to approved licensing principles and technical standards.

6.5.6 Electronic resources should provide ease of use as well as guidance for the user through appropriate menus, help screens and or tutorials.

6.5.7 Balance must be maintained amongst types of electronic resources, for example reference, bibliographic, abstracting/indexing and full text.

6.5.8 Access to commercial electronic resources will be restricted to defined categories of authorised users.

6.5.9 Licence conditions should apply to library or institutional access, not individual or personal access.

6.5.10 Priority will be given to electronic resources that support both undergraduate teaching as well as postgraduate and faculty research.

6.5.11 Priority will be given to electronic resources which offer significant added value over print equivalents in such ways as more timely availability, additional search functionality, enhanced content, etc.

6.5.12 Priority will be given to electronic resources covered by national library consortium agreements.

6.5.13 The lifespan of a subscription to a commercial electronic resource should stand up to the lifespan of the curriculum for which its use is intended.

APPENDIX G – Permission to name institutions in dissertation

UNIVERSITY OF NAMIBIA

Private Bag 13301, 340 Mandume Ndemufayo Avenue, Pionerspark, Windhoek, Namibia



Dear Madam

26 July 2010

RE: PERMISSION TO NAME UNAM LIBRARY IN MINF DISSERTATION

As a master's student in Library and Information Science I conducted interviews with members of staff at Unisa Library in September 2009 for a case study as part of my research for my dissertation. The title of the dissertation is 'Access and ownership in academic libraries in southern Africa: two case studies'. My supervisors are Dr JA Fourie and Ms Marlene Burger.

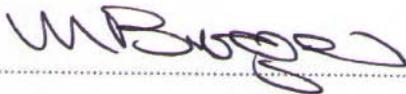
The interviews concerned various related aspects in connection with collection development policies and practices, resource sharing, participation in the GAELIC consortium, IT resources, staff qualifications and training and budgeting.

I would appreciate it if you would grant me permission to name UNAM Library as the institution investigated in the case study. If this is not possible I will of course comply with your wishes.

Thanking you in anticipation


.....

Irmela Buchholz


.....

Joint supervisor: Marlene Burger

Approved/~~Not Approved~~


.....

UNAM: University Librarian

UNIVERSITY OF NAMIBIA

Private Bag 13301, 340 Mandume Ndemufayo Avenue, Pioncerspark, Windhoek, Namibia



Dear Madam

RE: PERMISSION TO NAME UNISA LIBRARY IN MINF DISSERTATION

As a master's student in Library and Information Science I conducted interviews with members of staff at Unisa Library in September 2009 for a case study as part of my research for my dissertation. The title of the dissertation is 'Access and ownership in academic libraries in southern Africa: two case studies'. My supervisors are Dr JA Fourie and Ms Marlene Burger.

The interviews concerned various related aspects in connection with collection development policies and practices, resource sharing, participation in the GAELIC consortium, IT resources, staff qualifications and training and budgeting.

I would appreciate it if you would grant me permission to name Unisa Library as the institution investigated in the case study. If this is not possible I will of course comply with your wishes.

Thanking you in anticipation

.....*J. Buchholz*.....

Irmela Buchholz

.....*MBurger*.....

Joint supervisor: Marlene Burger

Approved/Not Approved

.....*M. Shiff*.....

ja Unisa: University Librarian