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I Tusiwe Beverly Hadebe declare that:

(i)   The research reported in this dissertation, except where otherwise indicated, is my original work.

(ii)   This dissertation has not been submitted for any degree or examination at any other university.

(iii)   This dissertation does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.

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Signed: _____

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Dedication

This thesis is dedicated to my dearest father Thanduyise Japhet Mncwabe

who will always be my role model

and also, to

my lovely son Zibusiso Hadebe.

Loosing you sweetheart inspired me to be engaged in doing this study

I love you very much Dad and Zibu.

I know someday we will meet again at Jesus' feet.

Acknowledgements

Abstract

The purpose of this study was to investigate the use of electronic databases by masters students in the Faculty of Humanities, Development and Social Sciences at the University of KwaZulu-Natal, Pietermaritzburg campus. The study tried to establish which electronic databases masters students used and how frequently they were used. In addition, the study investigated what the students used the electronic databases for and what problems they encountered while using these databases. A set of recommendations based on the findings were identified.

The study population consisted of Humanities, Development and Social Sciences (HDSS) masters students. A total of 139 masters students responded, which was a response rate of 68%. The approach undertaken by the researcher was triangulation where both qualitative and quantitative data was collected. The instrument that the researcher employed as the quantitative method of data collection was the questionnaire and a focus group was used as the qualitative method of data collection. The quantitative data was analysed using SPSS and the qualitative data was analysed using thematic content analysis. A pre-test of the questionnaire for the study was done on six registered masters students in the Faculty of Science and Agriculture at the University of KwaZulu-Natal, Pietermaritzburg campus (UKZNP) in order to identify any unclear issues in the questionnaire.

The outcome of the study revealed that a majority of HDSS masters students at UKZNP did use the electronic databases. A number of problems were experienced when using the databases. The top three databases used by the masters students were EbscoHost , followed by SABINET and then ProQuest. Masters students mentioned some benefits of using the electronic databases. Students revealed that they became aware of the library databases from a variety of sources such as lecturers, friends and orientation programmes. There were other non-library databases that masters students used besides the library electronic databases. A majority of 75.2% of the students were satisfied with the library service.

List of abbreviations and acronyms

CD-ROM	Compact Disc Read Only Memory
CRL	Cecil Renaud Library
CSIR	Council for Scientific and Industrial Research
HDSS	Humanities, Development and Social Sciences
ICT	Information Communication Technology
IL	Information Literacy
IP	Internet Protocol
IS	Information Science
ISP	Information Search Process
IT	Information Technology
LIS	Library and Information Science
MA	Master of Arts
MAFA	Master of Arts in Fine Arts
MIS	Master of Information Studies
MSocSc	Master of Social Sciences
MTH	Master of Theology
OCLC	Online Computer Library Center
OPAC	Online Public Access Catalogue
PCT	Personal Construct Theory
SABINET	South African Bibliographic Information Network
SAQA	South African Qualifications Authority
SL	Subject Librarian
UDW	University of Durban-Westville
UKZN	University of KwaZulu-Natal
UKZNP	University of KwaZulu-Natal, Pietermaritzburg Campus
UND	University of Natal, Durban
UNISA	University of South Africa
UNP	University of Natal, Pietermaritzburg
URICA	Universal Real-time Information Control Administration
URL	Uniform Resource Locator
WWW	World Wide Web

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Use of electronic databases by masters students in the Faculty of Humanities, Development and Social Sciences at the University of KwaZulu-Natal, Pietermaritzburg campus

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Chapter 1

Introduction to the study

1.1 Introduction

The development of the World Wide Web (WWW) has brought about dramatic changes in the search for information. Academic libraries throughout the world have been forced to keep up with the changes in technology. Great emphasis has been placed on the use of electronic resources (Jagarnath 2004:2). Searching electronic resources has many advantages over the print-based resources. For instance searching a print source would take several hours, while performing the same search in an electronic resource could be much quicker (Jagarnath 2004:2).

The researcher decided to undertake the study, which investigated the utilisation of electronic databases by masters students in the Faculty of Humanities, Development and Social Sciences (HDSS) at the University of KwaZulu-Natal on the Pietermaritzburg campus (UKZNP), because the information environment is changing enormously and learning solutions at academic institutions are becoming increasingly digital (Secker 2004:x).

This chapter focuses on the background of the study, statement of the research problem, reasons for choosing the topic and the key research questions. The discussion goes on to identify the broader issues that were investigated, definitions of important terms and the model upon which the research project was constructed. To conclude, the delimitations and overview of the study are discussed.

1.2 Background to the study

The University of KwaZulu-Natal (UKZN) has five campuses, four in the greater Durban area (Howard College, Nelson R. Mandela, Westville and Edgewood) and one in Pietermaritzburg (Pather 2004:20). Each campus has a number of libraries. The focus of this study was on the Pietermaritzburg campus.

The University of KwaZulu-Natal, Pietermaritzburg campus is located in the suburb of Scottsville. This university opened its doors to 57 students in 1910, since then it has been growing. Currently there are 8,736 students registered on this campus. In 2009 there were 2,286 students registered in the Faculty of HDSS (UKZN 2009a). The Faculty of HDSS on the Pietermaritzburg campus consists of various schools, which are: Religion and Theology; Sociology and Social Studies; Literary Studies, Media and Creative Arts; Language, Literature and Linguistics; IsiZulu Studies; Gender Studies and History; Philosophy and Ethics; Politics and Psychology (UKZN 2009a).

1.2.1 Pietermaritzburg campus libraries and archives

The UKZNP Library was started in 1912 and in 1937 the first separate library building was occupied. The library was "computerized in 1982 with the installation of a Reality mini-computer and the URICA integrated systems software" (Hoskins 2002:14).

UKZNP has five libraries. The main library is the Cecil Renaud Library (CRL), which caters for Human and Management Sciences, Education, Training and Development, Chemical and Physical Sciences, Mathematics, Statistics and Information Technology, and Environment and Development disciplines. There are also four branch libraries serving the Life Sciences and Law disciplines as well as the Alan Paton Centre and Struggle Archives and the University Archives. Given its subject focus, HDSS students generally use the main library.

The CRL provides space for a substantial book collection (292,374 volumes) and print periodicals collection (2,597 titles), a range of audio-visual materials and a growing collection of electronic resources. There are various rare books which are found in the Africana Display Case, Cathedral Collection, Fine Art Display Cases, Nataliana Display Case, Maple Display Case and Permanent Short Loan. This library was named Cecil Renaud Library in 1990 after the individual who donated funds for the addition of the second floor to the library building (UKZN libraries 2007b).

1.2.2 The mission statement, vision and strategic goals of the University of KwaZulu-Natal libraries

The mission of the UKZN libraries is "to support teaching, learning, research and community engagement by providing a high quality, relevant, expanding and innovative library and information service". The vision of the UKZN libraries is "to be a strategic partner in positioning the UKZN as the premier university of African scholarship" (UKZN 2007a). One of the strategic goals of the UKZN libraries is:

> to make provision for an environment that is conducive to electronic access to digital information. In order to do this the libraries will develop a comprehensive acquisitions policy that includes criteria for the selection of electronic resources to be approved by all relevant stakeholders and to conduct research to determine the best way to build and manage digital collections (UKZN 2007a).

Thus it can be concluded that a primary goal of UKZN libraries is providing access to electronic resources.

1.2.3 Electronic resources at UKZN

UKZN libraries have electronic resources, especially databases, for use by students. Some students prefer electronic materials to print as electronic databases are up-to-date and can be accessible on or off-campus using the UKZN library's website. Soyizwapi

(2005:2) states that as electronic databases can be accessed from remote locations, students no longer have to walk to the library to use them. For instance, if students have access to the internet they are able to access a number of electronic databases wherever they are, needing only to login using their student number and password. The list of all electronic databases of relevance to HDSS is given in Appendix 1. Of these databases 14 are accessible off-campus and six have to be accessed in the Library. These six databases are marked by an asterisk in Appendix 1.

There are public computers available for students to access these databases within the UKZNP libraries. At the CRL there are 19 multimedia computers for accessing the electronic resources and the Online Public Access Catalogue (OPAC) computers for accessing the library catalogue in order to search for books and other print materials available in the campus libraries.

Library orientation and electronic database training, open to everyone, is conducted twice a year at the beginning of the first and second semesters. In addition to this, schools can request the subject librarian responsible for their subjects to conduct advanced training on how to search electronic resources.

1.3 Statement of the research problem

The problem investigated in this study was the utilisation of electronic databases by HDSS masters students at the UKZNP campus. This study seeks to establish which electronic databases were used by masters students, how frequently they used the electronic databases, what they used the electronic databases for and what problems were experienced by these students when they accessed these electronic databases.

This study examined whether masters students were using these electronic databases to the fullest extent and if not, what were the reasons for not doing so. This study also helped to identify whether there were any electronic databases that were underutilized. Results of the study should assist library management with any changes they need to

implement to improve the electronic database service. The study's findings indicated whether the training offered by subject librarians was adequate or not and whether these electronic databases were well marketed to students.

Masters students were the focus of the study because according to the South African Government Gazette (30353:28) the primary purpose of a master's degree is to "educate and train researchers who can contribute to the development of knowledge at an advanced level, or prepare graduates for advanced and specialised professional employment". Therefore, the masters students should also be able to:

> deal with complex issues both systematically and creatively, make sound judgements using data and information at their disposal and communicate their conclusions clearly to specialist and non-specialist audiences, demonstrate self-direction and originality in tackling and solving problems, act autonomously in planning and implementing tasks at a professional or equivalent level, and continue to advance their knowledge, understanding and skills (South Africa. Government Gazette 30353:28).

Thus the use of electronic databases by masters students is important for the above reasons.

As shown in Appendix 1, the UKZN libraries have made available access to a wide range of academic databases via the library website (on or off-campus). These databases are there to help students meet their information needs. The searching of electronic databases is very important as they contain current information and most of them also provide full-text and recent articles.

UKZN libraries have invested heavily in electronic services. In 2009 the estimated budget for electronic resources was approximately 12 million rand. Since databases are an important resource for both learning and research at the tertiary education level, it is important that students know what is available and how to use them. Investigating the use of these electronic databases by HDSS masters students could help identify problems

which are experienced by students when they are accessing and using these resources. From a librarian's perspective, it is very important to determine and understand which available library electronic databases are currently being used. If other databases are not being used as much, it is important to know, so as to make recommendations regarding possibilities for improving usage of these databases (Soyizwapi 2005:5).

As noted above electronic resources are costly in terms of subscription costs, which have to be renewed regularly for most of the databases. As a subject librarian at the UKZNP main library, the researcher wanted to determine whether these very expensive electronic databases were being effectively used or not. If not, what could be done by the Library to help students use these resources effectively.

As noted earlier, the reason for choosing only masters degree students as respondents was because the training of researchers is intensified at the masters level. At this level candidates are required to present a research report in the form of a thesis or dissertation. This provides them with an opportunity to demonstrate their ability to carry out, with substantial independence, rational investigations and report the results in an understandable fashion. The majority of researchers are trained at this level which is the entry level for future independent research work (Kaniki 2000:39).

1.4 Key research questions

This study has attempted to answer the following key questions:
- Did masters students use electronic databases? If not, what were the reasons?
- Which electronic databases did masters students use and why?
- How often did masters students use these electronic databases?
- What alternative electronic resources were used by masters students?
- How did masters students find out about the available electronic databases?
- Did masters students have sufficient skills to access the electronic databases?
- What problems did masters students encounter when accessing the electronic databases?

- What recommendations could be made concerning the masters students' use of electronic databases?

1.5 Broader issues to be investigated

The study examined three broader issues. These were the issues the researcher needed to be aware of in order to do the study. The three issues were information literacy (IL), information technology (IT) and the role of subject librarians (SLs).

1.5.1 Information literacy

"Information literacy is the ability to access, evaluate and use information effectively from a variety of sources" (Davis 2002:218). It is also the "ability to recognise when information is needed, the ability to locate, evaluate and use effectively the needed information" (Davis 2002:218). These definitions point out that this concept has a lot to do with the search process as the searcher should, amongst other things, be able to evaluate the obtained information. So it is very important for masters students to be information literate.

According to Bundy (1998) in Lwehabura and Stilwell (2008:180) "in an academic context, IL supports, promotes and enhances teaching and research as well as creating a learning culture that encourages institutions to produce graduates with the capacity and desire for lifelong learning". To be information literate is very crucial as students require literature/information searching skills in order to find material that will help them prepare for essays, reports, seminar papers and other activities required for their studies. Training and advice on literature searching techniques is essential, especially for senior students as these students may have to search for relevant publications from a pool of resources larger than their local library (Soyizwapi 2005:9).

Lwehabura and Stilwell (2008:183) identified a number of challenges that need to be tackled in order to promote IL in Tanzanian universities, they were:

- The formulation of an IL policy;

- Lack of proactivity by librarians;

- The creation of partnerships between librarians and teaching staff to mainstream IL;

- The availability of resources;

- Adequate library staffing; and

- Fostering a willingness to learn in students.

The above challenges are also experienced at UKZN and need to be noted. A study done by Dadzie (2005) recommended that there must be an introduction to information competency across the curriculum or the introduction of a course to be taught at all levels (such a course must be compulsory to all first year students) (Dadzie 2005:290).

1.5.2   Information technology

Masters students must have information technology (IT) skills in order to be able to use electronic databases. Masters students must be knowledgeable about current information technologies (Davis 2002:219). According to Mgobozi and Ocholla (2002:44) IT facilities should be provided in the libraries, which may enhance the use of electronic resources. This could be done by having classrooms with sufficient electronic equipment for students and a trained person who will always be available to assist and train users. For instance at UKZNP SLs have tried to be proactive by initiating the postgraduate research hub which is opened every Friday for all masters and doctoral students to use. In the hub there is always a librarian to help the students with any queries they have while doing their research. This facility has electronic equipment such as a scanner, photocopying machine and printer.

Crawford and Daye (2000:255) in their study of the use of electronic services at Glasgow Caledonian University Library found that the levels of IT skills in students vary and are frequently low.

1.5.3   Role of the Subject Librarians

The role played by UKZNP Subject Librarians (SLs) is crucial as they provide training to students on how to access electronic resources. According to the findings from Mgobozi and Ocholla (2002:44) in their study of electronic journals for the dissemination of scholarly information, they compared the University of Natal (see section 2.4) and the University of Zululand. They found that user education for electronic databases must be intensified. Short courses on the value, availability and use of electronic resources should be offered, in addition to information literacy programmes. Students need to be educated and trained in the use and importance of electronic journals. It is very important to find out whether SLs provide relevant information to students and also whether there are enough training sessions for these students.

Aitchison (1998:18) identified the UKZNP SLs role as being:

> responsible for all the professional tasks involved in managing several broad subject areas in the library. Their most important tasks include assisting departmental staff to select library books needed for teaching and research, classifying and assigning subject headings to the books, providing library orientation and instruction for staff and students of the departments on a formal and informal basis.

The concept of the SL can be traced back to the German universities of the early 19th century. Subject librarians were first introduced at UKZN in the seventies:

> At UKZN a SL service was introduced in 1976 in the Pietermaritzburg Library. There were only four subject librarians to begin with, each of whom was assigned a number of subjects. Their tasks included the cataloguing and classification of all new books received in their areas of specialisation as well as the provision of user instruction and guidance in those particular subjects (Buchanan 2008:241).

The study done by Lwehabura and Stilwell (2008) regarding IL in Tanzanian universities revealed that:

> 65 percent of the students held the view that their prior knowledge and skills in using information sources were inadequate in enabling them to use university library resources effectively. The reasons given for the inadequacies were insufficient instruction provided at school level, complete lack of instruction in using library facilities and that university library facilities and resources were more advanced and complicated compared to school library facilities (Lwehabura and Stilwell 2008:181).

Thus, it is very important for SLs to be aware of these problems as they must provide training and equip students with the adequate knowledge and skills for accessing electronic databases.

1.6 Definition of important terms relevant to the study

The important terms relevant to this study are briefly described below.

1.6.1 Use

According to Abbott (1989:15) 'use' seems to be a complex term that has a wide range of meanings and is very difficult to define. Aitchison (1998:7) has used the term 'library use' to refer to "the act of entering a library and engaging in activities for the purpose of locating and obtaining literature". For the purposes of this study the term 'use' referred to locating and obtaining information from electronic databases.

1.6.2 Masters students

Masters students are postgraduate students who have obtained an Honours or equivalent qualification. They could be doing masters by coursework or by research.

1.6.3 Electronic resources

"This is a collection of works, data or other materials which are arranged in a systematic or methodical way and are accessible electronically" (Prytherch 2000:210). It is a comprehensive collection of information in electronic form and organised for quick retrieval (Prytherch 2000:210). For purposes of this study these electronic resources are electronic databases.

1.6.4 Electronic databases

An electronic database is "any organized collection of information which can be accessed electronically. It may also be called an online database or journal index" (MSIT 2009). It may contain indexes to and abstracts of articles and/or links to the full-text articles.

1.7 Conceptual framework

For this study a conceptual framework was adopted in the form of Kuhlthau's model of the Information Search Process (ISP), which is "a holistic learning process encompassing the affective experience of students as well as their intellect" (Kuhlthau 1989:1).

This study concentrated on the ISP model from the user's perspective. The ISP model was chosen because it identifies six stages of thoughts, feelings and actions which are applicable to the broader question of information literacy covered above and to masters students when they are doing their research in particular. For the purposes of this research, the working definition of the information search process is that:

> it is a complex learning process involving thoughts, actions, and feelings that takes place over an extended period of time, that involves developing a topic from information in a variety of sources, and that culminates in a presentation of the individual's new perspective of the topic (Kuhlthau 1989:1).

The model of the ISP was developed from the common patterns that emerged within the context of the constructivist theory of learning. The theoretical foundation for ISP draws from psychology, using Personal Construct Theory (PCT) as well as Information Science (IS). An information search is viewed as a "process of construction in which people build their view of the world by assimilating and accommodating new information" (Kuhlthau 1989:1). PCT on the other hand describes a series of feelings that are associated with the phases of construction. For instance when a masters student initially confronts new information, he or she may commonly experience doubt or confusion. These feelings escalate as he or she may encounter increasingly confusing, sometimes contradictory messages. The experience may become quite threatening, causing the student to consider turning back and abandoning the new idea. At this point the masters students may form a hypothesis that moves the process towards testing and assessing the new information in order to form new constructs (Kuhlthau 1989:1).

The UKZNP HDSS masters students will arguably be applying Kuhlthau's stages when they do their research. Kuhlthau's (2004:44) six stages in the search process are as follows:

- **The first stage is task initiation**. This is when a person first recognises that information will be needed to complete the research, when for example, masters students receive the course handout explaining what is expected of them.
- **The second stage is topic selection**. During this stage the task is to identify and select the topic to be investigated and the approach to be pursued. In this stage masters students prepare themselves for the decision of selecting a topic, during which they may liaise with their lecturers.
- **The third stage is prefocus exploration**. This stage involves exploring information to gain a focus. For most students this is the most difficult stage of the process in that as they may find information on their topics they become confused by the inconsistency and incompatibility they encounter. In this stage masters students may have chosen their topics but may also be confused and not sure where to begin.

- **The fourth stage is focus formulation**. A clear focus needs to be formed at this stage in the search process to enable students to progress to the next stage. For many masters students this may be the turning point in their research, feelings of uncertainty diminish and confidence increases. This focus gives direction to the library search and students may express more confidence once they have reached this point.

- **The fifth stage is information collection**. This is when interaction between the user and the information retrieval system happens. At this point the task is to gather information pertaining to the focused topic. The user may liaise with librarians in order to collect information relevant to their topic while doing a comprehensive search of all available resources. It is at this stage that masters students may use and access library electronic resources.

- **The last stage is the search closure**. This is the conclusion of the search process and the starting phase of the writing process. In this stage there is a sense of satisfaction if the search has gone well or disappointment if it has not. Masters students may now have completed their literature review and have begun to write their research.

After the completion of these stages Kuhlthau (2004:50) noted that assessing the search process is important as this is a time of reflection where students can assess their use of time, and sources during their search process: "The reflection of students about what had taken place during the process and their expectations of the next time they encounter a similar task revealed their sense of process" (Kuhlthau 2004:50).

All these stages are important, however, the stage that is important for the current study is the fifth stage. During this stage:

> the type of information sought shifts from that which is relevant to the general topic, to that which is pertinent to the focus and the task of collecting information must be approached systematically where students can learn methods of searching a library collection to gather information on their focus from a variety of sources (Kuhlthau 1994:104).

The fifth stage is the one that forms the conceptual framework for this study as the researcher focused on the HDSS masters students when they were locating and obtaining information from electronic databases.

1.8 Delimitations of the study

The study was confined to masters students only registered at UKZNP in the Faculty of HDSS. This study was limited to the use masters students make of library electronic databases. The reason for choosing masters students was because as postgraduate students it is essential for them to make use of the electronic databases.

This study excluded the use of other electronic resources such as electronic journals. Vendors' usage statistics for the electronic databases were not examined because it was not possible to single out usage made by UKZNP masters students from other users at different levels of study.

1.9 Overview of the study

The overview of subsequent chapters is as follows: Chapter Two will discuss the literature review, Chapter Three will focus on the research methodology, Chapter Four will present the results for the study, while Chapter Five discusses the results and Chapter Six concludes the study and provides recommendations. Appendices are found after the list of works cited.

1.10 Summary of the chapter

This chapter provided an introduction to the study by presenting a brief background to the study, an outline of the research problem, reasons for choosing the research topic, definition of the key terms relevant to the study, the broader issues that were investigated, the conceptual framework which outlined the model for the study, the research questions which were asked as well as the delimitations of the study.

Chapter 2

Literature review

2.1 Introduction

This chapter covers the literature that is relevant to this study. Various studies have been done on the use of electronic resources by students of institutions of higher learning. Prytherch (2000:458) defined the literature review as a:

> survey of progress in a particular aspect of a subject area over a given period; it may range from a bibliographical index or mere list of references, to a general critical review of original publications on the subjects covered.

These publications include materials such as books, theses, journal articles and reports. Such sources provide information related to a person's research but have not been produced specifically for his or her current topic.

Thody (2006:91) stated that the purposes of a literature review are:

- To justify the research by showing that others have not already researched that topic or researched it in the same way;
- To pay homage to those who have gone before the researcher and whose work has influenced his/her thinking;
- To establish the credentials for a person's research is important because others have investigated the same general area;
- To explain the emergence of a person's research topic and data gathering methodology;
- To reveal current understanding of a person's topic. A person's work will be judged in comparison with that of others, hence the significance of the literature;

- To show how a researcher generated his/her conceptual framework; and
- To provide a general overview of the area of his/her research.

Reading the literature helps the researcher to focus on important issues and variables that have a bearing on the research question. The literature review should highlight pertinent literature and contribute to the field by providing a novel and focused reading of the literature. "A literature review involves identifying relevant literature or sources of relevant information (bibliographic access), physically accessing the most relevant literature (document delivery), reading and analysing these works" (Kaniki 2006:22).

Most students require some literature searching skills in order to access information that will help them prepare for their studies. The researcher thus reviewed the role played by academic libraries in helping students.

2.2 The role of the academic library in the provision of electronic databases

Academic libraries make a variety of information resources, including electronic resources, available to their communities which are primarily the staff and student populations:

> A university library differs from other research libraries by virtue of its size, range, depth and quality of its collection, necessary general background stock to support its special areas, and large-scale holdings amassed over a long period of time to form a concentration of materials important to support scholars worldwide (Prytherch 2000:754).

According to Haynes (1996:218), the academic library is the:

> principal unit of the college that supports all academic programs; the one location on campus where all disciplines are represented, organised, and integrated; and a fertile environment within which to explore the interdisciplinary aspects of knowledge.

The central role of academic libraries is to promote and facilitate effective use of recorded information in all formats by all of the library's users (Hoskins 2002:27). "The library is the heart of the university… teaching methodology could not suffice and sustain the progress and objectives of education without educational support systems such as libraries" (Nkosi 2009:10).

According to Rice-Lively and Racine (1997) in Hoskins (2002:27):

> Academic libraries are at the centre of a revolution. Phrases like "information economy," "knowledge industry," "virtual library," "national data superhighway," and "electronic journal" only hint at the magnitude of the changes in information and knowledge production, preservation, and dissemination that are taking place… The librarian may spend less time in the library building and more time in the academic department and may spend his or her time working with the computing and telecommunications staff or communicating with distance learners electronically. The purpose remains the same; the means are ever more powerful, and the possibilities far-reaching.

McCabe and Person (1995:84) said that library administrators need to set expectations and standards and ensure that continued growth and development are part of the measurement of excellent performance for the academic staff. They need to develop strong programmes to recognise growth and development as well.

2.3 History and development of electronic searching

Gash (2000:39) defines the electronic searching of bibliographic tools as a "method of retrieving information from large computer-mounted databases". The database being searched is geographically remote from the user, who makes use of a workstation connected to telecommunications networks to access the information.

Large, Tedd and Hartley (1999) in Soyizwapi (2005:10) mentioned that digital computers were initially used for processing numerical data in the 1940s and 1950s. By the 1960s

and 1970s there were developments made in the computers' ability to store and retrieve textual data; facilities for performing literature searches thus became available. The 1980s are known for the availability of mediated online searches for users, this period would also be known as the beginning of the era of the independent end-user. The 1990s saw information storage and retrieval being transformed by developments such as the internet and the WWW. The shift in information was now about access to information, instead of collection development.

The Online Computer Library Center (OCLC) system was the forerunner of the automation the libraries have today in integrated library systems, online catalogue, Compact Disc-Read Only Memory (CD-ROM) and database searching services. According to McCabe and Person (1995:92), OCLC was founded in 1971 in Columbus, Ohio, by Frederick Kilgour, who pioneered automation in the operation of cataloguing and an online database. Today OCLC represents multimillions of items in a single database and is found in libraries throughout the world. Technology has improved library efficiency and staff productivity and has become a tool for access to collections all over the world (McCabe and Person 1995:93).

Dubbeld (1989) in Soyizwapi (2005:19) stated that in 1977 the South African Council for Scientific and Industrial Research (CSIR) began conducting searches and soon thereafter it became the largest searcher of foreign database vendors for South African researchers. Medical libraries such as the Witwatersrand University Library in 1977 and the University of Pretoria Library in 1982, pioneered online searching in the academic libraries in South Africa. By 1984, approximately 35 South African organisations were engaged in online searching.

2.3.1 Electronic resources in academic libraries

With the introduction of the WWW and digital libraries, the world of information has changed dramatically over the last few decades in terms of volume, variety, format, nature and complexity of electronic information resources. Online information searches

are conducted by means of a local computer that communicates with a remote computer system containing bibliographic and/or full-text databases. "Users can access the database(s) either directly through the database producer, or via an online search service provider (also called vendor)" (Chowdhury and Chowdhury 2007:18). The first major dial-up service was MEDLINE, the online version of MEDLARS, which was followed in 1972 by the offer of commercial online services from Dialog (Lockheed) and ORBIT System Development Corporation (SDC). After 1972 many organisations began to offer online databases and search services:

> Initially, the majority of the online databases were used to provide bibliographic references as the output of search session(s) and these were called bibliographic or reference databases. However, for the past few years, more and more databases are becoming available that retrieve actual information rather than mere bibliographic references. These databases are full[-]text, where the full[-]texts of documents (including graphics and pictures) are available (Chowdhury 2004:281).

According to Chowdhury and Chowdhury (2007:1), a typical student in today's digital world can access information resources and services through a variety of channels, such as:

- Library OPACs, which provide access to library collections;
- Online bibliographic or full-text databases (database search services), which provide access to remote collections;
- E-books and e-journal services such as Netlibrary, which provide access to electronic books and journal articles;
- Intranets and databases created by companies and institutions to provide access to various information resources within the institution;
- Websites, which are accessible either by going directly to the site if the web address or URL (uniform resource locator) is known; and
- Subject gateways that provide access to selected web resources in one or more specific discipline(s).

The next section focuses on the historical development of electronic resources at UKZN.

2.4 Historic development of electronic resources at UKZN libraries

According to Buchanan (2008:227) the decision to computerise the then University of Natal[1] libraries had been accepted in principle by the University in 1975. The University of Natal Pietermaritzburg (UNP) Library selected Universal Real-time Information Control Administration (URICA), a South African system while the University of Natal Durban (UND) Library chose DOBIS/LIBIS, a European system.

In 1979 the relatively new concept of online literature searching was introduced to the University community in Durban:

> The service known as the South African Retrospective Information System
> (SARIS) was established in the Science and Engineering branch library by
> the CSIR in August 1979 and was originally run by a member of the CSIR
> staff. In 1981 the service was taken over by the University Library and
> searches were thereafter performed by library staff (Buchanan 2008:244).

For the first time, comprehensive searches for information could be carried out quite quickly but there was a negative side. Searches were not free, costing anything from R10 for a simple search with few references to over R400 (Buchanan 2008:245). Three years later in 1984, another online service was introduced in the form of access to the database of South African press clippings compiled by the Institute for Contemporary History (INCH) at the University of the Orange Free State. The UND Library purchased an annual subscription which allowed online access to the database via a terminal (Buchanan 2008:245).

The process of developing the UKZN library's website began in 1999. According to Aitchison (2001:1) the aim of the design of the website was to "design a site that

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[1] The University of Natal merged with the University of Durban-Westville to form the University of KwaZulu-Natal in 2004.

provided information about the library, its services and holdings and also gave users access to online information resources to which the Library subscribed or which were free".

The study by Chisenga (1998) in Soyizwapi (2005:12) stated that research and teaching:
> relies heavily on the flow of up-to-date information and the internet provides an infrastructure through which this can be achieved. University libraries increasingly use their home pages to support the education and research programmes of their parent institutions, by providing access to relevant information sources.

2.4.1   Library automation at UKZNP libraries

The UNP Library was the first to consider automating library functions. An in-house computerised ordering and bookkeeping system was devised and implemented on the University's mainframe computer in 1976. It was immediately successful, saving staff time and improving efficiency. In 1981, a pilot project was put into place to re-catalogue in machine-readable format all the books. The adoption of automation was, from the library worker's perspective to:
> improve access to the retrieval of information resources in the library, to achieve uniformity in making catalogue entries and to avoid duplication while processing the documents (Chisenga 2004 in Polaki 2008:17).

The University of Durban-Westville (UDW) Library in Durban had purchased a minicomputer and had installed the URICA library system, which had been developed in South Africa for South African libraries. Arrangements were made with UDW to catalogue on their system via dataline (Buchanan 2008:229).

In November 1982 a REALITY minicomputer was purchased for the UNP Library to accommodate the URICA software for cataloguing and information retrieval. In January 1983 the retrospective capture of existing catalogue records began, in preparation for an

on-line circulation system (Buchanan 2008:230). Both libraries at the University of Natal acquired their first Compact Disc Read Only Memory (CD-ROM) databases in November 1989. For purposes of access each acquired a single workstation, consisting of a microcomputer and a CD-ROM player. As more databases became available and user demand grew, both libraries increased their subscriptions so that, by 1996, they subscribed to 33 databases between them, of which only three were duplicated (Buchanan 2008:258).

By the end of 2003, users of the University of Natal libraries had access not only to substantial print collections but to a growing number of electronic resources, including databases and electronic journals (Buchanan 2008:303).

Use of databases has continued to grow and user statistics recorded since 2000, show substantial growth particularly with regard to the South African Bibliographic Information Network (SABINET) databases and EbscoHost which account for most of this use. The statistics however, do not reveal whether use is widespread or concentrated within specific groups (Thompson 2004:25).

In 1999, usage statistics of the printed collections began to decrease so noticeably that Christopher Merret, the then UNP Librarian, commented that "at main Library the decline was nearly 34% for 1999, suggesting the fundamental change in the way students are accessing information" (Buchanan 2008:262).

2.5   Different kinds of databases

There are different kinds of databases. According to Chowdhury (2004:15), the two major divisions of databases are reference databases and source databases. Reference databases lead the users to the source of information. They can be divided into three categories:

- *Bibliographic databases*, which include citations or bibliographic references, and sometimes abstracts of literature;

- *Catalogue databases*, which show the catalogue of a given library or a group of libraries in a network; and

- *Referral databases*, which offer references to information such as the name, address, specialisation of persons, institutions, information systems, and so forth.

Whereas, source databases can be grouped according to their content, for example:

- *Numeric databases*, which contain numerical data of various kinds, including statistics and survey data;

- *Full-text databases*, which contain the full-text of documents; and

- *Text-numeric databases*, which contain a combination of textual and numerical data, such as a company's annual report and handbook data (Chowdhury 2004:15).

Bibliographic databases form the basis of most of the information retrieval systems available today. Chowdhury (2004:15) states that bibliographic databases can be divided into five broad categories:

- Large discipline-oriented databases;

- Interdisciplinary databases with coverage based on key or core journals;

- Cross-disciplinary databases;

- Smaller, more specialised databases serving a particular technology or application area; and

- Databases covering specific types of publication.

UKZN Library databases cover all the above categories.

Chowdhury (2004:14) has identified the major properties of an electronic database as follows:

- It is integrated with provisions for different applications;

- It eliminates or reduces data duplication;

- It enhances data independence by permitting application programs to be insensitive to changes in the database;

- It permits shared access;
- It permits finer granularity; and
- It provides facilities for centralised control of accessing and security control functions.

2.6 Information needs of masters students

Masters students have different information needs. According to Chowdhury (2004:193), information need is often a result of some unresolved problem(s). It may arise when a student recognises that his/her current state of knowledge is insufficient to cope with the task in hand. When identifying the information needs of different categories of users, the following points should be kept in mind:
- Information needs change over a period of time;
- Information needs vary from person to person, subject to subject, and so forth;
- Students' information needs are largely dependent on the environment;
- Information needs often remain unexpressed or poorly expressed; and
- Information needs often change upon receipt of some information.

The need for information is a stage where the user senses that it may be useful to know something that they do not know at that particular point in time (Chowdhury and Chowdhury 2003:154).

2.7 Library and information skills and competencies masters students are expected to have

Students require literature searching skills in order to find references that will help them prepare for essays, reports, seminar papers and other work required for their studies. Senior students increasingly do not only rely on material available from their local library, but have to search for relevant publications available from a larger pool of resources. This larger pool may include materials from other libraries in the country or

materials from anywhere in the world (Soyizwapi 2005:9). UKZNP HDSS masters students need to have these skills.

Generally, information skills are viewed as all the technical and critical thinking skills necessary for students to cope successfully within the information environment in which they find themselves. Information skills involve "topic analysis, information seeking, storage, evaluation and presentation" (Isaac 2002:28).

According to Behrens (1997) in Isaac (2002:28) information skills are divided into three distinct stages:

- Planning stage: this is where the task at hand is sorted out and the decision is made on the appropriate strategy to start the search;
- Retrieval stage: at this stage the information sources are located and the information is selected. One needs to have information gathering skills in order to retrieve the needed information; and the
- Organising stage: at this stage one needs to evaluate and synthesise information, then present and evaluate the task.

The above stages are very important and relevant to Kuhlthau's ISP model, as Kuhlthau (1989:1) mentioned that when a master's student initially confronts new information, he or she may commonly experience doubt or confusion. These feelings escalate as he or she may encounter increasingly confusing, sometimes contradictory messages. The experience may become quite threatening, causing the student to consider turning back and abandoning the new idea. To prevent these feelings masters students need to understand the above three stages.

2.7.1 Information literacy skills

The practice of IL involves not only the development of technical skills required to access digital information, but also includes higher-level analytical and evaluative skills needed to engage effectively with the formulation of complex ideas (Andretta 2005:8).

According to Underwood, Nassimbeni and De Jager (2002) in Zimu (2005:18) the development of the concept of IL was based on various factors such as:

- Helping students acquire skills in using various sources of information, especially computers;

- Bridging the gap between the information "haves" and "have nots"; and

- Institutionalising IL assessment programmes to help libraries know whether or not they are handling these problems effectively and efficiently.

"To be information literate, a person must be able to recognise when information is needed and have the capability to locate, evaluate, retrieve and use effectively the needed information" (Steyn and Maritz 2003 in Nkosi 2009:21). Masters students are expected to be information literate.

De Jager and Nassimbeni (2003:108) mentioned that the Council of Australian University Librarians published their own adapted Information Literacy Standards in 2001. Essentially, there seems to be agreement that the information literate person is one who:

- Recognises a need for information;

- Accesses needed information effectively and efficiently;

- Evaluates information and its sources critically;

- Incorporates selected information into her/his knowledge base;

- Uses information effectively to accomplish a specific purpose;

- Understands economic, legal and social issues;

- Uses information ethically and legally; and

- Recognises that lifelong learning and participative citizenship requires information literacy (De Jager and Nassimbeni 2003:108).

De Jager and Nassimbeni (2003:109) argued that in terms of the South African Qualifications Authority (SAQA), there are generic outcomes that are deemed to be essential for the development of the capacity for lifelong learning and are expected to be incorporated into specific qualifications. These outcomes include the expectation that a student should exit from higher education with the following competencies or the ability to:

- Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made;

- Work effectively with others as a member of a team, group, organization or community;

- Organise and manage oneself and one's activities responsibly and effectively;

- Collect, analyse, organise and critically evaluate information;

- Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation;

- Use science and technology effectively and critically, showing responsibility towards the environment and health of others; and

- Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation (De Jager and Nassimbeni 2003:109).

The above-mentioned factors are abilities that masters students need to have to be able to locate, evaluate and use information effectively and efficiently and become information literate.

2.7.1.1 Computer literacy

Kuhlthau (1990:16) defined computer literacy as an understanding of what computer hardware and software can do as well as a certain competence in using computers. In order for masters students to be termed computer literate, they need to be able to use computers flexibly, creatively and purposefully. According to Johnson and Eisenberg (1996) in Isaac (2002:27), computer literacy encompasses being able to recognise what task one needs to accomplish, as well as determining whether a computer will help in accomplishing that particular task. They argue that "true computer literacy is achieved when students intergrate their individual computer skills within an information problem-solving process" (Johnson and Eisenberg 1996).

2.7.2 Library skills

Bruce (1997) in Isaac (2002:30) has mentioned that there are two approaches used to interpret the concept of library skills. HDSS masters students will need these two approaches. The first approach reflects the individual's ability to retrieve information from library resources and use the range of tools for accessing information available in libraries. The emphasis is on the effective use of library tools and the location of the information required, rather than on problem solving, evaluation and information use. The second approach adds to the value of location skills by incorporating the notion of interpretation skills. Here the location skills and the information interpretation skills of an individual are inseparable.

Therefore, it is possible that students who have not acquired library skills as presented above will not be able to use the library effectively and would not be considered information literate (Haynes 1996:162).

2.7.3 Information technology skills

Masters students must have IT skills in order to be able to use electronic databases. According to Mgobozi and Ocholla (2002:44) IT facilities should be provided in the libraries, which may enhance the use of electronic databases. Information technology has increased the capabilities of library services enormously, creating options for networking to provide access to vast stores of electronic information, for more sophisticated library housekeeping systems, and for greater bibliographic access (Hoskins 2002:36).

2.8 Subject librarians and library instruction

In the academic library, library instruction is a cornerstone of the work of Subject Librarians. SLs play a crucial role as they provide library instruction to students on how to access electronic resources. Library instruction, user instruction and library orientation are concepts used interchangeably to refer to organised programmes practiced across

various types of libraries to enable users to acquire the skills and competencies to allow them to use library resources effectively (Nkosi 2009:20).

Kaniki (1996) in Hoskins (2002:8) defined a subject librarian as the librarian:
> who interacts with students and staff, either in the form of one or a combination of answering reference queries, bibliographic instruction, faculty or (academic) department liaison such as collection development or cooperative cataloguing etc.

During the early 1970s the Association of Colleges and Research Libraries (ACRL) described library instruction as the "provision of individual guidance in the use of materials and resources and in the interpretation of learning tools as well as formal instruction to groups". By the early 1990s this description had been redefined as a "programme to provide students with bibliographic instruction through a variety of techniques enabling them to become information literate" (Andretta 2005:6). Traditional library instruction, tended to focus on discrete components of library activities that covered the use of the information tools, but did not explore the more complex tasks of information retrieval, based on critical thinking and evaluative skills (Andretta 2005:6).

Renwick (2005) in Nkosi (2009:18) explained that user education is the device by which librarians educate users on how to use the library's resources efficiently. The aim of these instructional programmes is to instill in students the skills needed for searching for information and to enable them to use electronic information resources without assistance. "Library instruction provides a means of introducing database options, shortening the learning curve, and improving the quality of searching methods and results" (Haynes 1996:206).

Jagarnath (2004:19) mentioned that simply because someone can search electronically and produce results, there is no guarantee, that good information is retrieved. Students often need assistance from someone with experience in using different resources, who knows the most effective ways to retrieve information. Even when masters students have

good computer skills, these may be insufficient given the fact that electronic databases are becoming more sophisticated and numerous. They may still need help with database choice, functionality and evaluation of their search results. At UKZNP, SLs are the ones who provide such assistance and training to students.

Many academic libraries offer library instruction with the intention of improving the library related knowledge and skills of users in order for them to use the library more effectively. Library instruction primarily emphasises both basic and advanced literature searching methods and library up-dates on changing literature searching tools and techniques (Haynes 1996:20).

By teaching masters students specific search skills or concepts and techniques of database searching, students may find database searching challenging and useful, and thereby be able to apply their skills learnt in one database to any other databases (Jagarnath 2004:24).

According to Jagarnath (2004:33), having access to the internet or to computers does not guarantee being able to search electronic databases effectively. The author therefore supports the need for library instruction on the use of electronic databases.

According to Buchanan (2008:305), at first the UNP SLs were expected to catalogue and classify library materials as well as providing a subject specialist service to academic staff and students. However, the introduction of automated cataloguing in the early 1980s relieved them of many manual routines, allowing them to concentrate on rendering specialist services to library users. The time thus saved was put to effective use, particularly in the development of user education programmes. Increasingly, UKZNP modularised training sessions on specific topics such as an introduction to journal literature and various 'how to' sessions, such as on using the library's website, were introduced to assist students and staff (Buchanan 2008:307).

2.8.1 Communication between academic staff and subject librarians

Communication is crucial between academic staff and subject librarians. Haynes (1996:192), in her study of librarian-faculty instructional partnerships conducted at Colorado State University, points out that most library materials had not been used or opened since their acquisition. She suggested that part of the reason might be the fact that academic staff has no knowledge of the availability of these resources in the library. So subject librarians need to liaise with the academic staff so that they will be able to pass the information to their students. Academic staff and subject librarians need to join forces to ensure that students are aware of and use the electronic resources. At UKZNP academic departments work closely with their subject librarians. In each department there is a liaison person who works together with the SL, organising library orientation and receiving information about new books, training sessions and any new developments in the library.

According to Haynes (1996:198) academic staff must utilise the library and assist librarians in providing library instruction programmes since they exercise the strongest influence on students' use of the library. "Most students will use the library materials in their courses only if professors require them to…" (Haynes 1996:194). Steyn and Maritz (2003) in Nkosi (2009:16) mentioned that it is the task of academic staff to recommend and motivate students to use the library when compiling assignments.

Poor communication and inadequate interaction between academic staff and the library, and the library's failure to apply marketing strategies to promote its services are foremost among the factors contributing to a lack of library related knowledge among university academic staff members (Roberts 1995 in Nkosi 2009:26). SLs depend upon academic staff to refer and encourage students to use the library and attend library instruction.

2.8.2 Communication between masters students and subject librarians

According to Andretta (2005:11), subject librarians must "provide students with the cognitive tools to make informed decisions… otherwise students will be unable to cope with the overwhelming number of choices". SLs should be involved in teaching masters students how to evaluate information from databases, problem solving and also critical thinking skills.

Students must be equipped with critical thinking skills to counteract the problem of information overload and to be able to take advantage of the numerous choices offered by the electronic environment (Andretta 2005:9). Students must also use the library not only for their immediate information requirements, but for educating their minds, enhancing the quality of their intellect, and promoting lifelong learning (Nkosi 2009:22). Therefore, it is very important for SLs to provide training and equip students with the adequate knowledge and skills for accessing electronic databases.

2.9 Advantages of electronic databases

Electronic databases are accessible via the internet. According to the study done by (Junni 2007) the internet is an attractive medium for seeking and obtaining information, for the following reasons:

- The internet is accessible twenty-four hours a day;
- The end-user does not have to physically visit a library if he/she has a computer and internet link;
- It is possible to find and obtain information relatively quickly and conveniently;
- The end-user can choose between saving, printing or reading the information from the computer screen; and
- Sources on the internet are often more up-to-date than sources in paper format.

Many scholars have identified the advantages of using electronic databases. Gash (1989:44) identified the following advantages:

- *Speed of retrieval*. Articles can be retrieved in minutes;
- *Range*. Online services offer access to a wide range of databases. This means students can potentially broaden their search far beyond the limits of the library;
- *Access to the references*. The number of access points to a computer record is far greater. It is possible to search for any word in the title, abstract and descriptor fields;
- *Print-outs*. It is possible to print out an online search as it is being performed. This facility can reduce or even eliminate the note taking that is unavoidable in a manual search;
- *Interactive searching*. This means that a search can be altered in response to the results obtained;
- *Current awareness services*. Most online hosts offer not only retrospective search facilities but also current awareness or update facilities; and
- *Downloading*. It is possible to download the details of the references retrieved onto a local computer. It may even be possible to transfer the information retrieved directly onto a records file and edit it as required. It will be necessary to check the copyright stipulations of both the host and the database to ensure that such downloading is legal.

Mgobozi and Ocholla (2002:29) noted that electronic databases:
- Save space, as their storage capacity is more efficient as compared with having shelf space for a number of volumes;
- Improve the speed of communication by providing updates on recently published material and even pre-publication material and allowing for swift transmission of research results. Electronic transmission of journals saves valuable time, thus establishing a network communication among authors, editors and referees;
- Provide powerful searching tools. Words and terms in the records on the database can be searched and combined with the help of Boolean operators ('and', 'not', 'or');
- Can be searched simultaneously, thus allowing large collections of material to be identified and retrieved instantly;

- Provide immediate access to needed information. Thus, finding an article or journal can take minutes or even seconds as opposed to the longer waiting periods encountered with printed journals; and
- Are cost effective as far as the printing of paper and mailing to subscribers is concerned. Information published in electronic databases generally tends to be up-to-date, as there are no printing and distribution delays.

More advantages of using electronic databases are discussed by Convey (1989:90). They include:

- The amount of time spent searching the literature is vastly reduced;
- With an online connection it is possible to search at once the entire contents of a database, which may contain millions of records covering literature published over 20 years or more;
- It is possible to search a number of databases during the same search session, in this way a number of databases can be searched in a matter of minutes;
- The online searcher can undertake detailed multi-concept searches which because of their complexity could not be searched manually;
- Searching online offers much enhanced capabilities over manual searching, more access points per record are available;
- Online searching ensures file integrity, the searcher cannot be inconvenienced by missing or misfiled issues, or by non-receipt of an issue;
- Online search results are presented in a concise and standardised format, where the detail can be predetermined by the searcher; and
- Having access to online sources enables the library or information service to serve more users. As the amount of time spent searching the literature is reduced for an enquiry, the staff time saved can be used to deal with more enquiries.

However, there are also problems that are experienced by students when using electronic databases. The next section focuses on these problems.

2.10 Problems experienced by students when using electronic databases

There are some problems which are faced by students when using electronic databases. Some online databases are password-controlled, thereby limiting access to only one or two users at a time. Some are Internet Protocol (IP) controlled; meaning one can only access them from within the campus and not from home or anywhere outside the institution. Such controlled access can frustrate a user, especially if they are made aware of the existence of such databases during the library instruction sessions (Jagarnath 2004:29).

Problems of obsolescence and compatibility of hardware and software can be costly, and the demands for training of both staff and library users are great. Therefore, technology and automation require staff at all levels to adjust and adapt to the changing roles and responsibilities that are entailed (Hoskins 2002:36).

According to Junni (2007), problems or barriers the respondents often mentioned which prevent effective information seeking included, among others:

- Difficulties in articulating queries for search engines;
- General dislike of using computers and lack of experience;
- Information overload: one search on the internet can provide hundreds of sources of which perhaps just 1% is relevant; and
- Availability: students in psychology felt that access to full-text articles in the subscription databases was too limited.

Several scholars have made reference to disadvantages of searching online. Gash (1989:46) identified these disadvantages as follows:

- Poor and inconsistent indexing of the database records can cause severe problems by making it harder to perform a comprehensive search;
- Bias: the arts and humanities, and to a lesser extent the social sciences, are far less well represented in terms of the number of databases online than are the sciences

and technologies, which have excellent coverage. Business databases are a rapidly expanding area online and this subject is also well served; and

- Training: as mentioned above, in order to perform an online search quickly, with a high rate of retrieval of relevant references, it is necessary to have some training and expertise.

According to Convey (1989:92) the disadvantages of online information retrieval are:

- Costs can seem higher than for other publications if they are looked at in isolation. However, this might not seem such a problem when seen in relation to such things as the vast sources available, the staff time saved and the enhanced service provided;
- Budgeting can be more difficult than for printed or CD-ROM publications;
- How can the end-user be sure that important records have not been missed in the search? This would depend very much on the way the search had been conducted, the databases chosen, and whether information on the subject was available online at all; and
- Online host systems could be 'down' when required, and telecommunications faults might interrupt searches or prohibit a search from even beginning.

2.11 Related studies

Various studies have been done locally and internationally on the use of electronic databases by students. Masters students registered in the Faculty of HDSS are expected to conduct their own literature searches to locate relevant information for their studies. This section of the literature review examines studies that have researched the use of electronic databases and other strategies used by students to gather information.

2.11.1 Previous studies done at international universities

Crawford and Daye (2000) reported on a survey done at the Glasgow Caledonian University Library on the use of electronic resources by all registered students. In 2000

this university had some 14,500 students, many drawn from relatively poor family backgrounds. The main findings were that only 18% of these students used CD-ROMs and only about 13% of students used online databases. Word processing, sending and receiving e-mail and web browsing were the most common activities. They came to the conclusion that information searching is a minority activity with students mostly engaged in non-curricular activities when searching the computer resources. This study also found that there were a limited number of electronic resources that were used, students tended to settle for one 'standard database' (Crawford and Daye 2000:255).

A study done by Majid and Tan (2002) on the usage of information resources by computer engineering students at Nanyang Technological University in Singapore revealed that the use of databases and electronic journals was quite low among computer engineering students. The study found that printed materials were the most preferred information format amongst the students. The top five most preferred information sources were books, lecturers, the internet, friends and manuals. The method of data collection in this study was the questionnaire which was distributed to 200 randomly selected students and 102 completed questionnaires were returned. The study recommended a promotional campaign for introducing electronic information sources to library users (Majid and Tan 2002:318).

Bar-Ilan, Peritz and Wolman (2003) undertook a survey on the use of electronic databases and electronic journals accessed through the web by academic staff at Israeli Universities. This study was conducted at the end of 2000 and the beginning of 2001. Its purpose was to examine usage patterns, acceptance, perceived importance, and satisfaction with electronic databases and electronic journals; and to study the influences of academic field, age, gender, and rank on the results. The major findings were that the use of electronic sources was already widespread amongst the respondents and more than 50% found the electronic services indispensable (Bar-Ilan, Peritz and Wolman 2003:346).

The study conducted by Clink, Crawford and de Vicente (2004) investigated the use and awareness of electronic information services by academic staff at Glasgow Caledonian.

The study found that the internet was the most widely used source. They also stated that the non-use of electronic information services was due to difficulty of access or use. Whereas the findings by the study on the use and awareness of electronic information services by students at the same university, the Glasgow Caledonian University, revealed that there was a decline in usage for the databases that were password protected (Crawford, de Vicente and Clink 2004).

Dadzie (2005) undertook a study on the use of electronic resources by students and academics of Ashesi University, Ghana, in order to determine the level of use, the type of information accessed and the effectiveness of the library's communication tools for information research. A questionnaire-based survey was utilized. It was distributed to all students, academics and administrative staff in order to reduce the generalization of the results. A total of 169 questionnaires were distributed and 141 completed questionnaires were returned, giving an overall response rate of 83%. The study found that general computer usage for information access was high because of the University's state-of-the art IT infrastructure. Usage of some internet resources was also very high, whilst the use of scholarly databases was quite low. The low patronage was attributed to inadequate information about the existence of these library resources. "Some reasons attributed to low patronage of online databases included lack of awareness of electronic resources, lack of time to access and too many passwords to remember" (Dadzie 2005:292). This study also stated that the main problems users had with accessing electronic resources were the inadequate number of computers in the library, lack of information about how to use electronic resources and lack of time to acquire skills needed to use these resources (Dadzie 2005:292).

Callinan (2005) studied the information-seeking behaviour of undergraduate biology students: a comparative analysis of first year and final year students at the University College Dublin. The aim of the study was to investigate the differences in information-seeking behaviour between first year biology and final year biochemistry students at University College Dublin so that measures could be taken to address those needs. It examined students' awareness and use of different sources of information for their

course-work, their use of the (E-) library, why they visited the university library, the type of assistance they had received in using the library as well as the type of instruction they would like to receive in the future. The study highlighted the positive aspects of seeking information from the student's perspective as well as the barriers they encountered when seeking course-related information. The findings showed that there were differences in the extent to which sources of information are used by students in different years of their studies. Lack of awareness was the primary reason why undergraduate biology students did not use the library's electronic databases. One of the key recommendations was that bibliographic instruction should meet the specific information needs of first year biology and final year biochemistry students as well as greater liaison between academics and librarians in the area of collection development and information literacy.

Dewald (2005) conducted a study on business academic staff acceptance of the web and library databases for student research. A much higher percentage of respondents either required or encouraged web use by their students than required or encouraged database use, though most also advised use of multiple sources. Dewald (2005) viewed academics as playing a significant role in promoting such resources to students and mentioned that a problem exists when academics are not aware of the availability of library online databases.

Junni (2007) undertook a study on students seeking information for their masters' theses and the effect of the internet. In this study a reference lists of masters' theses from 1985, 1993 and 2003 were studied in three disciplines: economics, psychology and mathematics, followed by semi-structured interviews of students who had finished their theses in 2003. The findings showed a substantial increase in the use of scholarly articles as references throughout the time period of the studies, although the amount of other information sources had remained largely unchanged. One of the main problems that students reported was a lack of training in information-seeking, and the abundance of irrelevant information on the internet. Many respondents mentioned that they would have needed additional training on using library databases.

The study by Okello-Obura and Constant (2008) on electronic information access and utilization at Makerere University, in Uganda, was done to establish the level of computer utilization skills of Makerere University Library and Information Science (LIS) students; to determine the use of electronic information resources by LIS students; to determine the attitudes of LIS students towards electronic information resources; and to establish the problems faced by LIS students in accessing electronic information resources. A questionnaire survey was used for data collection. The findings were that the majority of library and information science students at Makerere University depended on the university computers for their work, and a few of them accessed the library's e-resources. The majority of students surveyed were unaware of the Emerald and EbscoHost databases relevant to LIS students, and they found accessing e-resources time-consuming.

Riahinia and Zandian's (2008) study dealt with the evaluation of information providers and popular search engines on the basis of postgraduate students' perspectives. They examined the postgraduate students of two universities (Tarbiat Moallem and Tarbiat Modares) in Tehran to discover how they used online databases and general search engines. The study was performed by means of a questionnaire given to the participants. The participating libraries had a separate e-databases hall for postgraduate students. Students who were using the computers to search the databases, were asked to fill out the questionnaires according to their experience of using online resources. The results showed that 63.4% of the respondents used online databases, followed by search engines (24.3%), and print materials (11.3%). Participants ranked Google as the most favoured search engine.

The study by Atwong and Heichman Taylor (2008) reported on a successful case of collaboration between business librarians and academics in selecting, procuring, and servicing electronic databases in meeting academic objectives in one of the largest undergraduate business programmes at California State University in Fullerton. This study showed the extent of learning gain with respect to students' ability to locate, evaluate, and use effectively the required information. The findings showed that

significant perceived as well as objective learning gain was achieved as a result of concerted team efforts in training and teaching by the librarian and discipline academics.

Atakan, Atilgan, Bayram and Arslantekin (2008) did an evaluation of the second survey on electronic database usage at Ankara University Digital Library. The study examined the level of awareness by academic staff of digital library resources along with their use rate and also evaluated the preferences of academics for specific electronic databases. The case studies were undertaken by means of separate questionnaires in 2002 and 2005. According to the results of the second survey, increased numbers of the academics at Ankara University knew about the existence of the digital library and many of the academics, although not all, used electronic databases. The most preferred databases were Web of Science, Science Direct and EbscoHost (Atakan *et.al* 2008:249).

2.11.2 Previous studies undertaken at Southern African universities

At the UKZN several studies have been undertaken on the use of electronic databases in an academic library. They have focused on the use of electronic resources by academic staff (Nsanzya 2003) and by students (Jagarnath 2004, Soyizwapi 2005, Mawindo 2005). The researcher looked at previous studies done at UKZN and at other South African universities.

Van Zijl and Gericke (2002) undertook a study on the use of electronic databases by South African visual artists at the University of South Africa (UNISA). The instrument used was the self-administered questionnaire. The extent to which visual artists used certain well-known art-related databases that were available either online or on CD-ROM was investigated. The population consisted of the more information-literate visual artists in South Africa, and the sampling frame included lecturers in all branches of the visual arts at universities and technikons, art teachers in South African high schools and members of art societies. It was found that South African artists have low levels of interest in, and awareness of, these databases.

The study conducted by Nsanzya (2003) investigated the use of electronic library information resources and examined the Information Communication Technology (ICT) skills among the academic staff at the Edgewood College of the then University of Natal. The research instruments used were the self-administered questionnaire as the main data collection instrument and an interview with the head of the Edminson Branch Library located on the Edgewood campus. The questionnaire was distributed to 58 academic staff. The study found that all respondents had various ICT skills. There were also problems found in the study such as lack of knowledge of what resources were available, lack of knowledge about the resources, lack of training on how to access and use these resources and the lack of time to explore these resources (Nsanzya 2003:iii).

Jagarnath (2004) undertook a study which examined the issue of end-user instruction and access to electronic and full-text bibliographic information resources by postgraduate Management Studies students at the E.G. Malherbe Library, University of KwaZulu-Natal, Durban. A population of 39 students was studied. The research instruments used were a pre-test for background information plus a hands-on exercise on what database search skills students possessed. A post-test to determine what skills students acquired after a demonstration and finally, a librarians' questionnaire to elicit what problems subject librarians experienced during their end-user instruction sessions (Jagarnath 2004:i). The research found that postgraduates were generally inexperienced in the use of the electronic databases. It was also evident that subject librarians play an important role in supporting the need for end-user instruction on the use of electronic databases. End-users were not confident searching a completely new database in which no prior training was provided (Jagarnath 2004:100).

Soyizwapi (2005) undertook a study similar to the current one in the Faculty of Science and Agriculture at UKZNP. The purpose of her study was to investigate the use of electronic databases by postgraduate students in the Faculty of Science and Agriculture at UKZNP. The study population consisted of 500 registered postgraduate students. The survey instrument used was a self-administered questionnaire that was distributed to a sample population of 100 postgraduate students. In her recommendations she suggested

that a similar study be done focusing on students in other faculties. In Soyizwapi's study it was revealed that more than two-thirds of the postgraduate students did use the electronic databases, but there were problems that were identified by students, such as the limited off-campus access and slow internet connection because of insufficient bandwidth or the slow network (Soyizwapi 2005:78).

The study conducted by Mawindo (2005) evaluated the students' use of print and electronic resources at the University of Malawi, College of Medicine. The study population comprised 179 undergraduate students. The survey instrument used was a self-administered questionnaire that was distributed to undergraduate students and an interview with the College Librarian to find background information on issues of budgeting, technological infrastructure, licensing and copyright agreements, archiving and library staff and training. In her findings Mawindo was able to identify the most used electronic databases and also that the majority of students still preferred print over accessing electronic resources. The reasons for which included limited access to computer terminals, slowness of the internet and lack of computer skills to effectively search for and retrieve information (Mawindo 2005:108).

This study will complement the study done by Soyizwapi (2005) which investigated the use of electronic databases by postgraduate students in the Faculty of Science and Agriculture at UKZNP. The current study will investigate the use of electronic databases by HDSS masters students at UKZNP.

2.12 Summary of the chapter

In this chapter, several studies on the use of electronic databases were examined. The chapter included the role of academic libraries, electronic resources in academic libraries, a history and development of electronic resources at UKZN, general principles of searching online databases, the information needs of masters students, library and information skills and competencies masters students are expected to have and the role of subject librarians and library instruction. This chapter also highlighted the advantages and

problems experienced by students when accessing electronic databases. The chapter concluded by discussing the various studies done locally and internationally on student use of electronic databases.

Chapter 3

Research methodology

3.1 Introduction

According to Babbie and Mouton (2001:75) the methodology section of the study focuses on the process of research and tools or techniques to be used. The current study employs a combination of quantitative and qualitative methods. The main focus of this chapter will be on the research design and methodology that was used to address the research problem. It also focuses on the population, different data collection instruments used, namely the questionnaire and focus group interview, methods of data analysis and the validity and reliability of the study.

3.2 Research design

Quantitative and qualitative approaches are the two basic paradigms of research. The approach that the researcher undertook was triangulation where both qualitative and quantitative data were collected. Triangulation means that the data is gathered by "comparison of the results of two or more methods" (Bailey 1987:263). According to Babbie and Mouton (2001:217) methodological triangulation is the "best way to collect information about different events and relationships from different points of view".

Broadly quantitative methods involve collecting numerical data whereas qualitative methods explore attitudes, behaviour and experiences and also attempt to get an in-depth opinion from participants (School of Education Training and Development 2003:59).

3.3 Research method

The nature of this study was best served by the use of the survey method. According to Birley and Moreland (1998:34) survey methods are particularly useful to get an overview of a particular situation. "Surveys gather data on a once-off basis, and are therefore economical and generate numerical data" (School of Education Training and Development 2003:61).

According to Babbie and Mouton (2001:232) survey research is "probably the best method available to the social scientist interested in collecting original data for describing a population too large to observe directly".

Thody (2006:99) provides us with the purposes of the methodology survey. He states that methodology surveys should demonstrate the following methods:

- Validity – which shows the foundation in truth through the justification in other literature and similar research projects;
- Applicability – which indicates how far the methodology is generalisable;
- Reliability – which demonstrates whether the researcher has not invented or mispresented the data, or been careless in their recording or analysis;
- Credibility – which shows that other researchers have used similar methods to the researcher or that the researcher has built on other researchers' methods;
- Replicability – which includes enough detail to enable other researchers to check the research findings by repeating the method;
- Attraction – which gives readers a feel for what it was like to be the researcher; and
- Limitations – which humbly admit to a few difficulties but don't undermine the research by overwhelming self-criticism.

3.4 Data collection instruments

The instrument that the researcher employed as the quantitative method of data collection was the questionnaire (which included both closed and open-ended questions) and a focus group was used to collect qualitative data. According to Birley and Moreland (1998:40) data collection is "not just a process of collection, it is also a process of creation – of using information in unique ways related to the purposes of the study". The researcher selected this instrument because of the advantages it provides compared to other data collection instruments.

According to Bourque and Fielder (1995:59) open-ended questions have no list of possible answers, closed questions however, contain lists of possible answers from which respondents select the answer or answers that best represent their view or situation.

The researcher selected both of these data collection instruments because they were mainly used by other similar studies which were reviewed in the literature.

3.4.1 Open-ended questions

Open-ended questions allow respondents to answer in their own words. These questions are much easier to write than closed items, they generally are:
> more difficult to answer, code and analyse because a researcher must develop code frames or categories to organize and summarize the collected data. This process is sometimes referred to as content analysis (Bourque and Fielder (1995:59).

3.4.2 Closed questions

In closed questions respondents are provided with fixed responses from which they are supposed to choose. Closed questions are much more difficult to "design but, if designed carefully and with sufficient pre-testing, result in much more efficient data collection,

processing and analysis" (Bourque and Fielder 1995:59). These types of questions are less demanding for the respondent and much easier to code and analyse. According to Powell (1997:94) closed questions are "standardisable" and more easily understood by respondents, in terms of the dimensions along which the answers are sought.

3.4.3 Focus group interviews

To support the findings that were elicited from the questionnaire, the researcher used a focus group. A focus group discussion is an "in-depth open-ended, qualitative group discussion, lasting one to two hours, that is employed to collect information from a few individuals to provide data on a predefined topic" Akpabio, Asuzu, Fajemilehin and Bola 2007:38).

Akpabio *et.al* (2007:39) emphasised that "focus group discussions be utilised in social science and behavioural research". The focus group discussion consisted of six HDSS masters students from different disciplines. The aim was to obtain in-depth knowledge of the students' views about the use of electronic databases. Akpabio *et.al* (2007:39) mentioned that:

> Focus groups are held in neutral settings and conducted in a permissive and
> non-judgemental atmosphere. The venue should be quiet and spacious enough
> to comfortably accommodate all participants. The facilitator should try to
> ensure equal participation of all group members in the discussion. The
> sessions are usually tape-recorded for subsequent verification, transcription
> and analysis. This allows for verbatim analysis.

The focus group was conducted at a time that was convenient for all HDSS masters students. According to Holloway and Wheeler (1996) in Maura (2008:122) a focus group can be seen as a number of people with certain common experiences or characteristics who are interviewed by a moderator. These interviews take place in order to provide ideas, thoughts and perceptions about a particular topic or issue. Moreover:

focus groups allow for direct contact with the participants, the obtaining of the information in the participants' own words, as well as providing group members the opportunity to respond to the responses of their fellow members. In addition, the resulting information from focus groups is usually easily understandable (in comparison with the complex statistics associated with quantitative interpretations). Furthermore, focus groups are very flexible and can be used to examine various ideas in various settings (Maura 2008:122).

Greenbaum (2000:4) identified the following characteristics of focus groups:

- They must be conducted by an objective, external, trained facilitator;
- They must be composed of seven to 10 people who were recruited on the basis of common characteristics;
- They must be implemented using a discussion guide that has been prepared in advance to ensure that the appropriate topics are covered in the session and that the proper amount of time is allocated to each;
- They must be executed in such a way that the participants interact with each other both verbally and nonverbally; and
- They must be conducted in an environment that is conducive to all participants giving their complete attention to the discussion topics for the entire session.

Even though there are advantages of conducting focus group interviews, there are also disadvantages. Maura (2008:122) identified the following limitations associated with focus groups:

- A small number of participants take part in focus groups, thus limiting the generalisation to a larger population;
- Generalisation is further limited because of the nonprobable and convenient way in which participants are selected;
- Sometimes it can also prove very difficult to assemble these groups;
- Furthermore, the number of questions that can be asked in a focus group is limited, because of the time in which a variety of answers must be received from a group of people; and

- Finally, interpretation of the results might prove difficult, because both the questions used and answers provided can be open-ended in nature.

3.4.3.1 Procedures for conducting focus group interviews

According to Powell (1997:114) "focus groups are usually scheduled for one session of one or two hours, but it may be necessary to hold more than one session, in some cases". In this study one session of an hour and a half was used for the focus group interview.

The focus group discussion was facilitated by the researcher and the researcher's assistant. According to Kelly 1999 in Moyane (2007:38) the facilitator needs to "be aware of the personal and interpersonal dynamics at work within the group". This includes the comfort level of the group from the beginning to end. The researcher chose a venue that was comfortable and central for all participants to reach. Refreshments were provided for the participants. The facilitator welcomed the participants and asked them to relax and assured them that there would be no right or wrong responses. The facilitator requested permission to record the proceedings of the discussion and the participants were assured that their identity would remain confidential.

3.4.4 Questionnaire

According to Ngulube (2003) in Moyane (2007:36) the term 'questionnaire' refers to a "technique of data collection in which each respondent is asked to give answers to the same set of questions and statements in a predetermined order, in the absence of a researcher".

The main feature of the questionnaire is its impersonality. The questions are fixed, that is they do not change according to how the replies develop, questions are the same for each respondent and the person posing the questions is remote. The responses can be completely anonymous, allowing potentially embarrassing questions to be asked with a fair chance of getting a true reply. Another feature is that there is generally no

geographical limitation with regard to the location of the respondent. Questionnaires can be a relatively economical method, in terms of cost and time, of gathering data from a large number of respondents (Raju 2005:185).

However, there are also negative implications for using questionnaires as data collecting tools which the researcher must address. These negative implications were addressed by the School of Education Training and Development (2003:84), as respondents may not understand the questions asked or may give the answer that he or she thinks the researcher wants to hear. In addition the questionnaire is limited as it is only able to collect data from respondents who are literate. If respondents are not interested in the topic, the response rate tends to be lower. The first problem raised above was addressed by pre-testing the questionnaire to ensure that all the questions mean the same to all the respondents. As all intended respondents are literate, the second problem did not apply. In order to control the lower response rate, the researcher encouraged and reminded the respondents to respond by sending a follow up letter:

> If potential respondents have not returned their questionnaires after two or three weeks, the questionnaires probably have been lost or misplaced. Receiving a follow-up letter might encourage them to look for the original questionnaire (Babbie and Mouton (2001:260).

3.4.4.1 Pre-testing of the questionnaire

It is very important to design the questionnaire properly to ensure that the respondents understand what a researcher is asking them. The researcher needs to be sure that the questions do not have more than one meaning. The questionnaire must be pre-tested before it is given to the respondents to fill in. "Pretesting the questionnaire means that it is given to some people (who are similar to the actual respondents) to trial and to see what problems they find when they fill them in then and there" (School of Education 2003:83). Powell (1997:105) stressed that questionnaires need to be pre-tested or evaluated to improve the standard of questioning, before they are used in a survey.

Pretesting is important because it can solve problems the researchers did not solve in the design of the survey instrument (Fowler 2002:114). This action identifies problem areas in the questionnaire and the researcher can change the questionnaire before it is given to the real sample. A pre-test of the questionnaire for the current study was done on six registered masters students in the Faculty of Science and Agriculture at the University of KwaZulu-Natal, Pietermaritzburg campus in order to identify any unclear issues in the questionnaire.

The reason for using this group of students in the pre-test was because all of them were masters students with similar characteristics to those of the HDSS masters students. All six respondents returned the questionnaire with some comments. Minor editorial and grammatical changes were made to the questionnaire from the comments received from the pre-test population.

3.4.4.2 Distribution of the questionnaire

The method of distributing the questionnaire is very important. In this study the questionnaire was distributed in two ways:
- The researcher liaised with HDSS academic masters coordinators from different disciplines and requested them to hand-out the questionnaires to their students during lectures. The academic masters coordinators requested the students to return the answered questionnaires after one week;
- In addition, the researcher requested the HDSS faculty officer to provide her with the list of all registered masters students in the faculty. The researcher sent the questionnaire by e-mail to all HDSS masters students. This was done to include those who were no longer attending lecturers. The students were given a period of approximately two weeks to complete the questionnaire and e-mail the completed questionnaire to the researcher.

The researcher sent the follow up email to remind masters students to return their questionnaires on time.

3.5 Population

In this study the population was registered masters students in the Faculty of HDSS at UKZNP. The population in October 2009 was 205. The researcher was the 206th member of the population and therefore did not participate in the survey as a respondent. Given the size of the population no sampling was done. The questionnaire was sent to all registered HDSS masters students at UKZNP.

The focus group discussion consisting of six masters students was conducted in October 2009. The aim of the focus group was to "obtain in-depth knowledge of the masters students' views about the use of electronic databases" (Akpabio *et.al* 2007:39). The discussion involved six masters students from the following disciplines: Psychology, Information Studies, Sociology, Theology, Policy and Development Studies and Language Studies.

3.6 Data analysis

The collected data was sorted and coded. "Coding is the process of structuring data into an analysable form" (Birley and Moreland 1998:58). The data needs to be collated and presented in a way that makes it understandable and interesting to the researcher and other readers. Coding of quantitative data uses either letters, numerals or alpha-numeric codes to describe the data, which becomes capable of being analysed without reference to each of the responses of the sample (Birley and Moreland 1998:58).

The purpose of data analysis is to check for ambiguity, completeness, comprehensibility, internal consistency, relevance and reliability. Babbie and Mouton (2001:411) advised that completed questionnaires should be assigned a unique number; this facilitates checking the data for errors. In this study the quantitative data was analysed using SPSS. According to Powell (1997:67) the SPSS system is a "comprehensive, relatively easy to use computer program for statistical analysis, report writing, tabulation and general purpose data management". The advantages advanced by various authors about computer

processing are that "it speeds up processing and analysis of data as well as saving and eliminating a good deal of tedious and repetitive work" (Ginindza 2008:62).

Once the data have been coded and entered, the data need to be checked to make sure the data file is complete and in order. When errors are found, the original source must be consulted and corrections made (Fowler 2002:144).

Analysis of data from the focus group involves the "transcription of views and opinions that emerged and has been verified through the group discussion" (Akpabio *et.al* 2007:40). In this study the qualitative data were analysed using the thematic content analysis. According to Babbie and Mouton (2001:383) content analysis is:

> collecting and organizing information systematically in a standard format that allows analysts to draw a conclusion about the characteristics and meaning of recorded material.

3.7 Validity and reliability

Birley and Moreland (1998:40) stress the importance of validity and reliability. The person conducting the research needs to be sure that the data collecting instrument is both valid and reliable. According to Babbie and Mouton (2001:119):

> reliability is the degree to which a test consistently measures what it sets out to measure while at the same time yielding the same results whereas validity is the degree to which a measure does what it is intended to accomplish.

3.7.1 Validity

"Validity ensures that data sets collected or items used are pertinent or relevant to the research" (Birley and Moreland 1998:41). In validity the concern should be to reduce the amount of interference by non-relevant or non-valid aspects, such as the language used, the language should not be complex or hinder understanding and answering (Birley and Moreland 1998:41).

Ensuring validity can be achieved in a number of ways, one of which is to carry out an initial investigation (a pre-testing study) using the intended data collecting instrument to check the "authenticity and relevance of the data produced" (Birley and Moreland 1998:42).

For the purpose of this study pre-testing the questionnaire on masters students in the Faculty of Science and Agriculture at UKZNP was used as a tool for content validation.

3.7.2 Reliability

"Reliability is the extent to which a test would give consistent results if applied more than once to the same people under standard conditions (Birley and Moreland 1998:43). One approach to check reliability is the 'test-retest method', which involves using an instrument with a group on two separate occasions and analyzing how closely the two sets of results conform to each other (Birley and Moreland 1998:43). In this study in order to enhance reliability, the researcher recorded every step that was taken during data collection in such detail that if other researchers wanted to replicate the study, they would come to the same conclusions.

3.8 Summary of the chapter

This chapter explained what was done in the study in order to collect data to answer the research question. The approach that the researcher undertook was triangulation where both qualitative and quantitative data were collected. The researcher used a focus group interview and questionnaire as data collection instruments. To ensure reliability and validity of the study, a pretest of the questionnaire was done and the researcher recorded everything during data collection. The quantitative data was analysed using SPSS and the qualitative data was analysed using thematic content analysis.

Chapter 4

Results of the survey

4.1 Introduction

This chapter presents the results of the study. The study set out to investigate the use of electronic databases by the masters students in the Faculty of HDSS at UKZNP. Data was collected using a self-administered questionnaire and a focus group interview schedule for HDSS masters students. Results for each question in the questionnaire and interview schedule are presented. The questionnaire data was analysed using SPSS, while data collected using the focus group interview was analysed using thematic content analysis.

4.2 Response rate

As mentioned in the previous chapter, the self-administered questionnaires were distributed to HDSS masters students. Out of a total of 205 questionnaires distributed, 139 were returned yielding a response rate of 68%.

Owen and Jones in Saunders (2000:158) argue that response rates in surveys can be as low as 40% and that a response rate of approximately 30% is reasonable. Therefore, in this study a good response rate of 68% was yielded allowing the researcher to make generalizations about the total population.

At the focus group session six HDSS masters students were present, not all disciplines were represented. Students from Politics, Literary Studies, Media and Creative Arts did not attend the focus group session since they were completing their theses and therefore did not have the time.

4.3 Questionnaire results

The questionnaire was arranged to cover three main sections of the research topic. Section A of the questionnaire looked at the background information of the students, while section B examined library usage and section C examined information relating to electronic databases.

It must be noted that Questions 6, 9, 10, 11, 13, 14, 15, 16, 17, 19, 20 and 24 were multiple response questions that allowed respondents to indicate more than one response. The symbol N indicates the number of respondents that should have answered a particular question. Figures are rounded-off to one decimal place.

4.3.1 Section A – Background information

The background information provides more detail about who the respondents were, their degree, gender, age and race.

4.3.1 1 Degree registered for

Question 1 was asked to determine the degree respondents were registered for.

Table 1 illustrates that from a total of 139 students, 44 (31.7%), were registered for a Master of Arts degree (MA); 39 (28.1%) for a degree of Master of Social Science (MSocSc); 28 (20.1%) for a Master of Theology (MTH); 10 (7.2%) for a Master of Information Studies (MIS); five (3.6%) for a Master of Arts (Psychology); five (3.6%) for a Master of Arts (Fine Arts) (MAFA) and eight (5.8%) did not respond to the question.

Table 1: Degree registered for

N = 139

Degree	Frequency	Percent
MA	44	31.7%
MSocSc	39	28.1%
MTH	28	20.1%
MIS	10	7.2%
MAFA	5	5.8%
MA (Psychology)	5	3.6%
No response	8	3.6%
Total	139	100%

4.3.1.2 Gender

Question 2 was asked to establish the number of respondents who were male or female.

Table 2 shows that from a total of 139 students, 77 (55.4%) were male and 62 (44.6%) were female. Therefore, a majority of the respondents were male.

Table 2: Gender

N = 139

Gender	Frequency	Percent
Male	77	55.4%
Female	62	44.6%
Total	139	100%

4.3.1.3 Age

Question 3 was asked to establish the age groups of the respondents.

Figure 1 shows that a majority of the respondents were from the age groups 20 – 30 years. Of the 139 students, 40 (28.8%) were from the age group of 26 – 30 years; 31 (22.3%) from 20 – 25 years; 26 (18.7%) from 31 – 35 years; 21 (15.1%) from 36 – 40 years and 21 (15.1%) were 41 years and older.

Figure 1: Age

N = 139
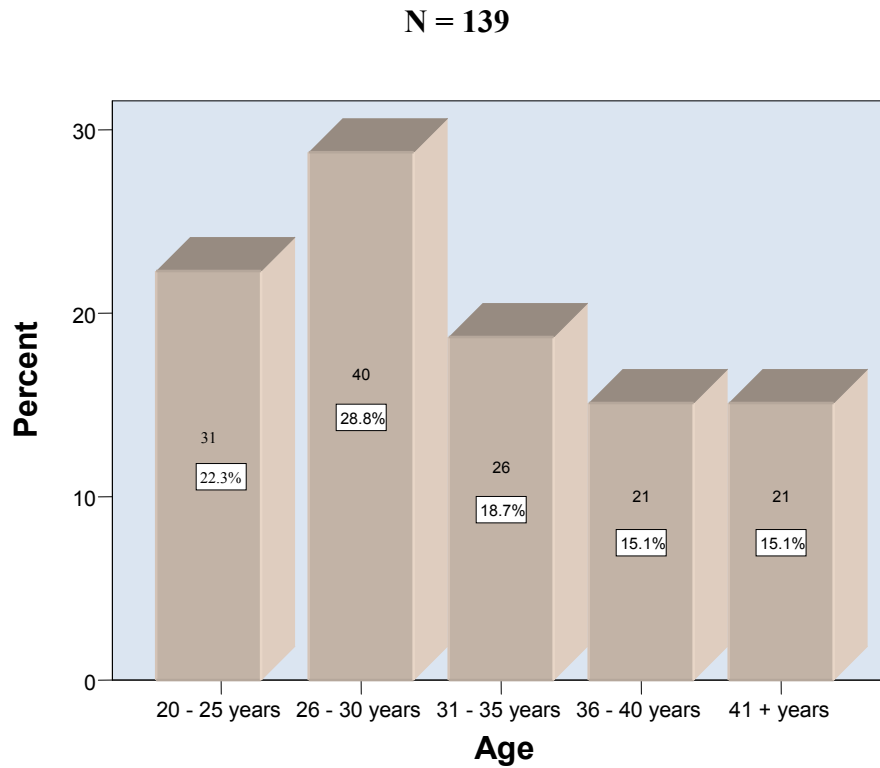
4.3.1.4 Race

Question 4 was asked to establish the race groups of all respondents.

Table 3 shows that just over half the masters students, 77 (55.4%) were Black; followed by 28 (20.1%) who were White; 21 (15.1%) were Indians; 10 (7.2%) were Coloured. Only one student (0.7%) did not respond to the question.

Table 3: Race

N = 139

Race	Frequency	Percent
Black	77	55.4%
White	28	20.1%
Indian	21	15.1%
Coloured	10	7.2%
Other	2	1.4%
No response	1	0.7%
Total	139	100%

4.3.2 Section B – Library usage

The information in this section deals with library usage.

4.3.2.1 Frequency of library visit

Question 5 sought to establish how often masters students visited the library. Figure 2 shows that, 60 (43.2%) students visited the library weekly; 36 (25.9%) daily; 27 (19.4%) monthly; 14 (10.1%) fortnightly and two (1.4%) rarely or never visited the library. Therefore, most of the masters students, 60 (43.2%) visited the library weekly.

Figure 2: Frequency of library visits

N = 139
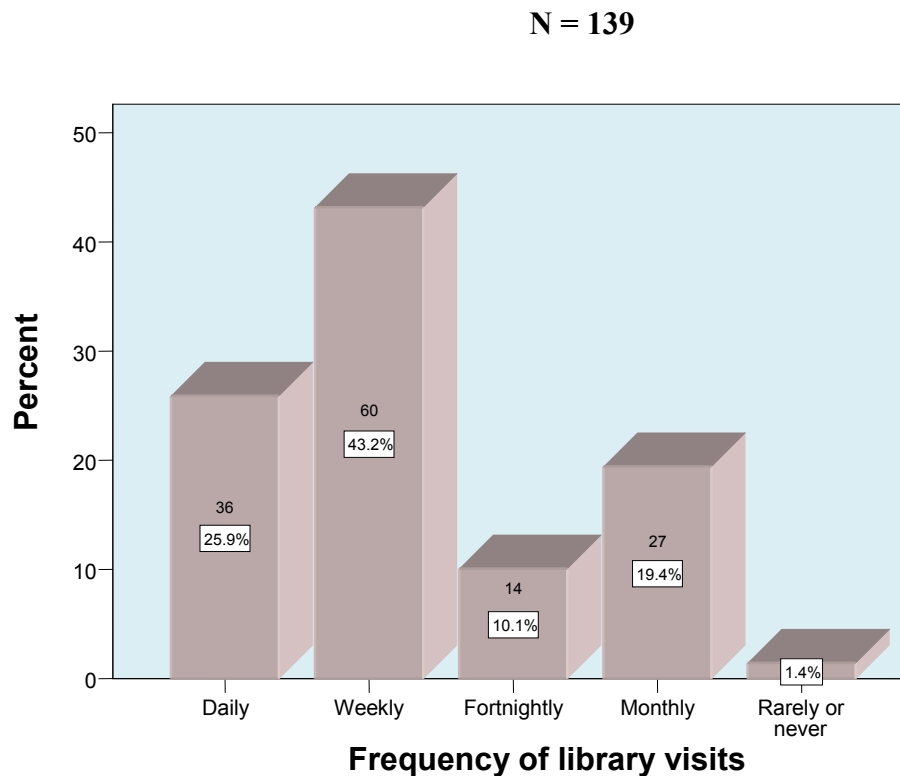
4.3.2.2 Reasons for using the library

Question 6, a multiple response question, sought to establish the main reasons for students' use of the library.

Table 4 shows that from the total of 139 respondents, 100 (71.9%) used the library to research and read, 74 (53.2%) to borrow books, 46 (33.1%) to search for print journals, 18 (12.9%) to access the internet and five (3.6%) for wireless access to the internet. A few students, 12 (8.6%) did not respond to the question. Thus, a large majority of the students, 100 (71.9%) used the library to research and read.

Table 4: Main reasons for using the library

N = 139

Reasons for using the library	Yes		No		No response		Total	
	Count	%	Count	%	Count	%	Count	%
Research and read	100	71.9%	27	19.4%	12	8.6%	139	100%
Borrowing books	74	53.2%	53	38.1%	12	8.6%	139	100%
Searching print journals	46	33.1%	81	58.3%	12	8.6%	139	100%
Accessing internet	18	12.9%	109	78.4%	12	8.6%	139	100%
Using wireless	5	3.6%	122	87.8%	12	8.6%	139	100%

4.3.2.3 Dependency on the library

Question 7 sought to establish how dependent the masters students were on the library. Figure 3 shows that from a total of 139 respondents, 76 (54.7%) were very dependent on the library; 45 (32.4%) were somewhat dependent and 18 (12.9%) were not dependent on the library. Thus just over half of the masters students, 76 (54.7%), were very dependent on the library.

Figure 3: Library dependency

N = 139
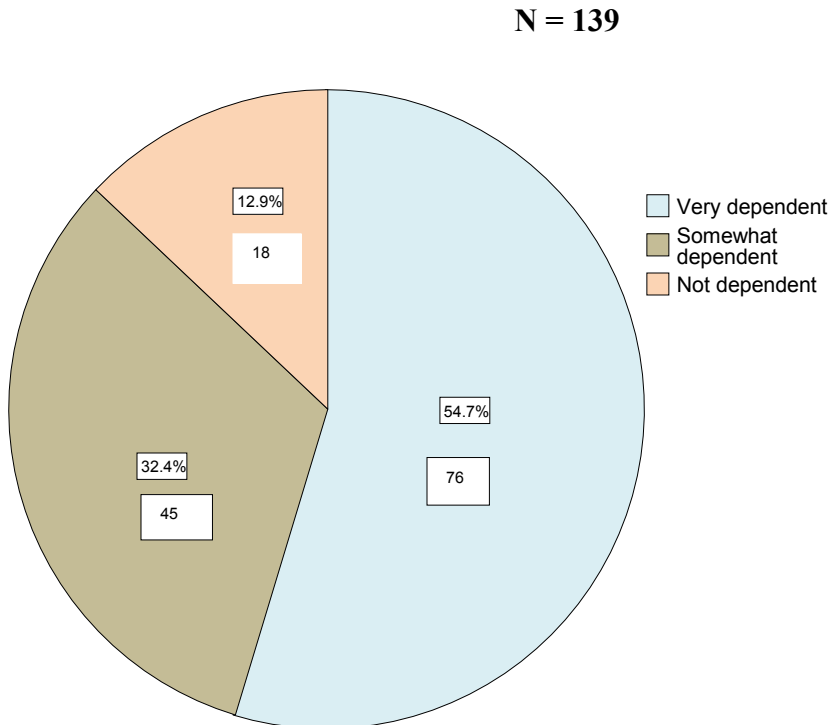
4.3.3 Section C – Information relating to electronic databases

The information in this section relates to the use of the library's electronic databases by the masters students.

4.3.3.1 Use of electronic databases

Question 8 sought to establish whether masters students used the electronic databases provided by the library. The majority of students, 113 (81.3%) used the electronic databases while 26 (18.7%) did not use the electronic databases.

4.3.3.2 Electronic databases used

Question 9, a multiple response question, sought to establish which electronic databases masters students were using.

Table 5 shows that from a total of 113 respondents the top five databases used by the students were:

- EbscoHost (84 /74.3%);
- SABINET (75 /66.4%);
- ProQuest (56 /49.6%);
- Science Direct (54 /47.8%); and
- JSTOR (44 /38.9%).

The four least used databases were:

- CSA Illumina (10 /8.8%);
- Popline (10 /8.8%);
- Aluka Digital Library (eight /7.1%); and
- CabDirect (two /1.8%).

Table 5: Electronic databases

N = 113

Electronic databases used	Yes		No		Total	
	Count	%	Count	%	Count	%
EbscoHost	84	74.3%	29	25.7%	113	100%
SABINET	75	66.4%	38	33.6%	113	100%
ProQuest	56	49.6%	57	50.4%	113	100%
Science Direct	54	47.8%	59	52.2%	113	100%
JSTOR	44	38.9%	69	61.1%	113	100%
African Journals Online	43	38.1%	70	61.9%	113	100%
Emerald Insight	38	33.6%	75	66.4%	113	100%
Project Muse	27	23.9%	86	76.1%	113	100%
SwetsWise	27	23.9%	86	76.1%	113	100%
Directory of Open Access Journals	21	18.6%	92	81.4%	113	100%
African Writers Series	18	15.9%	95	84.1%	113	100%
Web of Knowledge	17	15%	96	85%	113	100%
Silver Platter	16	14.2%	97	85.8%	113	100%
WilsonWeb	16	14.2%	97	85.8%	113	100%
LexisNexis	15	13.3%	98	86.7%	113	100%
CSA Illumina	10	8.8%	103	91.2%	113	100%
Popline	10	8.8%	103	91.2%	113	100%
Aluka Digital Library	8	7.1%	105	92.9%	113	100%
CabDirect	2	1.8%	111	98.2%	113	100%

4.3.3.3 Frequency of using the electronic databases

Question 10, a multiple response question, sought to establish how often masters students used the electronic databases.

Table 6 shows that from a total of 113 respondents, the library catalogue was the most used database. It was used daily by 44 (38.9%); 39 (34.5%) used it weekly; 16 (14.2%) monthly and 14 (12.4%) never used the catalogue. EbscoHost received the second highest ranking, with 26 (23%) using it daily; 48 (42.5%) weekly; 17 (15%) monthly and 22 (19.5%) never used EbscoHost. SABINET received the third highest usage, with 23 (20.4%) using it daily; 32 (28.3%) weekly; 26 (23%) monthly and 32 (28.3%) never used SABINET. The databases that were seldom used were Silver Platter (98 /86.7%); Aluka Digital Library and WilsonWeb each (92 /81.4%) respectively; LexisNexis (90 /79.6%); and Directory of Open Access Journals (85 /75.2%).

Table 6: Frequency of using of electronic databases

N = 113

Frequency of Use	Daily		Weekly		Monthly		Never used		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%
Catalogue	44	38.9%	39	34.5%	16	14.2%	14	12.4%	113	100%
EbscoHost	26	23%	48	42.5%	17	15%	22	19.5%	113	100%
SABINET	23	20.4%	32	28.3%	26	23%	32	28.3%	113	100%
African Journals Online	20	17.7%	21	18.6%	15	13.3%	57	50.4%	113	100%
Emerald Insight	15	13.3%	21	18.6%	9	8%	68	60.2%	113	100%
ProQuest	15	13.3%	29	25.7%	20	17.7%	49	43.4%	113	100%
Science Direct	15	13.3%	27	23.9%	13	11.5%	58	51.3%	113	100%
SwetsWise	6	5.3%	11	9.7%	13	11.5%	83	73.5%	113	100%
Project Muse	5	4.4%	13	11.5%	11	9.7%	84	74.3%	113	100%
Web of Knowledge	5	4.4%	10	8.8%	8	7.1%	90	79.6%	113	100%
African Writers Series	4	3.5%	12	10.6%	12	10.6%	85	75.2%	113	100%
JSTOR	4	3.5%	28	24.8%	22	19.5%	59	52.2%	113	100%
Popline	4	3.5%	5	4.4%	5	4.4%	99	87.6%	113	100%
CSA Illumina	3	2.7%	6	5.3%	7	6.2%	97	85.8%	113	100%
Aluka Digital Library	2	1.8%	10	8.8%	9	8%	92	81.4%	113	100%
LexisNexis	2	1.8%	6	5.3%	15	13.3%	90	79.6%	113	100%
Silver Platter	2	1.8%	8	7.1%	5	4.4%	98	86.7%	113	100%
WilsonWeb	2	1.8%	13	11.5%	6	5.3%	92	81.4%	113	100%
Directory of Open Access Journals	1	0.9%	13	11.5%	14	12.4%	85	75.2%	113	100%

4.3.3.4 Importance of electronic databases

Question 11, a multiple response question, sought to establish the order of importance of the library's electronic databases.

Table 7 shows that from a total of 113 respondents, the library catalogue was ranked as very important by a majority of 86 (76.1%) students while 14 (12.4%) ranked it as an important database. EbscoHost received the second highest ranking, with 65 (57.5%) students considering it very important while 25 (22.1%) as important. SABINET received the third highest ranking, with 50 (44.2%) students considering it very important while 32 (28.3%) considering it as important. The databases that were considered unimportant by the students were Web of Knowledge by 22 (19.5%) students; SwetsWise and CSA Illumina by 21 (18.6) students each respectively; Silver Platter and Aluka Digital Library by 20 (17.7%) students each respectively.

Table 7: Order of importance of electronic databases

N = 113

Importance of databases	Very Important		Important		Neutral		Unimportant		No response		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Catalogue	86	76.1%	14	12.4%	4	3.5%	5	4.4%	4	3.5%	113	100%
EbscoHost	65	57.5%	25	22.1%	11	9.7%	4	3.5%	8	7.1%	113	100%
SABINET	50	44.2%	32	28.3%	20	17.7%	5	4.4%	6	5.3%	113	100%
African Journals Online	35	31%	19	16.8%	45	39.8%	10	8.8%	4	3.5%	113	100%
Emerald Insight	29	25.7%	15	13.3%	45	39.8%	14	12.4%	10	8.8%	113	100%
Science Direct	29	25.7%	25	22.1%	41	36.3%	9	8%	9	8%	113	100%
ProQuest	23	20.4%	35	31%	38	33.6%	7	6.2%	10	8.8%	113	100%
JSTOR	20	17.7%	25	22.1%	45	39.8%	11	9.7%	12	10.6%	113	100%
Project Muse	12	10.6%	17	15%	57	50.4%	13	11.5%	14	12.4%	113	100%
Web of Knowledge	10	8.8%	8	7.1%	61	54%	22	19.5%	12	10.6%	113	100%
Directory of Open Access Journals	9	8%	21	18.6%	54	47.8%	18	15.9%	11	9.7%	113	100%
SwetsWise	9	8%	12	10.6%	60	53.1%	21	18.6%	11	9.7%	113	100%
LexisNexis	8	7.1%	12	10.6%	63	55.8%	16	14.2%	14	12.4%	113	100%
Silver Platter	8	7.1%	7	6.2%	65	57.5%	20	17.7%	13	11.5%	113	100%
WilsonWeb	8	7.1%	14	12.4%	61	54%	19	16.8%	11	9.7%	113	100%
Popline	6	5.3%	11	9.7%	65	57.5%	19	16.8%	12	10.6%	113	100%
African Writers Series	5	4.4%	26	23%	56	49.6%	15	13.3%	11	9.7%	113	100%
CSA Illumina	4	3.5%	13	11.5%	62	54.9%	21	18.6%	13	11.5%	113	100%
Aluka Digital Library	2	1.8%	16	14.2%	62	54.9%	20	17.7%	13	11.5%	113	100%

4.3.3.5 Satisfaction with the library's electronic database service

Question 12 sought to establish whether masters students were satisfied with the present library service regarding the use of electronic databases. A majority of 85 (75.2%) were satisfied with the library service while 25 (22.1%) were not satisfied and three (2.7%) did not respond to the question.

4.3.3.6 The reasons for not being satisfied with the electronic database service

Question 13 sought to establish the reasons why masters students were not satisfied with the present library service regarding the use of electronic databases.

Table 8 shows that from a total of 25 respondents who were not satisfied with the service, 16 (64%) students mentioned that they were not able to access full-text articles because databases required passwords; seven (28%) students experienced difficulties when trying to navigate; four (16%) students did not know how to access the electronic databases; three (12%) students said they were not given training on how to access the databases and there were not enough computers for use. In addition, two (8%) students mentioned that it was very hard to print articles in the library while one (4%) student did not respond to the question.

Table 8: Reasons for not being satisfied with electronic databases

N = 25

Reasons for being unsatisfied	Yes		No		No response		Total	
	Count	%	Count	%	Count	%	Count	%
Cannot access articles (Password requirement)	16	64%	8	32%	1	4%	25	100%
Difficult to navigate	7	28%	17	68%	1	4%	25	100%
Reasons - don't know how to access them	4	16%	20	80%	1	4%	25	100%
No training/education given; not enough computers	3	12%	21	84%	1	4%	25	100%
Hard to print from the library	2	8%	22	88%	1	4%	25	100%

4.3.3.7 Problems with the use of electronic databases

Question 14, a multiple response question, sought to establish the problems experienced by masters students when using the electronic databases.

Table 9 shows that from a total of 113 respondents, 60 (53.1%) considered the password requirement in the use of the databases a problem while 51 (45.1%) did not. With regard to limited off-campus access, 53 (46.9%) considered this a problem while 58 (51.3%) did not. Fifth (44.2%) students, were not sure which databases to choose while 61 (54%) did not have this problem. With regard to difficulties in searching, 48 (42.5%) considered this a problem while 63 (55.8%) did not. With regard to the problem of printing, 45 (39.8%) considered this a problem while 66 (58.4%) did not consider printing a problem. With regard to the problem of logging in, 33 (29.2%) considered this to be a problem while 78 (69%) did not. Slow access when using electronic databases was considered by 29 (25.7%) to be a problem, while 82 (72.6%) did not see this as a problem. A few students 21 (18.6%) mentioned that staff are not always available to help while 90 (79.6%) did not consider this a problem. The many links to open the full-text was considered by only five (4.4%) students to be a problem.

Table 9: Problems with use of electronic databases

N = 113

Problems with use	Yes		No		No response	
	Count	%	Count	%	Count	%
Password requirements	60	53.1%	51	45.1%	2	1.8%
Limited off-campus access	53	46.9%	58	51.3%	2	1.8%
Not sure which to choose	50	44.2%	61	54%	2	1.8%
Difficulties in searching	48	42.5%	63	55.8%	2	1.8%
Printing	45	39.8%	66	58.4%	2	1.8%
Logging in	33	29.2%	78	69%	2	1.8%
Slow connection	29	25.7%	82	72.6%	2	1.8%
Staff not always available to help	21	18.6%	90	79.6%	2	1.8%
Many links to open the full-text	5	4.4%	106	93.8%	2	1.8%

4.3.3.8 Where electronic databases accessed from

Question 15, a multiple response question, sought to establish where masters students access the electronic databases from.

Table 10 shows that from a total of 113 respondents, a majority of 87 (77%) accessed the databases from the university LAN while 24 (21.2%) did not. A further majority, 82 (72.6%), students accessed the databases in the library while 30 (26.5%) did not. With regard to postgraduate rooms 71 (62.8%), students accessed the databases from the rooms while 41 (36.3%) did not. A minority of 42 (37.2%) students accessed the databases from off-campus. A few students, seven (6.2%) were UKZN staff members so they accessed the electronic databases from their offices on campus.

Table 10: Where electronic databases accessed from

N = 113

Databases accessed from	Yes		No		No response		Total	
	Count	%	Count	%	Count	%	Count	%
LAN	87	77%	24	21.2%	2	1.8%	113	100%
Library	82	72.6%	30	26.5%	1	0.9%	113	100%
Postgraduate rooms	71	62.8%	41	36.3%	1	0.9%	113	100%
Remote (off-Campus)	42	37.2%	70	61.9%	1	0.9%	113	100%
Office on campus	7	6.2%	105	92.9%	1	0.9%	113	100%

4.3.3.9 The benefits of using electronic databases

Question 16, a multiple response question, sought to establish the benefits of using electronic databases.

Table 11 shows that from a total of 113 respondents, 93 (82.3%) considered current information as a benefit while 20 (17.7%) did not. The ability to email, save and print results were considered by 86 (76.1%) as a benefit, while 27 (23.9%) did not consider this a benefit. Accessing information anytime of day was considered a benefit by 81 (71.7%) while 32 (28.3%) did not consider it a benefit. Availability of full-text was considered a benefit by 76 (67.3%) while 37 (32.7%) did not consider it a benefit. The fact that the databases were easy to use was considered a benefit by 59 (52.2%) while 54 (47.8%) did not consider this a benefit. Convenience of using a database was considered a benefit by only three (2.7%) of the students.

Table 11: Benefits of electronic databases

N = 113

Benefits of databases	Yes		No		Total	
	Count	%	Count	%	Count	%
Current information	93	82.3%	20	17.7%	113	100%
Can email, save, print results	86	76.1%	27	23.9%	113	100%
Access anytime of day	81	71.7%	32	28.3%	113	100%
Availability of full-text	76	67.3%	37	32.7%	113	100%
Ease of use	59	52.2%	54	47.8%	113	100%
Convenience	3	2.7%	110	97.3%	113	100%

4.3.3.10 How masters students found out about electronic databases

Question 17, a multiple response question, sought to establish how masters students had found out about the library's electronic databases.

Table 12 shows that from a total of 113 respondents, 63 (55.8%) were told by their lecturers about the databases; 60 (53.1%) were told by their friends; 56 (49.6%) students found out about the databases through library orientation; 38 (33.6%) found out through the library website and 31 (27.4%) found out through the library guides. Only four (3.5%) students knew about the electronic databases because they worked at the UKZN libraries.

Table 12: How students found out about electronic databases

N = 113

How students found out about databases	Yes		No		Total	
	Count	%	Count	%	Count	%
Lecturers	63	55.8%	50	44.2%	113	100%
Friends	60	53.1%	53	46.9%	113	100%
Library orientation	56	49.6%	57	50.4%	113	100%
Library website	38	33.6%	75	66.4%	113	100%
Library guides	31	27.4%	82	72.6%	113	100%
Worked at the university library	4	3.5%	109	96.5%	113	100%

4.3.3.11 Sufficient skills to access electronic databases

Question 18 sought to establish whether masters students had sufficient skills to access the electronic databases.

Of the 113 respondents, 91 (80.5%) had sufficient skills while 22 (19.5%) did not have sufficient skills to access the databases.

4.3.3.12 Difficulties masters students experienced when accessing electronic databases

Question 19, a multiple response question, sought to establish the difficulties experienced by masters students who did not have sufficient skills to access the electronic databases.

Table 13 shows that from a total of 22 respondents, 18 (81.8%) experienced difficulties in developing a search strategy while four (18.2%) did not; 17 (77.3%) experienced difficulties in using the software interface while five (22.7%) did not and 15 (68.2%) experienced difficulties in limiting search results while six (31.8%) did not.

Table 13: Difficulties with electronic databases

N = 22

Difficulties with electronic databases	Yes		No		Total	
	Count	%	Count	%	Count	%
Limiting search results	18	81.8%	4	18.2%	22	100%
Using the software interface	17	77.3%	5	22.7%	22	100%
Developing a search strategy	15	68.2%	7	31.8%	22	100%

4.3.3.13 Other databases students used

Question 20, a multiple response question, sought to establish what other databases masters students used besides those provided by the library.

Table 14 shows that from a total of 139 respondents, 137 (98.6%) used the Google search engine. The other databases that were used by masters students included the following: 17 (12.2%) used Yahoo; 14 (10.1%) used Google scholar; seven (5%) used Lycos; three (2.2%) used Ask and Wikipedia; one student each (0.7%) used Clusty, Amazon, Itc library and Ceramicsdaily respectively. Two students (1.4%) did not respond to this question.

Table 14: Other databases

N = 139

Other databases used	Yes		No		No response		Total	
	Count	%	Count	%	Count	%	Count	%
Google	137	98.6%	0%	0%	2	1.4%	139	100%
Yahoo	17	12.2%	120	86.3%	2	1.4%	139	100%
Google scholar	14	10.1%	123	88.5%	2	1.4%	139	100%
Lycos	7	5%	130	93.5%	2	1.4%	139	100%
Wikipedia	3	2.2%	134	96.4%	2	1.4%	139	100%
Ask	3	2.2%	134	96.4%	2	1.4%	139	100%
Clusty	1	0.7%	136	97.8%	2	1.4%	139	100%
Amazon	1	0.7%	136	97.8%	2	1.4%	139	100%
Itc Library	1	0.7%	136	97.8%	2	1.4%	139	100%
Ceramicsdaily	1	0.7%	136	97.8%	2	1.4%	139	100%

4.3.3.14 Rating of computer literacy

Question 21 sought to establish how the masters students rated their own levels of computer literacy.

Figure 4 shows that from a total of 139 respondents, 48 (34.5%) regarded themselves as competent, 39 (28.1%) as average, 37 (26.6%) as highly competent, nine (6.5%) as not competent, four (2.9%) were not sure and two (1.4%) did not respond to the question.

Figure 4: Rating of computer literacy

N = 139
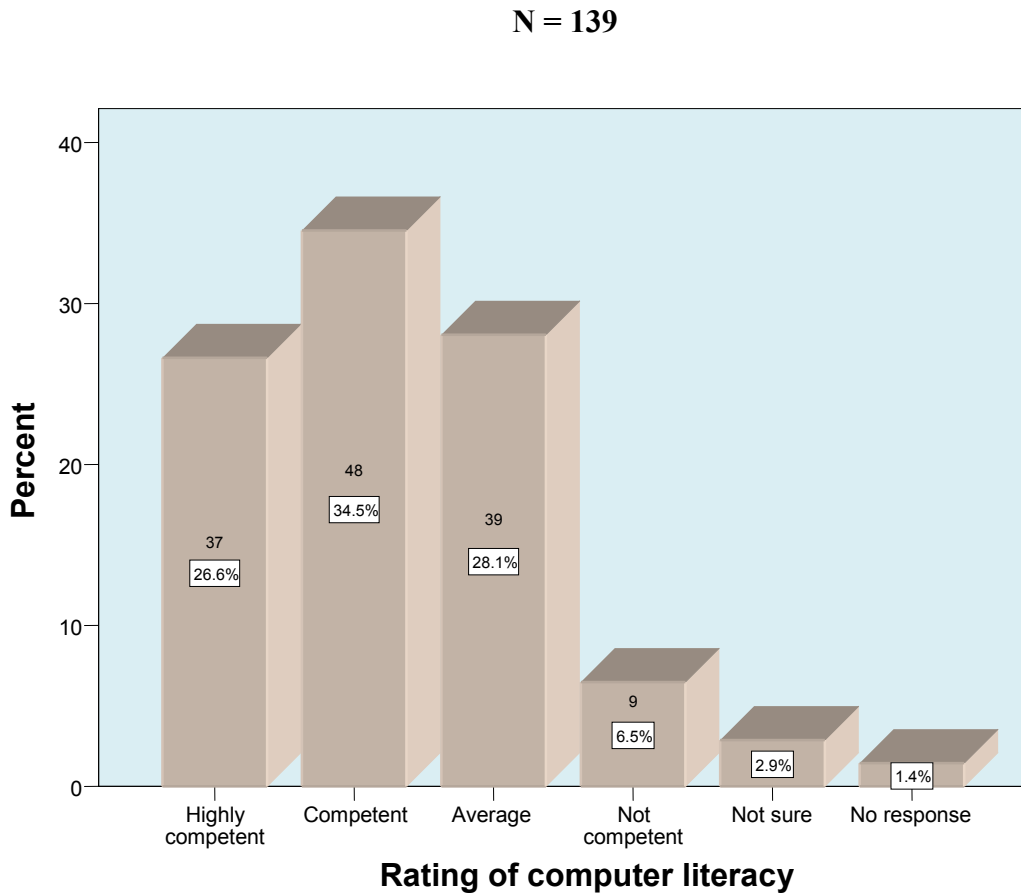
4.3.3.15 Library orientation on the use of electronic databases

Question 22 sought to establish whether masters students had attended any library orientation or library instruction sessions on the use of the electronic databases.

Table 17 shows that from a total of 139 respondents, 95 (68.3%) indicated that they had attended an OPAC training session while 37 (26.6%) had not attended. Electronic database training was attended by 89 (64%) students while 43 (30.9%) had not attended and seven (5%) did not respond to the question.

Table 15: Library orientation

N = 139

Library orientation	Yes		No		No response		Total	
	Count	%	Count	%	Count	%	Count	%
Opac training	95	68.3%	37	26.6%	7	5%	139	100%
Electronic database training	89	64%	43	30.9%	7	5%	139	100%

4.3.3.16 Rating of the library training

Question 23 sought to rate the training masters students had received from the library.

Figure 5 shows that from a total of 139 respondents, 85 (61.1%) were satisfied with the training, 19 (13.7%) were highly satisfied, 16 (11.5%) were less satisfied, four (2.9%) were not satisfied with the library training and 15 students (10.8%) did not respond to the question.

Figure 5: Rating of library training

N = 139
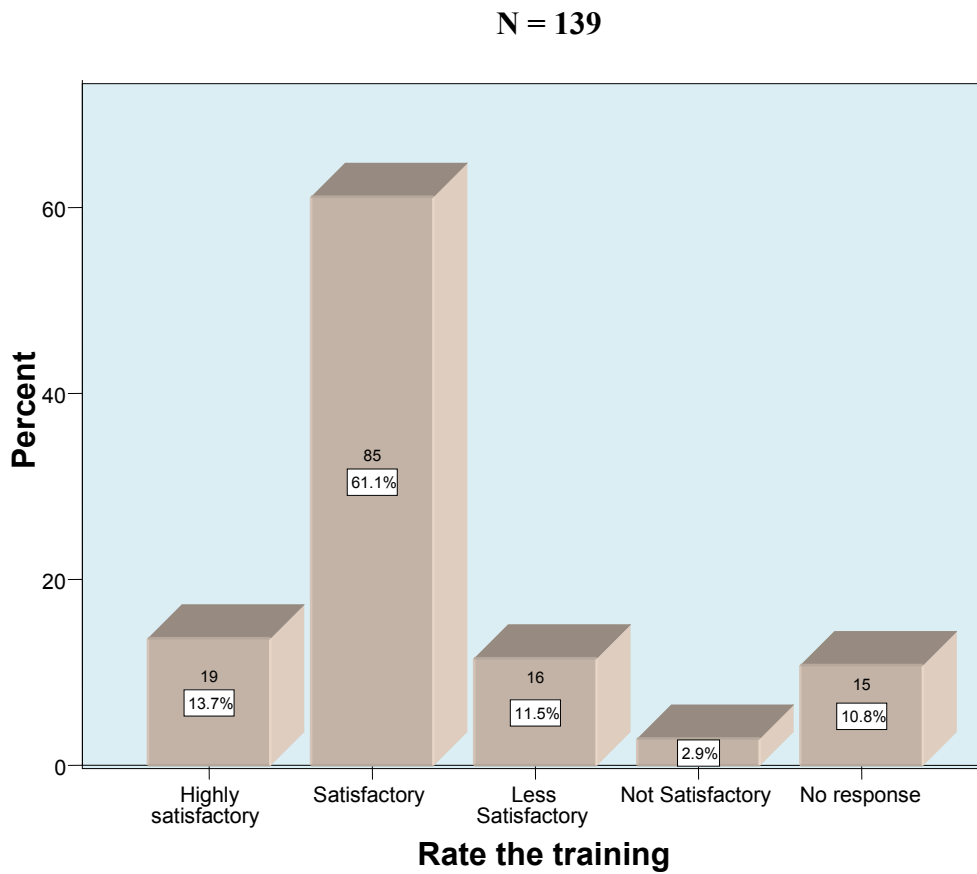
4.3.3.17 Recommendations to improve user training

Question 24, a multiple response question, allowed the students to make the recommendations to improve the user training on accessing the electronic databases.

Table 18 shows that from a total of 139 respondents, students made the following recommendations to improve training:

- Students needed more training (44/31.7%);
- Students recommended that library training be compulsory to all (11/7.9%);
- Students required one-on-one training (11/7.9%);
- Students recommended that training should be well advertised (nine/6.5%);
- The postgraduate research hub opening hours should be extended (seven/5%);
- Trainers should speak loudly, give notes and work at the pace of the students (six/4.3%);
- List of passwords should be given to all postgraduate students (five/3.6%);
- The library needs to increase the number of computers (three/2.2%);
- More cooperation between academic staff and library staff is needed (two/1.4%);
- The speed of internet needs to be increased (two/1.4%);
- Electronic databases should be introduced earlier at the undergraduate level (two/1.4%);
- Guides should be hosted on the library website (one/0.7%); and
- The library should introduce an online reference service (one/0.7%).

4.3.4   Summary of questionnaire results

The questionnaire results showed that most respondents used the library's electronic databases. Most of the respondents were of the opinion that the electronic databases were very important for their academic studies. In terms of the most used databases, the library catalogue, EbscoHost and SABINET were the most used electronic databases while Google was used by almost all the masters students. Masters students offered some

recommendations for the library to consider in terms of improving the service and training on the use of the electronic databases.

4.4 Focus group results

The focus group meeting was attended by six masters HDSS students. The areas covered were: their discipline, level of IT skills, usage of the electronic databases, training on the use of electronic databases, reasons for using the electronic databases, involvement of lecturers and subject librarians, problems they encountered and the suggested recommendations made by the students to improve the library's electronic database service.

4.4.1 Disciplines represented at the focus group session

The masters students were from the following disciplines: Information Studies, Policy and Development Studies, Psychology, Sociology, Theology and Language Studies.

4.4.2 Masters students' level of IT skills

A majority of four out of six students mentioned they had good IT skills, one responded that he had IT skills but his skills were not comprehensive while one mentioned that she was unsure of her IT capabilities at times.

4.4.3 Usage of the library's electronic databases

All students mentioned that they used the library's electronic databases. There were five students who used the electronic databases in the library and postgraduate rooms while only one student accessed the databases off-campus.

There were four students who had been using electronic databases since their undergraduate studies and two started using the electronic databases in the current year as this was their first year at UKZN.

4.4.4 Which electronic databases used

Students listed databases such as EbscoHost, Science Direct, Emerald, the library catalogue, electronic dissertations, government publications, Google and Google scholar as the databases they used.

4.4.5 Lecturers and library training

Students felt that they mostly rely on their subject librarians as their lecturers did not tell them which databases to search. Since lecturers did not prescribe any specific databases, the subject librarians were the ones who guided the students. Two students said their lecturers advised them not to use sources such as Google and Wikipedia but to use evaluated and peer reviewed sources. Only one student mentioned that her supervisor had showed her some of the databases and sites to use for her course.

4.4.6 Reasons for using electronic databases

Most students used electronic databases for both their coursework and thesis writing. The following reasons were mentioned by students for using the electronic databases:
- Some information resources were not available in books;
- As masters students they were obliged to have a number of different sources in order to balance their references;
- The electronic databases were easy to access;
- There was no need to browse the shelves so it was easier to search the internet to find the information they needed;
- The electronic databases have current information;
- They could print what they needed;

- They could save important sources; and
- They could access them from wherever they were and they couldn't be lost (like losing a library book).

One student mentioned that she used the databases to search for sources for the literature review because books relating to her topic were few and not focused on the topic; hence she relied on electronic databases and previous dissertations to find journal articles relevant to her topic. However, the same student mentioned that it was very expensive for her to print the journal articles whereas the books in the library could be accessed at no cost.

4.4.7 Support from subject librarians

All the masters students mentioned that the subject librarians were always willing to help but at times the subject librarians did not know how to retrieve information. Students felt frustrated if the subject librarians did not know how to retrieve information as they expected the SLs to know how to retrieve all types of information. Some students felt that SLs sometimes helped because they had developed a friendship with the students.

Students felt that SLs are very helpful and sometimes they notified students telephonically or by email to tell them that they (SLs) had found information sources related to their topics. Students also mentioned that at times technical problems with the computers hampered their searching of the databases.

4.4.8 Improvement on the use of electronic databases by the library

Students mentioned that there were not enough computers and also that some students were using the computers for their personal use and not to search the electronic databases. All students suggested that the postgraduate research hub should be opened every day not just on Fridays as some people were busy on Fridays and they could not

use the research hub. The environment at the research hub was conducive to searching for information and should be accessible till the library closes.

4.4.9 Problems when accessing electronic databases

Students mentioned the following problems they experienced when using electronic databases:

- Slow connection speed;
- Long procedures with many steps to access the actual full-text;
- Login problems;
- Usually the library printer was not working so students could not print from the library;
- At times students could not download e-books and full-text articles as they received intimidating messages from ICT warning them that they had exceeded their internet access limit. Such students were blocked from accessing and downloading e-books, online articles; and
- At times the level of noise in the library was so disturbing that it affected the students level of concentration when searching the databases.

4.4.10 Other useful information regarding the databases

All students felt that the SLs should inform lecturers about the new databases so that lecturers will in turn inform their students about these databases. SLs need to attend the first lecture and introduce themselves to students. One student mentioned that the library catalogue is misleading in that the record can indicate that a book is on the shelf in the library whereas the book is lost or missing. All students felt that the library must introduce compulsory information searching courses for students (which was already happening for the legal studies students).

4.4.11 Additional comments or questions regarding the library

All the students at the focus group session made general comments about the library. The comments made were as follows:

- At times there is too much noise especially on the ground floor of the library;
- Computers should be restricted for academic work only. Students were chatting, using the Vodacom or MTN websites while other students were standing and waiting to search the databases;
- The arrangement of the printed journals in the periodical section (first floor) was confusing for the students;
- Students should not be allowed to consume food in the library;
- SLs should always be approachable to all users.

4.4.12 Summary of the focus group interview results

The results of the focus group discussion with the HDSS masters students indicated that the HDSS masters students used the electronic databases. Students were happy with the training offered by subject librarians. The problems students experienced when using the databases were identified. All students suggested important points which the library needed to consider to improve its service with regard to the electronic databases.

4.5 Summary of the chapter

This chapter presented the results of the study which set out to evaluate the use of electronic databases by the HDSS masters students at UKZNP. The results of the study have sufficiently answered the key research questions of the study. Questionnaire results presented the background information of the respondents, their use of electronic databases. Recommendations for the improvement of user training in accessing the electronic databases were also discussed.

Chapter 5

Discussion of the results

5.1 Introduction

In this chapter, the findings of the study are discussed. The purpose of the study has been to investigate the use of electronic databases by masters students in the Faculty of Humanities, Development and Social Sciences at the University of KwaZulu-Natal, Pietermaritzburg. The study attempted to answer the research questions of the study as noted in Chapter one. Therefore, the order of the discussion in this chapter follows that of the order of the key research questions of the study.

5.2 Did masters students use electronic databases? If not, what were the reasons?

This research question captures the overall purpose of the study. The findings of this study indicated that students who responded did use the electronic databases provided by the library. A majority of the students, 113 (81.3%) used the electronic databases while only 26 (18.7%) did not use the electronic databases. The students provided various reasons for using electronic databases. Similar to the findings of this study, Soyizwapi's (2005) study on the use of electronic databases by postgraduate students in the Faculty of Science and Agriculture at the UKZNP, found that 83% of the students used the online databases while Nsanzya's (2003) study on the use of electronic library information resources for information searching and retrieval among academic staff at the Edgewood camps, found that 69% of the academic staff who respondend used the OPAC while 55% of the respondents used the online databases.

Out of 113 students who used the electronic databases, a majority of 82.3% of the students considered current information as a benefit, followed by the ability to email,

save and print results which was considered by 76.1% as a benefit. The ability to access information anytime of the day was considered as a benefit by 71.7% of the masters students. Other benefits that were mentioned by masters students included; the availability of full-text and the fact that the databases were easy and convenient to use. In contrast to the findings of the current study, Soyizwapi's (2005:56) study found that a number of students (66.7%), found ease of use of the databases to be a good feature while 66.7% found the availability of full-text to be an advantage. E-mailing, saving and printing were found to be useful by 64.8% of the respondents while the ability to access the databases anytime was found to be useful by 59.3% of the respondents. Therefore, in the current study the majority of students considered current information to be the main benefit whereas in Soyizwapi's (2005) study a majority of the students found ease of use of the databases to be the main benefit.

Students from the focus group mentioned that most students used the electronic databases for both their coursework and thesis writing. The following reasons were mentioned by students for using the electronic databases: some information resources were not available in books; as masters students, they were obliged to have a number of different sources in order to balance their references; the electronic databases were easy to access; there was no need to browse the shelves so it was easier to search the internet and find information they needed; the electronic databases had current information; they could print what they needed; they could save important sources; and they could access the electronic databases from wherever they were and the databases could not be lost (like losing a library book).

One student mentioned that she used the databases to search for sources for a literature review because books relating to her topic were few and not focused on her topic hence she relied on the electronic databases and previous dissertations to find the journal articles she required. However, the same student mentioned that it was very expensive for her to print the journal articles whereas the books in the library could be accessed at no cost.

A number of the students who used electronic databases, 51.1 % were from the age groups 20 – 30 years; 28.8% were from the age group 26 – 30 years while 22.3% were from the 20 – 25 year age group.

The findings of this study are consistent with Gash (1989), Mgobozi and Ocholla (2002) and Convey (1989) who identified the following advantages of using electronic databases: articles can be retrieved in minutes; it is possible to print out an online search as it is being performed and most online databases offer current information or updated facilities. Junni's (2007) study found that the internet was an attractive medium for seeking and obtaining information, for the following reasons: the internet is accessible twenty-four hours a day, it is possible to find and obtain information relatively quickly and conveniently and sources on the internet are often more up-to-date than sources in paper format. The results of the current study are in keeping with the findings of Junni's (2007) study.

The findings of the current study revealed that the masters students were dependent on the University Library. Just over half, 54.7% were very dependent on the library while 32.4% were somewhat dependent and 12.9% were not dependent on the library. Thus only a small percentage was not dependent on the library to source information to support their learning and research for their studies and thesis.

A few students, 18.7% who did not use electronic databases stated various reasons for not using the databases. Some of the reasons included their non-attendance at library orientation sessions. However, a majority of the students had attended a library orientation session. More than half of the students 68.3%, indicated that they had attended an OPAC training session while 26.6% had not attended. Electronic database training was attended by 64% students while 30.9% had not attended. In Soyizwapi's (2005) study more than two-thirds or 67.7% of the students had attended the OPAC training, however, only 35.4% of the students had attended the online database training.

In contrast to the current study, Nsanzya (2003:61) found that most of the lecturers did not attend the training because of the following reasons; 26.1% of the respondents said when it came to training on using the library resources the sessions clashed with teaching times, while 13% of the respondents said the training was usually very generic. A further 13% of the respondents said access to the internet was very slow and 8.7% of the respondents said that there was limited access to the searchable databases. So the above reasons prevented them from attending the training offered by the library on the use of electronic resources. The study done by Lwehabura and Stilwell (2008:181) regarding IL in Tanzanian universities revealed that 65% of the students held the view that their prior knowledge and skills in using information sources were inadequate in enabling them to use university library resources effectively. The reasons given for the inadequacies were insufficient instruction provided at school level and complete lack of instruction in using library facilities.

In the Bar-Ilan, Peritz and Wolman (2003) study, databases were being used by 79.5% of the academics in 2002 and this increased to 88.8% in 2005. This improvement demonstrated that the presentations and training which were conducted by the library to introduce the databases had been successful.

In the current study 77% of the students accessed the databases from the university LAN while 72.6% of the students accessed the databases in the library. With regard to postgraduate rooms, 62.8% of the students accessed the databases from the rooms while 37.2% accessed the databases from off campus. A few students, 6.2% were UKZN staff members so they accessed the electronic databases from their offices on campus. In contrast to the current study, Soyizwapi (2005:54) found that a majority of 74.1% of the students accessed the databases from the library, followed by 66.7% who accessed the online databases from the LAN. In Soyizwapi's (2005:54) study, 44.4% accessed the online databases from postgraduate rooms. In keeping with the results of the current study, only 5.6% of the students accessed the databases from off-campus. The results of the present study however, show that more that two-thirds of the students accessed the electronic databases at the LAN. Thus most students were no longer visiting the library

when they wanted to access the databases. This is supported by the finding that only 25.9% of the students used the library daily.

Only a few students, 11.5% were not satisfied with electronic databases while 2.9% were not satisfied with the library training. The reasons why the 64% were not satisfied included the inability to access full-text articles because databases required passwords; 28% students experienced difficulties when trying to navigate; 16% students did not know how to access the electronic databases; 12% students said they were not given training on how to access the databases while a further 12% students added that there were not enough computers for use. In addition 8% students mentioned that it was very hard to print articles in the library as the library printer was not always working.

In Clink, Crawford and de Vicente's (2004) study which investigated the use and awareness of electronic information services by academic staff at Glasgow Caledonian University, less than a third used the OPAC. In Riahinia and Zandian's (2008) study, 63.4% of respondents used online databases. Dadzie (2005) found that general computer usage of some internet resources was very high, whilst the use of scholarly databases was quite low. The low use of electronic databases was attributed to inadequate information about the existence of the library databases. Even van Zijl and Gericke's (2002) study mentioned that South African visual artists had not experienced a great need to use databases since they were not aware of the existence of most of the databases. Another problem artists mentioned was that they were not informed about the potential value of the electronic databases. Majid and Tan (2002:324) found that the use of databases, e-journals and other electronic information sources was surprisingly low. The findings were disturbing as the students were expected to be more comfortable with computers and to show a higher level of database use and information retrieval skills.

Okello-Obura and Magara (2008) in their study of electronic information access and utilization by Makerere University students in Uganda found that LIS students were unaware of the Emerald and EbscoHost databases and students considered accessing the electronic resources as time-consuming. Crawford and Daye's (2000) survey of the use

of electronic resources at Glasgow Caledonian University was done a while ago in 2000 when the use of electronic databases was not that popular. Crawford and Daye's (2000) study found that a limited number of electronic information databases were used; levels of IT skills were variable and frequently low; and search engines and gateways were not widely used. The results of this study however, show that the UKZNP HDSS masters students were aware of the databases as a majority of 81.3% of the students did use the library's electronic databases.

5.3 Which electronic databases did masters students use and why?

The UKZN Library has made available access to a wide range of academic databases and has invested heavily in electronic services, so it was very important to determine and understand which library electronic databases were currently being used. The top five databases used by the students were EbscoHost (74.3%), followed by SABINET (66.4%), then ProQuest (49.6%), Science Direct was used by (47.8%) students and JSTOR was used by (38.9%) students. The four least used databases were CSA Illumina used by (8.8%) students, Popline used by (8.8%) students, Aluka Digital Library used by (7.1%) and CabDirect used by (1.8%) students. In addition, the students who attended the focus group session mentioned that they used the following databases, EbscoHost, Science Direct, Emerald, OPAC, electronic dissertations, government publications, Google and Google scholar. In Soyizwapi's (2005) study the top five databases used were CabDirect (61.1%), EbscoHost (55.6%), SABINET (46.3%), Web of Knowledge (18.5%) and JSTOR (11.1%).

Therefore, the databases that were most heavily used were the multi-disciplinary databases. Another reason that could contribute to the heavy use of EbscoHost and SABINET was because the SLs usually use these two databases when they conduct the library instruction sessions so students understand these two databases better than the other databases. Soyizwapi (2005) mentioned that the advantage of using these two databases was because they were multidisciplinary and they provide full-text. SABINET being a South African product, remains popular since it provides access to Southern

African information resources. According to Thompson's (2004:25) study, there has been a substantial growth particularly with regard to SABINET and EbscoHost databases which account for most of the use. The statistics on her study however, did not reveal whether the use of these databases was widespread or concentrated within specific groups.

The library catalogue was ranked as very important by a majority of 76.1% students while 12.4% ranked it an important database. EbscoHost received the second highest ranking, with 57.5% students considering it very important while 22.1% considered it important. SABINET received the third highest ranking, with 44.2% students considering it very important while 28.3% considered it important. The databases that were considered unimportant were Web of Knowledge by 19.5% students, SwetsWise and CSA Illumina by 18.6% students each respectively, followed by Silver Platter and Aluka Digital Library by 17.7% students each respectively. A majority of 75.2% were satisfied with the library service while 22.1% were not satisfied.

Atakan *et.al* (2008) study evaluated electronic database usage at the Ankara University Digital Library. They found that the highest used database was Science Direct (73.3%), followed by Web of Knowledge (70%), and then EbscoHost (44.5%) which was the third highest used database. Again, this is in keeping with the results of the current study in that multi-disciplinary databases are the most popular databases.

5.4 How often did masters students use these electronic databases?

The library catalogue was the most frequently used database. It was used daily by 38.9% students while 34.5% used it weekly and 14.2% used it monthly. EbscoHost received the second highest ranking, with 23% students used it daily, while 42.5% used it weekly and 15% monthly. SABINET received the third highest ranking, with 20.4% used it daily while 28.3% students used it weekly and 23% monthly. The databases that were seldom used were Silver Platter which was not used by 86.7% students; Aluka Digital Library and WilsonWeb each not used by 81.4% students respectively. This was followed by

LexisNexis which was not used by 79.6% students and the Directory of Open Access Journals which was not used by 75.2% students.

Similar to the results of the current study, Soyizwapi (2005:52) found that the OPAC was often used by 53.8% of the respondents while CabDirect received the second highest ranking with 40% of the respondents using it often and the third highest used database was SABINET with 26.2% of the students using it often.

In Nsanzya (2003:52), the most used online database was SABINET, which was used by all (100%) the respondents while the second most used database was EbscoHost with 63% of the students using it. SABINET was used daily by 31% of respondents. Weekly and monthly use of SABINET showed an equal number of respondents with 25% for each category while EbscoHost was only used by 6.5% on a daily basis, while 13% used it weekly and 25% used it monthly. The least used database was CSA Illumina which was used by only 6.3% of the academic staff in the Nsanzya (2003) study.

5.5 What alternative electronic resources were used by masters students?

Masters students used alternative databases in addition to the library electronic databases. The alternative databases sought to cover those databases accessed through the web to which there was free access. Google was the most used search engine, it was used by 98.6% of the students. The other databases that were used by masters students included the following, Yahoo used by 12.2% of the students; Google scholar used by 10.1% of the students; Lycos used by 5% of the students, Wikipedia and Ask each used by 2.2% of the students respectively while 0.7% student each used Clusty, Amazon, Itc library and Ceramicsdaily respectively. These findings are similar to Soyizwapi's (2005:66) results which stated that 96.9% of the students made use of search engines which were used by trial and error or by way of peer education. In Riahinia and Zandian's (2008) study, Google was also the most favoured search engine while in Dadzie (2005) the popular databases were Google and Yahoo. Like Soyizwapi's (2005)

study search engines were preferred by students because of peer education and also students needed only basic search strategies to use them.

In the focus group session two students mentioned that their lecturers advised them not to use sources such as Google and Wikipedia but to use evaluated and peer reviewed sources. However, the results of the study show that the majority of the students were using the search engines rather than the library's electronic databases to search for information.

5.6 How did masters students find out about the available electronic databases?

There were a number of ways in which the masters students found out about the available electronic databases. A majority of the students, 55.8%, were told by their lecturers about the databases, followed by 53.1% students who were told by their friends; 49.6% students found out about the databases through library orientation while 33.6% found out through the library website and 27.4% found out through the library guides. The findings of the current study are in contrast to Soyizwapi's (2005) study where 55.6% of the students found out from their friends, followed by 53.7% of the students who found out about the databases from orientation programmes while 38.9% of the students found out from their lecturers.

The students who attended the focus group session were of the opinion that subject librarians should inform lecturers about the new databases so that lecturers would in turn inform their students about these databases. SLs also needed to attend the first lecture and introduce themselves to students so that students would know who to contact when encountering problems in using the electronic databases. Haynes (1996:192), in her study of librarian-faculty instructional partnerships conducted at Colorado State University, points out that most academic staff has no knowledge of the availability of electronic resources in the library. So subject librarians need to liaise with the academic staff so that they will be able to pass the information on to their students. Academic staff

and subject librarians need to join forces to ensure that students are aware of and use the electronic resources.

The study by Roberts (1995) at the University of West Indies, found that poor communication and inadequate interaction between academic staff and the library, and also, the library's failure to apply marketing strategies to promote its services were foremost among the factors contributing to a lack of library related knowledge among university academic members. Students at the focus group session mentioned that they mostly rely on their subject librarians as their lecturers did not tell them which databases to search. Since lecturers did not prescribe any specific databases, the subject librarians were the ones who guided the students.

Callinan (2005) in his study on the information-seeking behaviour of first year and final year undergraduate biology students at the University College Dublin, mentioned that lack of awareness was the primary reason why students did not use the library's electronic databases. The study by Dewald (2005) pointed out that students were encouraged by staff to use particular databases that the staff themselves were aware of. The study also highlighted the problem of part-time staff who were largely unaware of databases that the library subscribed to and instead promoted free web resources to their students. Nsanzya (2003:49) similarly found that there was a low level of awareness among academic staff of electronic information resources since only 17% knew which resources were available. Thus the importance of first training academic staff on the use of electronic databases in order for these academic staff to promote these databases to their students is essential.

5.7 Did masters students have sufficient skills in accessing electronic databases?

The vast majority (80.5%), did have sufficient skills to access the databases. This could be a result of the fact that many students attended the library orientation sessions with 68.3% indicating that they had attended an OPAC training session. Electronic database training was attended by 64% of the students. A number of masters students, (61.1%)

considered their level of computer literacy to be competent. Only a few students, (26.6%) considered their level of computer literacy to be highly competent and (34.5%) as competent and (28.1%) as average. Only (6.5%) students regarded their computer skills as not competent. As in the current study, Bar-Ilan, Peritz and Wolman (2003) found that 85% of the respondents were perfectly competent in using the web and they managed with minimal help from the librarians.

Those who did not have sufficient skills (81.8%) experienced difficulties in developing a search strategy, while 77.3% experienced difficulties in using the software interface and 68.2% experienced difficulties in limiting search results. Nsanzya (2005) identified three obstacles to the use of electronic information resources: 96% of the respondents in her study lacked training on how to access electronic information resources while 91% of the respondents lacked information on available electronic information resources and 61% of the respondents lacked the time to explore electronic information resources.

5.8 What problems did masters students encounter when accessing the electronic databases?

There were a number of problems masters students encountered when accessing electronic databases. Problems emphasized the need for corrective action to be taken by the UKZNP Library as was noted in Soyizwapi's (2005:68) study. A major problem considered by 53.1% of the students was the password requirement in the use of the databases while limited off-campus access was considered a problem by 46.9% students. A few students, 44.2% were not sure which databases to choose while difficulties in searching were considered a problem by 42.5% students. With regard to the problem of printing, 39.8% considered this a problem while the problem of logging in was considered to be a problem by 29.2% students. Slow internet access when using electronic databases was considered to be a problem by 25.7% students. A few students 18.6% mentioned that staff were not always available to help them when using the databases.

Similar to the findings of this study, Soyizwapi (2005:68) found that over half the respondents (55.6%), who used the online databases, had difficulty with the password requirement for accessing some of the online databases. Slow connection speed was found to be a problem by 44.4% of the respondents. Mawindo (2005:103) also found that accessing electronic resources was a major problem among the users of electronic resources. Forty-eight students in her study indicated the following major problems: limited access to computer terminals (95.8%); slowness of the internet, server always down (77.1%); lack of computer skills to effectively search and retrieve information (39.6%); staff not always available to help (35.4%) and too much information retrieved (29.2%).

In keeping with the results of the questionnaire, students from the focus group session mentioned the following problems they experienced when using electronic databases: slow connection; long procedures with many steps to access the actual full-text; logging in problems; usually the library printer was not working so students could not print from the library and at times the level of noise in the library was so distracting that it affected the students' level of concentration when searching the databases.

Jagarnath (2004:29) in his study mentioned the following problems experienced by students; some online databases were password-controlled, thereby limiting access to only one or two users at a time. Some were IP controlled, meaning students could only access them from within the campus and not from home or anywhere outside the institution. Such controlled access frustrated users, especially if they were made aware of the existence of such databases during the library instruction sessions.

In Junni's (2007) study, one of the main problems students reported was a lack of student training in information seeking and an abundance of irrelevant information on the internet. Dadzie's (2005) study identified that library computers were inadequate for student use and 28% of the students lacked information on how to use the electronic databases.

5.9 What recommendations could be made concerning the masters students' use of electronic databases?

The following recommendations to improve the library's electronic database service were identified by the masters students: students needed more training (31.7%); students recommended that library training be compulsory to all (7.9%); students required one-on-one training (7.9%); students recommended that the training should be well advertised (6.5%); the postgraduate research hub opening hours should be extended (5%); trainers should speak loudly, give notes and work at the pace of the students (4.3%); a list of passwords should be given to all postgraduate students (3.6%) and the library needed to increase the number of computers (2.2%). In addition, more cooperation between academic staff and library staff was needed; the speed of the internet access needed to be increased and electronic databases should be introduced earlier at the undergraduate level (1.4%). Guides should be hosted on the library website and the library should introduce an online reference service (0.7%).

In keeping with the results of the questionnaire students who attended the focus group session felt that the library should introduce compulsory information searching courses for students (which was already happening for the legal studies students), so that all students would be familiar with using the electronic databases. Students mentioned that there were not enough computers and some students were using the computers in the library for their personal use and not for searching the electronic databases. Thus the library needs to monitor student use of computers. All students suggested that the postgraduate research hub should be opened every day, not just on Fridays as some students were busy on Fridays and they could not use the research hub. The environment at the research hub was conducive to searching for information and should be accessible until the library closes.

5.10 Summary of the chapter

The results of the study were discussed in this chapter. The discussions were relevant to the key research questions that the study attempted to answer. The key research questions were highlighted at the beginning of the chapter. The major areas covered in the chapter included the use of electronic databases, identifying electronic databases used by masters students, other alternative non-library electronic database resources, the problems masters students encountered and the masters students recommendations on the use of the electronic databases.

Chapter 6

Conclusion and recommendations

6.1 Introduction

In Chapter 6, concluding remarks concerning the study are made. Recommendations are made in response to the analysis of data and interpretation of results covered in Chapters four and five.

6.2 Revisiting the key research questions of the study

The study attempted to answer the following key questions regarding the use of the library's electronic databases:

- Did masters students use electronic databases? If not, what were the reasons?
- Which electronic databases did masters students use and why?
- How often did masters students use these electronic databases?
- What alternative electronic resources were used by masters students?
- How did masters students find out about the available electronic databases?
- Did masters students have sufficient skills in accessing electronic databases?
- What problems did masters students encounter when accessing the electronic databases?
- What recommendations could be made concerning the masters students' use of electronic databases?

6.3 Summary of the study

Chapter One provided an introduction to the study by presenting a brief background of the study, an outline of the research problem, reasons for choosing the research topic, definition of the key terms relevant to the study, the broader issues that were investigated,

the conceptual framework which outlined the model for the study, the research questions which were asked as well as the delimitations of the study.

In Chapter Two, several studies on the use of electronic databases were examined. The chapter included the role of academic libraries, electronic resources in academic libraries and the history and development of electronic resources at UKZN. General principles of searching online databases, the information needs of masters students, library and information skills and competencies masters students are expected to have were also included. A discussion on the role of subject librarians and library instruction followed. Chapter Two also highlighted the advantages and problems experienced by students when accessing electronic databases. The chapter concluded by discussing the various studies done locally and internationally on students' use of electronic databases.

Chapter Three explained what was done in the study in order to collect data to answer the research questions. The approach that the research undertook was a triangulation approach where both qualitative and quantitative data were collected. The researcher used a focus group interview and a questionnaire as data collection instruments. The quantitative data was analysed using SPSS and the qualitative data was analysed using thematic content analysis.

Chapter Four presented the results of the study which set out to evaluate the use of electronic databases by the HDSS masters students at UKZNP. The results of the study have sufficiently answered the key research questions of the study. Questionnaire results presented the background information of the respondents and their use of electronic databases. Recommendations for the improvement of user training in accessing the electronic databases were also discussed.

Chapter Five presented the findings of the study, in the light of the key research questions the study attempted to answer. The results of the study revealed that UKZNP HDSS masters students did use the electronic databases to assist them with their learning and research needs for their studies and theses.

6.4 Conclusions

The outcome of the study revealed that a majority (81.3%) of HDSS masters students at UKZNP used the electronic databases. The top three databases used by the masters students were EbscoHost (74.3%), followed by SABINET (66.4%) and then ProQuest (49.6%). The library catalogue was ranked as very important by a majority (76.1%) of the students.

Masters students mentioned some benefits of using the electronic databases. More than two-thirds (82.3%) of the masters students considered current information as a benefit, followed by the ability to email, save and print results, which was considered by 76.1% of the students as beneficial. The other benefits that were mentioned by students were that the information can be accessed anytime of the day, the availability of full-text articles and the electronic databases were easy and convenient to use.

Students encountered a number of problems when using the electronic databases. The top three problems which masters students encountered were problems with password requirements, limited off-campus access and indecision as to which database to choose to assist them in their search for information. The problem of password requirements affected 53.1% of the students while limited off-campus access affected 46.9% of the students and the problem of not being sure which database to choose from affected 44.2% of the students. Other difficulties masters students experienced when accessing the electronic databases included developing a search strategy, using the database software interface and limiting search results.

There were other non-library databases that masters students used besides the library electronic databases. The other non-library databases included those databases accessed through the web to which access was free or those databases UKZN Library did not subscribe to. Google was the most used search engine, it was used by a majority of 98.6% of the students. Other databases were Google Scholar, Yahoo, Lycos, Wikipedia, Itc Library, Clusty, Ask, Amazon and Ceramicsdaily. The study concludes that students used

these non-library databases because these databases are easily accessible and they do not require students to login using passwords.

The frequency of use for the library databases varied from one database to another. The databases that were found to be most frequently used were the library catalogue, EbscoHost and SABINET. CSA Illumina was among the least used databases with 8.8% students having used it. CSA Illumina is a subject specific database which is used by Information Studies students. There were 10 MIS students who responded to the questionnaire so even though CSA Illumina was amongst the least used databases, it was in fact used by a 100% of the MIS students. Thus the findings reveal that the masters students used the multidisciplinary databases more than the subject specific ones. CabDirect was the least used database in the study, used only by two (1.8%) students. However, this could be explained by the fact that CabDirect was only relevant for the science and agriculture disciplines, which is why it was not being used by the HDSS students.

A majority of 75.2% of the students were satisfied with the library service. The students who were not satisfied with the electronic database service stated that they were not able to access full-text articles because the databases required passwords while other students did not know how to access the electronic databases and it was difficult to print articles in the library due to the faulty printer.

A majority of 77% of the students accessed the databases from the university LAN while 62.8% accessed the databases from the postgraduate rooms. One can conclude that most students did not visit the library to access the databases but to get books or to search for print journals and to read in the library. This was supported by the findings that a number of (43.2%) masters students visited the library weekly, 10.1% fortnightly, 19.4% monthly and only 25.9% daily.

Students revealed that they became aware of the library's databases from a variety of sources. Lecturers and friends were found to be the most important sources of

information about the library databases. Other sources of awareness included the library orientation sessions, the library website and the library guides.

A majority (80.5%) of the masters students did have sufficient skills to access the databases. Most (61.1%) students had a competent level of computer literacy skills. This was because most (66.2%) masters students had attended training sessions that were provided by the UKZNP Library. More than two-thirds, (68.3%) of the students had attended an OPAC training session while 64% of the students had attended an electronic database training session. A majority of 74.9% of the students were satisfied with the training offered by the UKZNP subject librarians.

6.5 Recommendations

Based on the findings of the study, the following recommendations have been made to assist the UKZNP Library in its decision-making processes concerning the acquisition of, or subscription, to electronic databases:

- Extension of the postgraduate research hub opening hours;
- There is a need for more training of students in order to improve the use of the electronic databases;
- The training should be well advertised;
- Library training should be compulsory for all postgraduate students;
- Training or user education must be ongoing to meet all the various users' needs;
- Students access to the databases needs to be improved by limiting the need for passwords;
- Collaboration between SLs and academic staff needs to be improved;
- The number of computer facilities available to users within the UKZN Libraries university-wide needs to be increased. Also, the internet bandwidth to improve connection speed needs to be increased;
- Library users have become more independent, so the Library needs to use the internet and web-based services such as newsgroups, bulletin boards, Web 2.0

facilities (social networking sites, wikis, blogs, folksonomies, and so forth) to communicate with their users;

- The library should introduce an online reference service; and
- Computers should be restricted to academic work only.

6.6 Suggestions for further research

The following suggestions concern other research studies that should be conducted at the UKZNP:

- A similar study on the use of electronic databases, focusing on doctoral students in the Faculty of HDSS;
- A similar study on the use of electronic databases, focusing on students in other faculties on campus;
- A study on the use of electronic resources which will include both electronic databases and electronic journals, focusing on postgraduate students in the Faculty of HDSS; and
- A similar study on the use of electronic databases, focusing on staff members in the Faculty of HDSS.

6.7 Summary of the chapter

The study fulfilled its original intention to investigate the use of electronic databases by masters students in the Faculty of Humanities, Development and Social Sciences at the University of KwaZulu-Natal, Pietermaritzburg campus. Problems associated with the use of the electronic databases were identified. The results of the study could assist the UKZNP Library in decision-making, in terms of which electronic databases masters students use and which areas need improvement to ensure maximum use since the UKZN libraries have invested heavily in electronic services.

Conclusions on the major research findings were discussed in this chapter. Following these conclusions; recommendations were made which could assist the UKZNP Library to improve access to, and use of the electronic databases. Suggestions for further research were also identified.

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Appendix 1 – List of all the electronic databases of relevance to HDSS

*African Journals Online - it is used to find articles in scholarly journals published in Africa

*African Writers Series via Chadwyck and Headley - this electronic edition provides 181 volumes of fiction, poetry, drama and non-fictional prose, which publishes texts of modern African literature

*Aluka Digital Library - it includes a wide variety of high-quality scholarly materials ranging from archival documents, periodicals, books, reports, manuscripts, and reference works

CSA Illumina - it provides access to various databases, and covers the areas of natural sciences, social sciences and technology

*Directory of Open Access Journals - this is a small database in which open access journals in many disciplines can be browsed or searched

EbscoHost - this is a multidisciplinary database, it provides access to many databases including the following: Academic Search Premier; AfricaWide: NiPAD; Business Source Complete; Communication and Mass Media Complete and Religion and Philosophy Collection

Emerald Insight - it publishes a wide range of management and library and information management journals

JSTOR - this is an archive of scholarly journals representing all the academic disciplines and published more than five years ago

LexisNexis – it provides access to full-text glossaries, legislation, procedures, commentaries and many other South African legal resources.

*Popline - Population information online provides citations with abstracts and links to free, full text information in the field of population, family planning, and related health issues.

Project Muse - it provides a database of articles in approximately 250 scholarly humanities, arts and social sciences journals

ProQuest - it is a collection of journals, magazines and newspapers containing information on a broad range of reference subjects, it includes the following databases

Academic Research Library; ProQuest Dissertations and Theses; ProQuest Psychology Journals; ProQuest Research Library; U.S National Newspaper Abstracts

SABINET - this is the South African database which makes available a number of databases including, Index of SA Periodicals (ISAP); SA ePublications); catalogues of books (SA Cat); Newspaper clippings on various topics (SA Media)

Science Direct - it contains bibliographic information with abstracts for articles published in Elsevier and other journals and also provides links to the full text of articles published since 1995

*SilverPlatter - it provides access to the following databases: ATLA Religion database and Philosopher's Index

SwetsWise - this is a huge multidisciplinary database which links to the full-text of articles published in many of the journals to which the UKZN library subscribes; in addition, the contents pages of over 18,000 periodicals can be browsed

Web of Knowledge - it is a multidisciplinary database which provides access to the following databases: Arts and Humanities Citation Index; Journal Citation Reports; and Social Sciences Citation Index

WilsonWeb - it is a multidisciplinary database which provides access to the following databases: Art Full Text; Education Full Text; Humanities Full Text; Legal Periodicals Full Text (UKZN website 2009).

* - These are electronic databases that cannot be accessed off-campus

Appendix 2: Letter of consent

30 September 2009

Dear Participant

I am a Masters student at the University of KwaZulu-Natal investigating **use of electronic databases by masters students in the Faculty of Humanities, Development and Social Sciences at the University of KwaZulu-Natal, Pietermaritzburg campus.**

I am inviting you to participate in the research because of the valuable contribution you can make in terms of highlighting the problems that masters students may encounter when using electronic databases.

If you agree to participate I would like you to complete an attached questionnaire and return it by the 12th October 2009.

I commit myself to keeping the information you provide confidential. You have the right to withdraw at any point of the study, for any reason, and without any prejudice.

There are no known risks from being in this study and taking part in the study is completely voluntary.

I appreciate your participation in this study, partly in light of your time-constraints. If you have any questions about the research study itself, please contact me.

Thank you.

Sincerely

Tusiwe Hadebe
Subject Librarian
Cecil Renaud Main Library
Office No.3
Tel.: (033) 2605062
Email: hadebet@ukzn.ac.za

Appendix 3: Questionnaire

Questionnaire on the use of electronic databases by masters students in the Faculty of Humanities, Development and Social Sciences at the University of KwaZulu-Natal, Pietermaritzburg campus

Please complete the following questionnaire by clearly ticking or crossing the relevant boxes or by filling in the information requested.

Section A: Background information

1. Degree registered for--

2. Gender

   2.1 Female   [   ]
   2.2 Male   [   ]

3. Age

   3.1 20 – 25 years   [   ]
   3.2 26 – 30 years   [   ]
   3.3 31 – 35 years   [   ]
   3.4 36 – 40 years   [   ]
   3.5 41+ years   [   ]

4. Race

   4.1 White   [   ]
   4.2 Indian   [   ]
   4.3 Black   [   ]
   4.4 Coloured   [   ]

   4.5 Other (Please specify) --

Section B: Library Usage

5. On average how often do you visit the University Library?

   5.1 Daily   [   ]
   5.2 Weekly   [   ]
   5.3 Fortnightly   [   ]
   5.4 Monthly   [   ]
   5.5 Rarely or Never   [   ]

6. What are your main reasons for using the Library? If more than two, please give the order of importance with 1 being the most important.

----

7. How dependent are you on the University Library for the research you conduct?

7.1 Very dependent   [   ]
7.2 Somewhat dependent   [   ]
7.3 Not dependent   [   ]

Section C: Information relating to electronic databases

8. Have you ever used any of the electronic databases provided by the library?

8.1 Yes   [   ]
8.2 No   [   ]

If No, go to Question 20

9. If Yes, which electronic databases have you used? (Please tick all those that apply)

9.1 African Journals Online   [   ]
9.2 African Writers Series   [   ]
9.3 Aluka Digital Library   [   ]
9.4 CSA Illumina   [   ]
9.5 Directory of Open Access Journals   [   ]
9.6 EbscoHost   [   ]
9.7 Emerald Insight   [   ]
9.8 JSTOR   [   ]
9.9 LexisNexis   [   ]
9.10 Popline   [   ]
9.11 Project Muse   [   ]
9.12 ProQuest   [   ]
9.13 SABINET   [   ]
9.14 ScienceDirect   [   ]
9.15 SilverPlatter   [   ]
9.16 SwetsWise   [   ]
9.17 Web of Knowledge   [   ]
9.18 WilsonWeb   [   ]

9.19 Other (Please specify) ---

----

10. How often do you use the following library databases? Please tick the option that applies)

Library databases	Daily	Weekly	Monthly	Never used
Library catalogue				
African Journals Online				
African Writers Series				
Aluka Digital Library				
Directory of Open Access Journals				
CSA Illumina				
EbscoHost				
Emerald Insight				
JSTOR				
LexisNexis				
Popline				
Project Muse				
ProQuest				
SABINET				
ScienceDirect				
SilverPlatter				
SwetsWise				
Web of Knowledge				
WilsonWeb				
Other (Please specify)				

11. Please rank the following databases in order of importance (Please tick the option that applies)

Library databases	Very important	Important	Neutral	Unimportant
Library catalogue				
African Journals Online				
African Writers Series				
Aluka Digital Library				
Directory of Open Access Journals				
CSA Illumina				
EbscoHost				
Emerald Insight				
JSTOR				
LexisNexis				
Popline				
Project Muse				
ProQuest				
SABINET				
ScienceDirect				
SilverPlatter				
SwetsWise				
Web of Knowledge				
WilsonWeb				
Other (Please specify)				

12. Are you satisfied with the present Library service regarding electronic databases?

12.1 Yes   [   ]
12.2 No   [   ]

13. If No to question 12 above, please state why?

----

14. What problems do you experience when using electronic databases? (Please tick all those that apply)

    14.1 Logging in   [ ]
    14.2 Password requirements   [ ]
    14.3 Not sure which database to choose   [ ]
    14.4 Difficulties in searching   [ ]
    14.5 Staff not always available to help   [ ]
    14.6 Printing   [ ]
    14.7 Limited off-campus access   [ ]
    14.8 Slow connection   [ ]

    14.9 Other (please specify) ---

    ----

15. Where do you access these databases from? (Please tick all those that apply)

    15.1 Library   [ ]
    15.2 Postgraduate rooms   [ ]
    15.3 LAN   [ ]
    15.4 Remote (off-campus)   [ ]
    15.5 Other (Please specify) ---

    ----

16. What are the benefits of using electronic databases? (Please tick all those that apply)

    16.1 Easy to use   [ ]
    16.2 Can email, save, print results   [ ]
    16.3 Availability of full-text   [ ]
    16.4 Access anytime of day   [ ]
    16.5 Current information   [ ]

    16.6 Other (Please specify) ---

    ----

17. How did you find out about these library databases? (Please tick all those that apply)

   17.1 Lecturers   [ ]
   17.2 Library orientation   [ ]
   17.3 Library guides   [ ]
   17.4 Friends   [ ]
   17.5 Library website   [ ]

   17.6 Other (Please specify) ---

   ----

18. Do you have sufficient skills to access electronic databases?

   18.1 Yes   [ ]
   18.2 No   [ ]

19. If No to question 18, do you experience the following difficulties?

   19.1 Developing a search strategy   [ ]
   19.2 Using the software interface   [ ]
   19.3 Limiting search results   [ ]

   19.4 Other (Please specify) ---

   ----

20. Apart from electronic databases provided by the University Library, what other databases do you use (Please tick or list all those that apply)

   20.1 Web search engines eg GOOGLE   [ ]

   20.2 Other databases on the Web (Please specify) --------------------------------------
   ----

   ----

21. How do you rate your level of computer literacy?

    21.1 Highly competent   [   ]
    21.2 Competent   [   ]
    21.3 Average   [   ]
    21.4 Not competent   [   ]
    21.5 Not sure   [   ]

22. Have you attended any library orientation or library instruction on the use of databases?
    (Please tick all those that apply)

    22.1 OPAC   [   ]
    22.2 Electronic databases   [   ]

    22.3 Other (Please specify) --

    ----

23. How would you rate the training that you have received from the Library?

    23.1 Highly satisfactory   [   ]
    23.2 Satisfactory   [   ]
    23.3 Less satisfactory   [   ]
    23.4 Not satisfactory   [   ]

24. What recommendations can you make to improve the user training in accessing electronic databases

    ----

Thank you for completing this questionnaire

Appendix 4: Invitation letter for the focus group interview

Dear Participant

I am a Masters student at the University of KwaZulu-Natal investigating **use of electronic databases by masters students in the Faculty of Humanities, Development and Social Sciences at the University of KwaZulu-Natal, Pietermaritzburg.**

I am inviting you to participate in the research because of the valuable contribution you can make in terms of highlighting the problems that masters students can encounter with regard to use of electronic databases.

If you agree I would like you to participate in the focus group, which can take up to 1 hour, 30 minutes. The venue of an interview is Room 347, New Arts building and date for the focus group is 21st October 2009 at 12 noon.

I commit myself to keeping the information you provide confidential and your anonymity is guaranteed from the study. You have the right to withdraw at any point, for any reason, and without any prejudice.

There are no known risks from participating in the study. Taking part in the research is completely voluntary.

I appreciate your participation in this research, partly in light of your time-constraints. If you have any questions about the research study itself, please contact me.

Thank you.

Sincerely

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Appendix 5: Focus group interview questions

Focus group interview questions on the use of electronic databases by masters students in the Faculty of Humanities, Development and Social Sciences at the University of KwaZulu-Natal, Pietermaritzburg campus

Please feel free to speak about your experiences, issues and/or concerns. All opinions are welcome and all suggestions will be considered.

1. What discipline are you from?
2. How would you rate your IT skills?
3. Do you use the library's electronic databases?
4. Do you use them in the library or off-campus?
5. Which electronic databases do you use?
6. Have you had any formal training in the use of electronic databases?
7. How did you find about the existence of electronic databases?
8. Did your lecturers organise library training for you?
9. Do your lecturers advice you on which electronic databases to use?
10. Why do you use the electronic databases?
11. Do you use the electronic databases for coursework or for your dissertation?
12. Do you get enough support from the subject librarians?
13. What do you think the library needs to do in order to improve the use of electronic databases?
14. How long have you been using electronic databases?
15. What problems do you encounter when accessing electronic databases?
16. Is there other information regarding databases you think will be useful for the library to know about?
17. Do you have any additional comments or questions?

Thank you very much for your time