



University of Fort Hare
Together in Excellence

**INFORMATION SEEKING BEHAVIOUR OF POSTGRADUATE STUDENTS: A
STUDY OF RHODES UNIVERSITY AND THE UNIVERSITY OF FORT HARE**

By

MADIRENG JANE MONYELA

STUDENT NUMBER: 201113882

Thesis submitted in fulfilment of the requirements

For the degree of

Master of Library and Information Science

At the

University of Fort Hare

(Department of Library and Information Science)

SUPERVISOR: PROF EM ONDARI-OKEMWA

2013

DECLARATION

I, Madireng Jane Monyela, declare that the work in this thesis is my own and has not been previously submitted for a degree to any university. All the sources that have been used or cited have been correctly acknowledged by means of complete and proper referencing.

Researcher's signature

.....

Supervisor's signature

.....

ACKNOWLEDGEMENT

My sincere gratitude goes to my supervisor Prof EM Ondari-Okemwa, whose guidance, encouragement, constructive criticism and suggestions helped to shape this study. Without his instructions, support, coaching and assistance, this study would not have been completed. I would also like to thank the librarians of both the University of Fort Hare (UFH) and Rhodes University (RU) for their professional support. My appreciation also goes to Dr. Bopape for the contribution he made to this study. I would further like to thank Govan Mbeki Research and Development Centre (GMRDC) for organizing postgraduate students' workshops in which I participated. The knowledge that I acquired through the workshops contributed a lot to shaping my study. I cannot forget UFH staff subsidy and GMRDC postgraduate subsidy for financial support throughout my studies. I also deeply appreciate Professor M. Somniso for believing in me and encouraging me to complete this work.

This is for you Prof. thank you/enkosi tata

Last but not least I would like to thank my fellow postgraduate students at Rhodes University and the University of Fort Hare, who openly participated in this study by taking their time to share their experiences about their information seeking behaviour with me. Their data made this work complete and successful.

DEDICATIONS

To God be the glory, I thank God the Father the Son and the Holy Spirit for giving me strength and wisdom to complete this study. It was by the mercy of God. I dedicate this thesis to my parents Samuel and Alletta Monyela for sacrificing everything they had to ensure that I receive an education. Mom and Dad *Ke a leboga* because you laid a good foundation for me. I also dedicate this thesis to Professor M. Somniso and my wonderful kids Keletso and boy boy Ofentse for understading that mom had to spend little time with them and dedicate more time to her studies. Special thanks also go to my helper at home Ms. Nosimphiwe Boltina for playing the role of a mother to my kids while I spent most of my time at the office completing this work. I also want to thank my partner Kgebetli Modiba for earnestly praying for me as well as everybody who has been praying for and with me.

Table of Contents

DECLARATION.....	i
ACKNOWLEDGEMENT.....	ii
DEDICATIONS.....	iii
LIST OF TABLES.....	x
LIST OF FIGURES.....	xii
LIST OF APPENDICES.....	xiv
ABSTRACT.....	xv
CHAPTER 1: BACKGROUND OF THE STUDY.....	1
1.1 Background of the study.....	1
1.2 Problem Statement.....	5
1.3 Research Aims and Objectives.....	7
1.4 Research questions.....	7
1.5 Scope and limitations of the study.....	8
1.6 Definitions of terms.....	8
1.6.1 Dormant information needs.....	8
1.6.2 Information.....	9
1.6.3 Information need.....	9
1.6.4 Information sources.....	10
1.6.5 Information seeking.....	11
1.6.6 Information seeking behavior.....	14
1.6.7 Information Retrieval System.....	16
1.6.8 Inter Library Loans.....	16
1.6.9 Postgraduate students.....	17
1.6.10 Search strategy.....	17
1.6.11 Search techniques.....	17
1.6.12 World Wide Web.....	17

1.6.13 Unexpressed information needs	18
1.6.14 Wireless	18
1.7 Assumptions	18
1.8 Significance of the study	19
1.9 Institutional Background	20
1.9.1 University of Fort Hare (UFH)	20
1.9.2 Rhodes University (RU)	21
1.10 Dissemination of findings.....	21
1.11 Chapter Demarcation	21
1.13 Chapter Summary	22
CHAPTER 2 : LITERATURE REVIEW AND CONCEPTUAL FRAMEWORKS.....	23
2.1. Introduction	23
2.2 Information seeking behaviour.....	24
2.3 Research Skills	26
2. 4 Information literacy	31
2.5 Choice of Information Sources	37
2.6 Conceptual Frameworks	43
2.6.1 Information Seeking behaviour Models	44
2.6.1.1 Kuhlthau’s (1993) (ISP) Model	46
2.6.1.2 Ellis’s behavioural model of information-seeking	47
2.6.1.3 Wilson’s combined model.....	50
2.6.1.4 Information Search Process Model (ISP)	50
2.7 Information retrieval techniques	53
2.8 Electronic sources of information	55
2.9 Library utilization.....	64
2.10 Academic discipline.....	67
2.11 Web2.0	70

2.12 Social networks.....	71
2.13 Chapter Summary.....	73
CHAPTER 3 : RESEARCH METHODOLOGY.....	74
3.1Introduction.....	74
3.2 Research methodology.....	74
3.2.1 Quantitative methods.....	76
3.2.2 Qualitative methods.....	77
3.3 Triangulation.....	80
3.3.1 Benefits of mixed methods research.....	80
3.4 Research Design.....	81
3.5 Population of the study.....	83
3.6 Sampling.....	84
3.6.1 Sample selection.....	85
3.6.2 Sample size.....	86
3.7 Responses.....	89
3.8 Data collection instruments.....	88
3.8.1 Questionnaires.....	90
3.8.1.1 Questionnaire design and layout.....	92
3.8.1.2 Focus groups interviews.....	96
3.9 Data collection procedures.....	99
3.10 Validity and Reliability of Instruments.....	100
3.11 Pilot Study.....	101
3.12 Data Analysis.....	102
3.12.1 Meaning condensation and content analysis.....	103
3.12.2 Transcribing interview responses.....	103
3.13 Ethical considerations.....	104
3.13.1 Informed consent.....	106

3.13.2 South Africa ethical considerations	107
3.14 Chapter Summary	108
CHAPTER 4 : DATA ANALYSIS AND INTERPRETATIONS	109
4.1 Section 1: Questionnaire results.....	108
4.1.1 Introduction	109
4.1.2 Distribution by campus affiliation.....	109
4.1.3 Profiles of the respondents.....	110
4.1.3.1 Gender	111
4.1.3.2 Age	111
4.1.4 Distribution by university affiliation	112
4.1.4.1 Distribution by faculty affiliation	113
4.1.4.2 Distribution by type of study	114
4.1.5 Sources of information preferred by postgraduate students.....	115
4.1.6 Points of access to electronic sources	116
4.1.7 Views about electronic sources of information.....	117
4.1.8 Frequency of information seeking activities	121
4.1.8.1 Internet.....	121
4.1.8.2 Academic & Scholarly search engines.....	123
4.1.8.3 Online Public Access Library Catalogue (OPAC)	124
4.1.8.4 Databases search	126
4.1.8.5 Library shelf browsing	128
4.1.8.6 Consulting colleagues.....	129
4.1.8.7 Consulting librarians	130
4.1.8.8 Consulting the reference list at the end of an article, book or journal.....	132
4.1.8.9 Consulting e-mail alerts	133
4.1.9 Time spent on information gathering activities.....	135
4.1.10 Factors that influence choice of information sources.....	138

4.1.11 Awareness of current developments.....	139
4.1.12 Search techniques for obtaining relevant information	140
4.1.13 Modifying a search	142
4.1.14 Methods employed to modify search strategies or techniques	143
4.1.15 The frequency of evaluating the quality of an information source.....	145
4.1.16 Frequency of utilizing available information sources.....	148
4.1.17 Feelings and emotions when the search did not produce relevant information	151
4.1.17.1 Feelings of Frustration.....	152
4.1.17.2 Confusion	152
4.1.17.3 Disappointment.....	152
4.1.17.4 Feeling demotivated	153
4.2 Section 2: Interview results.....	152
4.2.1 Introduction.....	152
4.2.2 Sources of information preferred by postgraduate students.....	153
4.2.3 Points of access to electronic sources	155
4.2.4 Views about electronic sources of information.....	155
4.2.4.1 Electronic sources makes it easy to access information.....	155
4.2.4.2 Same amount of time.....	155
4.2.4.3 It takes more time.....	156
4.2.5 Frequency of information seeking activities.....	156
4.2.5.1 Internet search.....	156
4.2.5.2 OPAC.....	157
4.2.5.3 Databases search.....	157
4.2.5.4 Library shelf browsing.....	158
4.2.5.5 Consulting colleagues.....	158
4.2.5.6 Consulting librarians.....	158
4.2.5.7 Consulting email alerts.....	159

4.2.6 Factors that influences choices of information sources.....	159
4.2.7 Awareness of current trends.....	160
4.2.8 Search techniques for obtaining relevant information.....	160
4.2.9 Methods employed to modify the search strategies or search techniques.....	160
4.2.10 Evaluating the quality of an information source.....	162
4.2.11 Feelings and emotions when the search did not produce relevant information	162
4.2.11.1 Frustration.....	161
4.2.11.2 Confusion.....	162
4.2.11.3 Disappointment.....	163
4.2.12 Chapter Summary.....	164
CHAPTER 5 : DISCUSSIONS OF THE FINDINGS	165
5.1 Introduction	165
5.2 Respondents' Profiles	166
5.2.1 Gender	166
5.2.2 Age	166
5.3 Valued and or preferred information sources.....	169
5.4 Access to electronic sources of information	172
5.5 Views about electronic sources of information.....	173
5.6 Frequency of use of different determinants	173
5.7 Factors that influence choice of information source/s	175
5.8 Keeping up to date.....	176
5.9 Search techniques used by postgraduate students.....	177
5.10 Modifying search strategies and techniques.....	178
5.11 Evaluating the quality of an information source.....	179
5.12 The feeling when a search did not produce relevant results	180
5.13 Chapter Summary.....	180
CHAPTER 6 : CONCLUSIONS AND RECOMMENDATIONS	182

6.1 Introduction	182
6.2 Summary of the findings	182
6.2.1 Information sources that postgraduate students value most and where they find them	183
6.2.2 Activities postgraduate students engage in when seeking information.....	184
6.2.3 Factors that influence postgraduate students' information seeking behaviour.....	185
6.2.4 Methods that postgraduate students use to obtain relevant information	186
6.3 Conceptual framework as allied to the findings	186
6.4 Conclusions.....	187
6.5. Recommendations.....	188
6.6 Areas for further study.....	193
6.7. Final Conclusion.....	193
References	195
APPENDICES.....	243
Appendix 1: Cover letter.....	243
Appendix 2 : Questionnaire	247
Appendix 3 : RU Ethical Clearance Certificate	259
Appendix 4 : UFH Ethical Clearance Certificate	260

LIST OF TABLES

Table 3- 1: Questionnaire responses by institutional affiliation	105
Table 4- 1: Respondents age brackets	116
Table 4- 2: Distribution by University affiliation.....	113
Table 4- 3: Distribution by faculty	114
Table 4- 4: Distribution by type of study	114
Table 4- 5: Time spent on Information gathering activities	136

Table 4- 6: Search techniques consulted.....	141
Table 4- 7: Methods utilized to modify search strategies	144
Table 4- 8: Evaluating the quality of an information source.....	146
Table 4- 9: Utilizing information sources.....	149
Table 4- 10: Feelings and emotions when the search does not produce relevant results:	152

LIST OF FIGURES

Figure 2- 1:Kuhlthau’s (1993) Information Search Process Model (ISP)	45
Figure 2- 2:Ellis’s behavioral model of information-seeking	47
Figure 2- 3:Wilson’s combined model.....	49
Figure 4- 1: Respondents gender distribution.....	111
Figure 4- 2:Information sources preferred by postgraduate students.....	115
Figure 4- 3: Access to electronic sources of information	117
Figure 4- 4: Electronic sources make it easy to access information.....	118
Figure 4- 5:Same amount of time	119
Figure 4- 6:It takes more time	120
Figure 4- 7:Frequency of internet search.....	122
Figure 4- 8:Frequency of academic & scholarly search engines	123
Figure 4- 9:Frequency of OPAC search.....	125
Figure 4- 10:Frequency of databases search	127
Figure 4- 11:Frequency of library shelf browsing.....	128
Figure 4- 12: Frequency of consulting colleagues.....	130
Figure 4- 13: Frequency of consulting reference lists	133
Figure 4- 14:Frequency of consulting email alerts.....	134
Figure 4- 15:Factors that determine choice of information source.....	138
Figure 4- 16 :Keep abreast of current development	140
Figure 4- 17:Modify a search	143

LIST OF ABBREVIATIONS

- BBT : Born Before Technology
IL : Information literacy
ILL : Inter Library Loans
IRS : Information Retrieval System
ISP : Information Seeking Process
OPAC : Open Access Catalogue
RU : Rhodes University
SEALS: South East Academic Libraries System
UFH : University of Fort Hare
WWW : World Wide Web

LIST OF APPENDICES

Appendix 1	: Questionnaire cover letter
Appendix 2	: Questionnaire
Appendix 3	: RU Ethical clearance certificate
Appendix 4	: UFH Ethical clearance certificate

ABSTRACT

Information is documented as data value in planning, decision making and evaluation of any programme, therefore any informed decision would be based on the kind of information that the decision maker has. Information seeking behaviour can be described as an individual's manner of gathering and sourcing information for personal use, knowledge update and development. In the light of this Information, this study examined the information seeking behaviour of postgraduate students at the University of Fort Hare and Rhodes University. The study went further to understand the impact the introduction of new technology has on postgraduate students' information seeking behaviour. The study was limited to postgraduate students in the faculties of Humanities, Social Sciences and Education at the University of Fort Hare and Rhodes University.

These disciplines were selected because of Whitemire (2002:637)'s opinion that students studying humanities, social sciences and education carry out more information seeking activities than students studying hard sciences such as Mathematics and other Natural Sciences. The aim of the study was to establish how postgraduate students seek and gather information for academic use. The objectives of the study were as follows: to find out information sources that postgraduate students value the most and determine where they find such resources; to identify the activities postgraduate students engage in when seeking for information; to establish the factors which influence postgraduate students information seeking behaviour and to determine methods that postgraduate students use to obtain relevant information.

Both quantitative and qualitative research methodologies were employed in a survey. The main research instrument was a questionnaire supported by focus groups and

face to face interviews. The results showed that postgraduate students utilised different sources of information when seeking information for academic use. Internet usage however was established as the information source that postgraduate students valued and relied on most. Few respondents indicated that they still visited the library and browsed the shelves and found information that met their needs in books. Reports on consulting librarians for help were low. Although the study was not on information seeking behaviour and age, the researcher noticed that mature students did not make use of information technologies effectively and also called themselves “Born Before Technology” generation.

The study also established that postgraduate student’s preferred or conveniently accessed Internet and other electronic sources of information in the libraries, even though the two Universities have postgraduate computer laboratories and students could also access electronic sources of information at their residences through wireless connection. The researcher also noted that postgraduate students relied more on lecturers and supervisors for the choice of information sources, rather than independently searching to find the most appropriate documents to use. Postgraduate students used keywords to obtain relevant information when searching electronic sources.

The respondents strongly agreed that they felt frustrated, confused, disappointed and demotivated if they did not find relevant information for their searches. This validates Kuhlthau (1991)’s Information Seeking Process model (ISP) as it not only focuses on the information seeking process, but also on emotions, thoughts and expressions of the user when searching information. The study recommends the following: optional computer literacy programmes for postgraduate students, extended library orientation for postgraduate students, mentorship programmes,

extended information literacy programmes, appointment of research and subject librarians as well as more faculty librarians and improvement in library marketing.

Key words: Information seeking, Information seeking behaviour, Information literacy, postgraduate students, Information sources

CHAPTER 1: BACKGROUND OF THE STUDY

1.1 Background of the study

This study examines the information seeking behaviour of postgraduate students at Rhodes University and the University of Fort Hare in the Eastern Cape, South Africa. The study further explores the impact of new technology on postgraduate students' information seeking behaviour. The researcher used the faculties of Humanities, Social Sciences and Education as research population in both universities. These disciplines were selected because according to Whitemire (2002:637) students studying Humanities, Social Sciences and Education carry out more information seeking activities than students studying hard sciences such as Mathematics and Natural Sciences. Whitemire used the Biglan (1973 a, 1973 b) model of disciplinary differences (dimensions of hard, soft, pure, applied, non-life, and life), and found some significant differences between disciplines in a large questionnaire-based study of undergraduate students (5,175 respondents). She found out that undergraduates in the soft academic disciplines (Humanities, Business, Social Sciences and Education) compared to undergraduates in hard disciplines (Physical Sciences and Engineering) engaged in more information seeking activities, with the exception of using the library as a place to read or study.

Students in soft academic disciplines submit more written assignments while students in hard sciences work more with mathematical formulas, hence the reason for this study to cover post graduate students in soft academic disciplines. One of the most well-established findings in regard to scientific information seeking behaviour is that there are major disciplinary differences in behaviour. Jamali & Nicholas (2010) for example are of the opinion that physical scientists have different patterns of information seeking behaviour compared to humanities scholars or social scientists

(see e.g. Brockman et al. (2001); Brown (1999); Nelson (2001); Rusch-Feja & Siebeky (1999); Smith (2003); Sparks (2005); Talja & Maula (2003) ; Tenopir (2003); Tenopir & King (2002); Tomney & Burton (1998). All these studies show that physical science scholars and social sciences and humanities scholars have different ways of seeking and discovering information and information sources.

Several factors have been identified with regard to disciplinary differences. This is elaborated by Talja et al. (2007) who states that, different scientific fields may have different research cultures and that a research culture influences the use of information sources. Research culture in Talja et al. (2007) refers to characteristics such as research-group membership and the degree of establishment of the research area. Different fields or areas of study may rely on certain types of information sources and apply specific search strategies and search techniques for locating information from those sources. The availability of different types of information sources (e.g. e-journals) in a field can also have impact on the information seeking behaviour of the scholars of that field.

Two other factors which have been identified to have an impact on the information seeking behaviour of scholars are the interdisciplinary nature and the scatter of literature of a scientific field (Talja & Maula, 2003; Tenopir, 2008 ; Vakkari & Talja, 2005). The interdisciplinary nature of a field refers to the reliance of its scientists on the literature of other disciplines. In other words, the extent to which researchers of a field use the literature of other disciplines is regarded as a measure of interdisciplinary of that research field. In the light of this information, the findings of this study should be generalized to the investigated faculties but not to all postgraduate students in all academic disciplines at the universities under study and to other universities because different scientific fields may have different research

cultures and that a research culture influences the information seeking behavior of the students. Once more this researcher assumes that information seeking behaviour of students in general is influenced by information seeking skills as well as information literacy skills the students possess. Computer and web experience, the ability and frequency of use of e-sources can also play an important role in student's information seeking behaviour. Hence the researcher delineates the study to social scientists.

In the study, the researcher assumes that most postgraduate students are not well acquainted with information retrieval skills and techniques, especially with the use of new technology. This assumption emanates from the observation that postgraduate students at these two Universities come from different backgrounds and hold various degrees; some hold degrees obtained from the same institutions where they are enrolled as postgraduate students, whereas some obtained their degrees from other institutions of higher learning and this has an impact on their information seeking behaviour and exposure to technology. Additionally some postgraduate students have been away from academia for a long time, whereas some have multiple tasks such as work and family responsibilities in addition to their educational roles and therefore attended school on part-time basis.

These factors not only affect their information seeking behavior but their success also, hence the need to carry out this study. Generally postgraduate students are expected to locate and manage significantly more sources of information than undergraduate students; as such knowledge in information retrieval is a necessity in their studies. (Benson, 1995b; Simpson, 1998) explain that the level of research expectations is much higher at the graduate level. Graduate students must be able to locate information beyond their textbooks and course outlines, so that they have

an in-depth understanding of publishing cycles and knowledge of how information is generated and organized from a variety of sources. Furthermore postgraduate students are expected to work independently to identify relevant literature from different sources. One of the main objectives of graduate education is to educate students to understand the academic body of knowledge in their disciplines on a deeper level. This being the case, it is important to determine whether postgraduate students have the necessary skills to retrieve the information they require for their studies. A lack of relevant skills has the capacity to affect the outcome of their studies.

Another factor that has an impact on the information seeking behavior of students is technology. The emergence of the internet allows millions of users to access various types and formats of digital information regardless of their physical locations. Information seeking is never an easy task in the digital age, thus user's information problems require different information seeking strategies. The new digital environment not only forces people to apply more than one type of information seeking strategy, but also requires people to change from one information seeking strategy to another in the information seeking process in order to filter information.

This applies to postgraduate students at Rhodes University and the University of Fort Hare who should have the relevant skills to carry out technological searches. However, current information retrieval systems, such as Web search engines (e.g., Google), online databases (e.g., Ebsco Host), Online Public Access Catalogues and digital libraries are designed mainly to support query formulation and limited browsing.

The digital age brings changes to information retrieval systems, users, information and the environments in which users interact with systems. That also poses challenges for users to effectively retrieve information to accomplish their tasks and goals as they should possess information seeking skills (Xie, 2007).

1.2 Problem Statement

Information seeking is a fundamental human activity in the process of gathering information and building knowledge. Effective information seeking has become essential in the information society, with the rapid growth of digitally recorded information and complex information management systems. Literature indicated that postgraduate students used keywords to retrieve relevant information from electronic sources of information, search techniques were seldom used. Many studies that were conducted both national and international e.g Adams (2009); Kerins, Madden & Fulton (2004); Khathi (2009); Niemand (2010) also indicated that students used internet to access information for academic purposes. Rhodes University and the University of Fort Hare are not an exception. These universities have substantial amounts of information resources; print and electronic to support teaching, learning and research.

These universities and other universities in the Eastern Cape, Nelson Mandela Metropolitan University and Walter Sisulu University for Technology and Science formed a library consortium called South East Academic Libraries System (SEALS) which enables the libraries of these universities to share information resources. SEALS consortium was established with the purpose of collaboration on the purchasing of journals and the sharing of the catalogues. Other purposes of SEALS

include the sharing of information resources, improvement of inter-library lending (ILL) and to enable optimum access to information (SEALS website)

However, whilst these universities are doing everything possible to equip their libraries, not much is done to equip postgraduate students with necessary skills to access this information. In addition, the information seeking behaviour of postgraduate students is not observed by librarians, hence, the need to carry out this study. The observation that there is no on-going training on information retrieval is evidenced by the fact that currently information literacy is offered in a variety of supplemental venues e.g online tutorials, assignment related instruction and orientations and not as a vital component of postgraduate learning. With regards to technology, electronic sources of information in these two university libraries have developed massively. Unlike in the traditional library system, electronic systems affect the information seeking behaviour of postgraduate students. This is more applicable to students who have been away from academia for a long time and are used to the traditional way of searching for information.

These students are bound to encounter challenges in accessing technology based information. Once again it is interesting to note that these universities offer computer laboratories for postgraduate students, but there are no trained research librarians who work in those laboratories to assist postgraduates with information search. Additionally, the researcher is also of the impression that postgraduate students don't usually approach librarians for assistance or go to the librarians with a topic and ask for assistance like the undergraduates. This is bound to affect their information seeking behaviour. It is therefore quite important that these universities be aware of information seeking behaviour of their current and future postgraduate students and derives some strategies of helping them, hence this study.

1.3 Research Aims and Objectives

The main aim of this study is to investigate the information seeking behaviour of postgraduate students and how they go about seeking and gathering information for academic use. The main purpose of the study is to eliminate information illiteracy among postgraduate students

To achieve the above mentioned aim, the following objectives were developed

- To find out information sources that postgraduate students value the most and determine where they find such sources.
- To identify the activities postgraduate students engage in when seeking for information.
- To establish the factors which influence postgraduate students' information seeking behaviour
- To determine methods that postgraduate students use to obtain relevant information
- To discover ways that postgraduate students utilize information

1.4 Research questions

This study aimed to answer the following research questions:

- Which information sources do postgraduate students value most and where do they find such sources?
- How do postgraduate students seek and obtain information?
- What factors influence postgraduate students' information seeking behaviour?
- How do postgraduate students obtain relevant information?
- How do postgraduate students use information?

1.5 Scope and limitations of the study

This study focuses on postgraduate students from Rhodes University and the University of Fort Hare. While a study of information seeking behaviour of all postgraduate students in all universities in Eastern Cape would be advantageous, this was not possible due to reasons of data size, data collection time and possible duplication of data. The amount of data from a larger area would have been too large to handle while only one university might not suffice. The time for data collection was sufficient for the two institutions chosen for the study. The other limiting factor was that the researcher did not have enough financial resources as she did not receive any financial assistance for travelling and other expenses. For that reason collecting data from all the four universities in Eastern Cape was not possible. The two universities selected for the study do not have similar culture and historical backgrounds; as such it is the hope of the researcher that this study will provide the opportunity to draw lessons from each institution's strength and weaknesses owing to the remarkable different cultural and historical backgrounds.

1.6 Definitions of terms

This section defines terms that are key to the study so as to provide a basis of how they are used in this study.

1.6.1 Dormant information needs

Dormant information needs appear when people are not aware of what they need and are unaware of available new information which could help and assist them.

1.6.2 Information

Uttor (1999) defines information as data value in planning, decision making and evaluation of any programme. He goes further to say that, information is data that have been subjected to some processing functions capable of answering user's query be it recorded, summarized or simply collected that would help decision making (Uttor, 1999). The term is well understood in terms of books, journals, magazines, public and private sector documents of all kinds, whether published for mass circulation or unpublished and restricted or confidential in nature, results of research efforts which are made available to colleagues in form of reports, books articles and non-printed materials. From this definition, it is apparent that information is crucial to man's survival in modern society. That is information is required in man's daily activities be it at school, play or work situation. In the cognitive viewpoint of information science, Belkin (as cited in Eskola, 1998) explains that information is associated with a text which is the generator's modified by (purpose, intent, knowledge of recipient's state of knowledge) conceptual structure which underlines the surface structure (e.g. language) of that text. According to Dervin & Nilan (1986: 16) information is something constructed by human beings; however in this study, information is regarded as something which students need during their studies when they construct meaning about the subjects in the process of learning and to make informative decisions.

1.6.3 Information need

Information need from the information science perspective is perceived as a branch from a vague awareness of something missing and as culminating in locating information that contributes to understanding and meaning (Kuhlthau,1993).

Information need is an anomalous state of knowledge (Belkin, Brooks & Oddy, 1982), or a gap in individual's knowledge in sense making situations (Dervin & Nilan, 1986). For a person to experience an information need, there must be a motive behind it (Wilson, 1997). Information need arises when an individual sense a problematic situation or information gap, in which his or her internal knowledge and beliefs and model of the environment fail to suggest a path towards the satisfaction of his or her goals (Case,2007 :333). Such an identified information need may lead to information seeking and the formulation of requests for information.(Ingwersen & Jarvelin,2005). When considered from a task performance point of view, International Organization for Standards (ISO) (as cited by Blom, 1983:4) perceives information need as the requirement for information as information is necessary to fulfil a task. Students in general need information to fulfil academic tasks.

1.6.4 Information Sources

Information sources can be defined as the physical or digital entities in a variety of media providing information (Ingwersen & Jarvelin, 2005:387). From a postgraduate student's point of view, information sources should contain relevant information. Information sources can also be distinguished as external and internal sources, human and documentary sources or formal and informal sources of information (Gralewska –Vickery, 1976:267). Information is accessed through various channels from various sources e.g. print, electronic and oral. An information source contains relevant information whereas a channel guides the user to pertinent sources of information (Bystrom & Jarvelin, 1995:139). For the purpose of the current study information sources are classified as formal and informal sources of information e.g.

books, journals, electronic databases, internet, workshops, colleague among others.

1.6.5 Information seeking

According to Kingrey (2002), information seeking involves the search, retrieval, recognition, and application of meaningful content. This search may be explicit or implicit; the retrieval may be the result of specific strategies or serendipity, the resulting information may be embraced or rejected, the entire experience may be carried through to a logical conclusion or aborted in midstream, and there may be a million other potential results. According to Case (2002:5), information seeking is a conscious effort to acquire information in response to a need or gap in one's knowledge. Marchionini & Komlodi (n.d) expand on this, by defining information seeking as a process in which humans engage to purposefully change their state of knowledge. They suggest that the process is inherently interactive as information seekers direct attention, accept and adapt to stimuli, reflect on progress and evaluate the efficacy of continuation. The two scholars conclude that information seeking is a cybernetic process in which a knowledge state is changed through inputs, purposive outputs and feedback. However, it is a strictly human process that requires adaptive and reflective control over the afferent and efferent actions of the information seeker.

The study on information seeking behaviour includes: the strategies people adopt for making discoveries, their expectations, attitudes, anxieties as well as their ability to select, explore, formulate, collect, evaluate and present information. In the light of this information, a need arises to find out if postgraduate students at the university of

Fort Hare and Rhodes University are able to obtain the information they need as they go about searching for relevant and pertinent information. It is also important to find out what methods and sources of information they usually utilise while trying to meet their objectives.

Information seeking is a basic activity indulged in by all people and manifested through a particular way of behaviour. It is also an aspect of scholarly work most interesting to academic librarians who strive to develop collections, services and Organizational structures that facilitate seeking of information (Wiberley & Jones, 1995). There is a universal assumption that man was born innocent and should actively seek knowledge. 'Information seeking is thus a natural and necessary mechanism of human existence' (Marchionini, 1995). Information seeking therefore is the purposive seeking of information as a consequence of a need to satisfy some goal. In the course of seeking, the individual may interact with manual information systems such as a newspaper or a library, or with computer-based systems such as the Web. Information seeking behaviour involves personal reasons for seeking information, the kinds of information which are being sought and the ways and sources with which needed information is being sought. Information seeking is expressed in various forms, from reading printed material to research and experimentation. Scholars, students and faculty actively seek current information from the various media available in libraries, e.g. encyclopaedias, journals and more currently, electronic media. (Abels, 2004)

Another definition of information seeking is provided by Lallimo, Lakkala & Paavola (2004), who describe information seeking as a term used widely in information

science to encapsulate an entire process, from recognizing the need for information to finding and using it. They also believe that the term can be seen to overlap with other related terms such as information gathering, which is the phase during which the user searches for and acquires what he or she considers to be a relevant source of information. Information seeking also focuses on the interaction between the information seeker and information resources, is a cyclic or iterative process by nature that involves more than simply gathering information and consists of reflective processes that involve posing and identifying the research questions, exploring the information available, refining the questions, gathering and evaluating further information and synthesizing and using the information (Lallimo, Lakkala and Paavola, 2004:2). This cyclic process of gathering, sorting, evaluating and refining may be carried out in a number of times (Lallimo, Lakkala and Paavola, 2004:2).

Another point of view is that information seeking looks at how individuals go about finding the materials that they need in order to satisfy their personal, professional and/or recreational information needs (Lines, 2003). This view is shared by many scholars, among them Nel (n.d), who suggests that information seeking is always embedded in the larger tasks of work, learning and play. A similar thought is shared by Rieh (2004), who says: "Information seeking is a complex information and communication activity requiring access to diverse information systems and resources in order to deal with work-related, personal and social information problems." Taylor & Procter (2005:1) define information seeking more simply by stating that it is the ability to scan literature efficiently using manual or computerized methods to identify a set of useful articles and books. This is similar to Kari & Savolainen (2002) assertions that information seeking manifests itself in the end-

user's active search for and consultation of information sources. Like any other complex concept, information seeking means different things in different contexts. All the same, the definitions listed above lead one to deduce that information seeking is a process or activity that involves the consultation of sources. These sources can be manual or computerized, and there is often a behaviour pattern or way one goes about consulting these sources. (Kari and Savolainen (2002)). This researcher assumes that different behaviours are outcomes of the skills that the user poses.

In order to acquire information the user has to select information from a particular source, system, channel or service. In this study the information seeking behaviour refers to postgraduate students' utilization of information services and systems such as libraries, internet, computerised databases as well as formal sources of information such as textbooks. The concept also refers to the postgraduate students' use of informal sources of information such as personal contacts, telephones, emails, attending conferences and social blog e.g. face book, LinkedIn etc.

1.6.6 Information seeking behavior

Information seeking behaviour is a broad term that encompasses the way in which individuals articulate their information needs and seek, evaluate and use information (Meho & Haas, 2001:6). A similar definition is provided by Järvelin & Ingwersen (2004:1), who state that information seeking behaviour is showcased in the act of acquiring information from knowledge sources. Information seeking behaviour can be described as an individual's manner of gathering and sourcing information for personal use, knowledge update and development. That is information seeking behaviour refers to the way people search for and utilize information. Information

seeking behavior is the totality of human behavior in relation to sources and channels of information, including both active and passive information seeking and information use (Fairer-Wessels,1990). Wilson (2000) describes information seeking behaviour as purposive seeking of information as a consequence of a need to satisfy some goal.

Information seeking behavior is the micro-level of behaviour employed by the searcher in interacting with information systems of all kinds (manual and /or computer based systems), be it between the seeker and the system, or the pure method of creating and following up on a search (Wilson, 2000). It therefore generally appears as though information seeking behaviour involves some action being taken by a user to fulfil an information need and this culminates in an eventual interaction with some kind of information system. Information seeking can be affected by the characteristics of the users, such as age, knowledge and experience. Information seeking behaviour is also encapsulated and expressed in various forms, from reading printed material, to research and experimentation. Fairer–Wessels (as cited in Kakai, Ikoja–Odongo & Kigongo–Bukonya, 2004) contends that information seeking behavior refers to the way people search for and utilise information.

This process of information seeking, according to Patitungkho & Deshpande (2005), starts off with reasons (personal or otherwise) for seeking information and goes on to include the kind of information being sought, and the ways and sources that the users use to find the information. Patitungkho & Deshpande (2005) also observed that students' information seeking behavior involves purposeful information seeking as a result of the need to complete course assignments, prepare for class

discussions, seminars, workshops and write final year research papers. (Taylor, 2000) notes that the information sources that a user actually needs may not eventually tally with what is practically available, due to constraints or too much either in the stock or the user's own inability to search and retrieve relevant information.

1.6.7 Information Retrieval System

Information retrieval system is a system that is capable of storage, retrieval and maintenance of information. This system consists of a software program that facilitates a user in finding the information they need. The system may use standard computer hardware or specialized hardware to support the search; it is a mechanism for carrying out the information retrieval process (Kowalski & Maybury, 2000) Objectives of information retrieval system are to minimise information overload; minimise the user's time when locating needed information; filter information and to categorise relevant information for retrieval

1.6.8 Inter Library Loans

This is a service whereby a user of one library can borrow books or receive photocopies of documents that are owned by another library. The user makes a request with their local library which acts as a mediator between the user and the library that owns the publication by placing the request, receives the item, makes it available to the user and arrange for its return. Like many universities, RU and UFH also offer postgraduate students inter library loans services

1.6.9 Postgraduate students

In this study, postgraduate students refers to students who have already obtained a bachelors degree and are studying at a university for more advanced qualification, such as Postgraduate diploma , Honors, Masters and PhD

1.6.10 Search strategy

A search strategy is an overall plan or approach to find information using computers and to solve an information need. It can consist of a single search query or a selection of search queries. It may also entail the use of more than one search tool and evaluate the results as the information searcher goes along to refine the search query and/or edit the search.

1.6.11 Search techniques

These are the methods that scientific databases offer for users to apply for the purpose of information retrieval.

1.6.12 World Wide Web

It is an interactive and collaborative information environment that is composed of hypermedia and hypertext documents linked to one another and distributed over the internet (Kari & Savolainen, 2001). The term WWW is used to describe all hypermedia based information sources that are available on the internet (Jansen & Spink, 2004: 3)

1.6.13 Unexpressed information needs

Unexpressed information needs are evident when people are aware of their needs but do nothing to express those needs.

1.6.14 Wireless

Wireless refers to networking technologies that connect multiple computers and devices together without wires, communications sent among devices without wires or cables. It is a broad term that encompasses all sorts of wireless technologies and devices, including cellular communications, networking between computers with wireless adapters and wireless computer accessories. Wireless communications travel over the air via electromagnetic waves (radio frequencies, infrared, satellite, etc).

1.7 Assumptions

The validity of the results will depend on the following assumptions

- The objectives of the study will be achieved
- Although Whitemire (2002) based her findings on undergraduate students, it is assumed that postgraduate students in soft academic discipline also submit more written assignments while post graduate students in hard sciences work more with mathematical formulas
- The availability of different types of resources (e.g. e-journals) in a field could also have impact on the information seeking behaviour of students in that field.

- Data will be accurate
- This researcher assumes that most postgraduate students in the soft academic disciplines are matured in age and are struggling with information searching
- Since Kuhlthau (1993) ISP model was tested on high school students and university students it is assumed that postgraduate students at Rhodes University and University of Fort Hare will conform to the ISP phase if they are information literate

1.8 Significance of the study

While some studies on information seeking behaviour of postgraduate students have been carried out by other researchers and are available on scholarly databases, this study would add to the general body of knowledge and share the findings regarding information seeking behaviour of present post graduate students at Rhodes University and the University of Fort Hare. This study may also influence the two universities academic libraries to upgrade their information literacy and bibliographic instruction programmes so that postgraduate students are well acquainted with information seeking techniques and strategies.

The two universities may also consider positions of research librarians that will assist postgraduate students with information seeking. Based on the findings the researcher would make proposals for developing effective information literacy programmes for postgraduate students not only for the two universities but for any institution that would like to implement such programmes for its postgraduate students.

1.9 Institutional Background

1.9.1 University of Fort Hare (UFH)

The University of Fort Hare (UFH) is one of Africa and South Africa's oldest universities, having been founded in 1916 as an institution of higher education for Africans. It survived near closure in 1999; a situation rooted in the inequitable treatment the university was subjected to during the apartheid era, and exacerbated by poor leadership and declining student numbers. UFH has an intricate history that not only parallels, but reflects the contradictions of modern history of South Africa. Today however, it has defied all odds and is striving towards being a vibrant intellectual centre, already a major contributor to economic, political, social developments at local, provincial and national levels.

The university has three locations, the main campus being in Alice a small rural town; the other two campuses are located in East London and Bisho respectively. In the 2012 academic year, the university had approximately 10400 registered students of which 1686 were postgraduate students, 876 of the postgraduates' students were registered in the faculties of Education, Humanities and Social sciences, 544 were full time students while 332 were registered as part time students during the time of this study. The University of Fort Hare has six faculties namely, Education; Law; Management and Commerce; Science and Agriculture and Social Sciences and Humanities. It offers 189 degrees programmes and diplomas within the departments in the different faculties. (UFH website)

1.9.2 Rhodes University (RU)

Rhodes University (RU) is a small, prestigious university located on 203 hectares of land in, Grahamstown, the Eastern Cape of South Africa. It has approximately 6000 students of which approximately 1828 are postgraduates. Of the 1828 postgraduate students at Rhodes University 1018 were registered in the Faculties of Education and Humanities at the time of data collection for this study, 370 postgraduate students were registered as part time students while 648 were registered as full time postgraduates' students. Fifty-five per cent of the students lived in the university residences. Rhodes is a cosmopolitan university drawing students from across South Africa, the Southern Africa region and overseas. It boasts of a lecturer-student ratio of one lecturer to fifteen students. By local standards it is comparatively a well-resourced institution of higher education. Rhodes offers degrees in various academic departments within six faculties, namely Commerce, Education, Humanities, Law, Pharmacy and Science. (RU website)

1.10 Dissemination of findings

Findings will be disseminated through a thesis that will be available on the electronic repository to be accessed by all SEALS members and the community at large.

1.11 Chapter Demarcation

Chapter 1 comprises of background to the study, problem statement, aims and objectives of the study, research questions, scope and limitation and significance of the study

Chapter 2 presents a theoretical overview and a literature review. The relevant theories on information seeking behaviour will be analysed in relation to the study.

Chapter 3 outlines the research design and methodology. That is the researcher explains the research instruments and data collection procedures that were followed in this study.

Chapter 4 analyses and interprets the collected data

Chapter 5: This chapter discusses the findings of the study in relation to what is already known in the published literature.

Chapter 6: provides conclusions and recommendations based on the findings of the study.

1.13 Chapter Summary

This chapter covered the research problem, research questions and objectives and overall background to the problem under investigation. The limitation of the study was outlined. The chapter provided a clear perspective of Information seeking behaviour of postgraduate students. Brief backgrounds of the studied institutions were given. The following chapter reviews literature on postgraduates' students with regard to their information seeking behaviour as well as the conceptual frameworks.

CHAPTER 2 : LITERATURE REVIEW AND CONCEPTUAL FRAMEWORKS

2.1 Introduction

Literature review is a process that involves finding, reading, understanding and forming conclusions about the published research and theory on a particular topic (Burns & Grove, 2003). Good research does not exist in a vacuum. As such research findings should be an extension of previous knowledge and theory as well as guide for future research activities. Polit & Beck (2007: 722) add that a review of literature provides a critical summary of research on a topic of interest so as to put a research problem in context. A review of literature therefore is conducted to generate a picture of what is known about a particular situation or area of study and the knowledge gaps that exist in the field.

In the light of the definition above, this section reviews literature on postgraduate students with regards to their information seeking behaviour. The literature also focuses on the abilities of postgraduate students to find relevant information for their studies, using either print or electronic information resources and to address the question of information sources that postgraduate students value most. Reviewing literature will help the researcher to establish how other scholars have investigated the same problem (Mouton, 2008; Neuman, 2006). The following section presents the literature that covers the topic and sub topics under study as well as the research questions. The topics covered are information seeking behaviour that addresses how postgraduate students seek and obtain information using either manual or electronic sources of information, information literacy and postgraduate students,

theoretical frameworks, information seeking behaviour theory, Information search process model, Ellis's behavioural model of information seeking, Wilson's combined model, postgraduate students and information retrieval techniques that addresses the methods postgraduate students used to obtain relevant information, choices of information sources that addresses the question of information sources that postgraduate students value most, usage of electronic sources of information, research skills that addresses skills that postgraduate students possess, postgraduates' students and the library utilization that addresses issues of places where postgraduate students find information, information seeking behaviour in the technological or digital environment to address the present information age, Information seeking behaviour and the academic discipline to address factors that influence postgraduate students' information seeking behaviour based on the findings that confirm that there are major disciplinary differences in information seeking behaviour of students, Web 2.0 and social networks to address the different types of information sources students are exposed to.

2.2 Information seeking behaviour

The information seeking behaviour of academics appears to have been a focus of inquiry for a long time, as reflected in the many studies identified by Tibbo (n.d:n.p) [e.g. the study by the American Psychological Association, 1963 - 1969; Bath University, 1979 - 1980; and Earle & Vickery's study in 1969]. The view held by Borgman et al. (2005:640), is that research on the information needs and the information seeking behaviour of academics extends back to the late 1950s, beginning with simple descriptive studies and evolving into discipline-specific investigations. Much of the research evolved from a more generalized

interdisciplinary interest in the work of scientists and the nature of scientific communication, resulting in a large body of literature that dates back from 1940 - 1960 (Borgman et al., 2005: 640). According to Francis (2008:68), researchers and practitioners in the field of Library and Information Science (LIS) have long held an interest in the information seeking behavior of different client groups. Since then, studies quickly progressed, starting with those intended to improve collection development, followed by those that explored the research habits of individuals or groups for the design of appropriate systems and services. In other words a user-centred approach that examines the system as seen by the user was developed.

Studies on web information seeking behaviour appeared later and many pen down the mid-90s as the exact starting point. Spink & Jansen (2004) suggest that the earliest studies of web searching behaviour in the mid-90s occurred as web search engine and web browser use began to grow, particularly in academic environments. However as Kuhlthau (1991) states students experience the same constructive stages of the information seeking process in digital environments and face the same pitfalls in shelf browsing and this affect their information seeking behaviour.

Scholarly information behaviour today is governed to a significant extent by the existence of a wide variety of electronic information sources, from the online databases that emerged more than thirty years ago, to electronic journals and the World Wide Web. In academia, the use of libraries as places in which to search for information is being replaced, to an increasing degree, by access to these information resources from the scholar's office desk, from the desk at home, from the laptop in the conference hotel, or, with the increasing pervasiveness of wireless

connectivity, from the airport lounge for instance. With this increasing mobility come challenges for the developers of information services to develop systems that support the user in his or her search (Wilson, 2004). Post graduate students at RU and UFH are also affected by this extensive variety of electronic information sources and thus affect their information seeking behaviour.

2.3 Research skills

Postgraduate students need to acquire research skills during their studies in order to acquire competencies to conduct research in their own professional fields. (Murtonen, 2010 ; Zainuriyah, 2009 and Rosli, 2010) among others identified the knowledge and skills that students should acquire before conducting and writing their research. Kardash (2000) also identified the skills required to develop research skills of undergraduate students engaged in research. Other issues that emerged relate to postgraduate students' perceptions of their research skills. Studies indicated that most postgraduate students overestimate their research skills and abilities, (Kohrman, 2003) and (Simpson, 1998). A study conducted by Simpson (1998) at Adelphi University New York to determine whether postgraduate and doctoral students possessed basic research skills revealed that 64% did not have the necessary skills for postgraduate research and 42% used the Web for a majority of their research work. Although most postgraduate students scored low on research skills they felt prepared to do independent research.

Lastly, another factor that emerged during this research is that of information literacy. Generally, teaching the current trends and materials in addition to the textbook and course reserve readings limits the time and efforts that faculties can devote to

information literacy education. Moreover, faculties have traditionally been unwilling to give up class time for this type of instruction (Simpson, 1998). With increasing class sizes and growing student enrolments in many institutions, teaching faculties have less time to assign to research projects or to provide students outside the classroom with guidance and support necessary to perform their class research projects (Benson, 1995 a; Home, 1993; McMurtry & Mc Clelland, 1997). Therefore this researcher opines that librarians should work with academics and provide extended support of information seeking skills to postgraduate students.

Furthermore, a study on computer anxiety in the 21 century at Kansas University in Manhattan, New York by Kohrman (2003) and Simpson (1998) found that postgraduate students did not interact much with information communication technology. Their findings revealed that many postgraduate students reported fear of hitting the wrong button thereby breaking the machine. In view of the above, it is therefore important to investigate how mature students interact with technology at RU and UFH. As a result of the challenges associated with information retrieval at university level, Barry (1997) concludes that librarians should continue to take the lead in information literacy training, but should share the responsibility with faculties. Thus departments should dedicate time for information literacy instructions on their timetables. This is because students at post graduate level have not yet acquired adequate knowledge of the discipline and its organization which limits their searching productivity and efficiency. They must be taught ways in which the library can help them use the resources more effectively to obtain and apply knowledge (Benson, 1995a).

Several recent articles have been devoted to a growing concern about information literacy's priority and place in the educational process Barry, (1997); Owusu-Ansah, (2003); Zabel, Benzak & Benzak (2004). Lowry (1990) recommends that a credit-bearing course on information literacy at undergraduate graduate level should be provided, thus introducing a new paradigm for information literacy. Even though Lowry recommends the training of undergraduate students, the researcher is of the view that training should also be provided to postgraduate students as they also encounter many challenges during their search for information. With regard to training course, Johnston & Webber (2003) also advocates for sufficient content for the credit-bearing course. They reveal that the body of knowledge, methods and skills beyond 'search and find skills' or the technology training normally found in the single library research class are enough to justify an independent course in information literacy. Additionally, although much research has been carried out on the importance to acquiring research skills at university level, Literature however articulates a gap between students' perceptions and need for information literacy and faculty expectations with regard to the research process, hence research should be carried in this area.

Parrish (1989)'s study of academic community analysis which focused on discovering research needs of graduate students at Bowling Green State University found out that most graduate students were uncomfortable with one form of the research process or another and that misjudging the time necessary to conduct research was also an issue. Graduate students' high level of stress regarding library, computer, and research anxiety is a widespread phenomenon and is well documented throughout literature. Studies by Cleveland, (2004); Grassian &

Kaplowitz (2001); Onwuegbuze, (2002) and Kohrman, (2003) also addressed the issues of post graduate students library, research, and computer anxiety. Library anxiety, as described by Mellon (1986), is fear and/or anxiety or phobia of using or even contemplating using the library. Numerous studies support the view that library anxiety is real and can have an effect on academic success. For example, adult learners tend to be highly motivated and independent so they often do not want to reveal to others that they do need help, additionally they may also feel that they are the only ones that do not know how to find information materials on their own, which leads to high levels of library anxiety.

(Onwuegbuzie & Jiao 2000). According to Barry (1997), the skills requirement of post graduate students and their research supervisors in today's information age appear to be quite different from those that were required in a traditional library setting. Searching a traditional library was a finite task, calling mainly for an ability to navigate library catalogues and shelf classification systems. In today's information age, identifying and locating information may be an infinite task. Thus, as we continue to make the transition from a traditional to a more electronic information age, the need for new digitally-based information skills is a prerequisite. Unfortunately, many post graduate students and their supervisors are lagging behind because they are not acquiring these important information skills. That is, they lack specific skills like: ability to identify and appraise internet-based sources, information management, retrieval, filtering, and storing information, hence the need to train academics on information searching skills.

In order to demonstrate information literacy by postgraduate students, Lacefield & Mahan (1988) suggests that, a short research paper should be assigned to prospective students before final admission to the postgraduate school or programme is finalised. The written assignment would be helpful in demonstrating the applicants' varying "scholastic ability, writing ability, and general motivation and determination." Borderline students would be identified immediately and required to take a basic information literacy workshop in order to enter the postgraduate programme. This would ensure that the students in most need of instruction would be targeted and receive the crucial assistance at the onset of their academic programs. Librarians therefore should make administrators and teaching faculties more aware of post graduate students' needs and desires regarding information literacy education in order to influence and effect necessary curriculum changes. Librarians should also be more creative and collaborative in providing faculties with a variety of venues and alternatives beyond classroom instruction, so that information literacy skills are incorporated into the postgraduate education process.

According to Bellard (2007) information literacy is best taught when it is integrated into the substance of a course or concerned with a research design and the researcher concurs with this viewpoint. Bellard (2005) also opine that another alternative would be to work with curriculum planners in the school to target and identify several required courses within the curriculum and offer developmental instructional sessions and assignments options relevant to course goals and objectives. This would allow students to reinforce their skills in a meaningful and practical way necessary for professional development and lifelong learning. The University of Michigan in Ann Arbor, United States presently has such a program in place. Information literacy competencies are integrated into their schools' fall

orientation, two foundation courses, and several advanced research courses (Lawlor, 2003.) Such a course can be beneficial to postgraduate students at RU and UFH.

2. 4 Information literacy

Lupton (2004) refers to information literacy as “a means of personal empowerment” which enhances a person’s ability for lifelong learning and proposes that there is a distinction between information literacy and information seeking and use. It is the process of analysing and resolving issues through the effective use of information that facilitates constructive learning. Clearly there is a need to integrate the development of such competencies into the postgraduate curriculum (Appleton & Orr, 2000; Snaveley & Cooper, 1997). This would suggest, therefore, that it is the university role to structure topics and learning tasks with a supportive framework which can guide students through the collection, critical analysis and use of information hence RU and UFH are not exception.

The notion of information literacy, originally conceptualized in the 1970s is now commonly used to describe the skill set required to interact effectively in the electronic environment. There is some debate as to whether or not this term appropriately describes the skills required by the citizen of the information society. There appears to be a consensus that a variety of literacies are required in order to use networked communication technologies, digital media, and online and traditional information resources. Information literacy therefore can be understood as the overarching term to describe the skills needed to use information and communication technologies (ICTs) effectively, and to access appropriate digital information

resources (Bundy, 2004). With regards to acquiring information literacy, Whitworth (2003) emphasises the importance of developing generic skills amongst students in relation to technology and information. He suggests an approach that focuses on critical skills, context, autonomy and participation. However, it is important that information literacy is not conceptualized in terms of information technology skills. Bundy (2004) explains that the most important elements of information literacy are “critical discernment and reasoning”, rather than technological fluency.

The term “information literacy” has many definitions, none of which is universally applicable. (Jiyane & Onyancha, 2010), the American Library Association (ALA) nevertheless provides what has come to be recognized as an all –encompassing definition of an information literate person. The Association describes an information literate person as “one who recognizes when information is needed and has the ability to locate, evaluate and use effectively the needed information” (ALA 1989, 2000). According to the United Nations Education, Scientific and Cultural Organization UNESCO (2008:) information literacy refers to one’s ability to recognize his/her information needs, locate and evaluate the quality of information, store and retrieve information, make effective and ethical use of information by proper citations and referencing as well as to apply information to create and communicate knowledge.

The growing body of literature on information literacy and instruction demonstrates the need for developing information gathering and research skills as an integral and necessary part of the educational process. Numerous articles have documented growth of literature on information literacy over the last 25 years (Johnson & Jent, 2004; Johnston & Webber, 2003; Rader 2002). Researchers such as Simpson

(1988) and Johnston & Webber (2003) document how information literacy instruction is now offered in some format in most universities as part of the undergraduate education curriculum. Yet, at the post graduate level information literacy still remains sporadic at best and offered mainly in a variety of supplemental venues (e.g., online tutorials, assignment related instruction, workshops, and orientations). The same applies to RU and UFH where information literacy programs are offered on online tutorials. The most prevalent reason for this can be attributed to the fact that most faculties assume that incoming graduate students have acquired the necessary library and research skills at the undergraduate level in order to be independent researchers (Simpson, 1988 and Johnston & Webber, 2003). This however, is not always the case as some mature students attended undergraduate studies at a time when technology was not so prevalent, leading to a gap in their knowledge system.

In the United Kingdom, Urquhart & Crane (1994) studied the information seeking skills and behaviour of information sources for postgraduate students at the University College of London. Case study problems related to their fields were used. In the study, information need was related to information use in that a problem case was given to each participant on whom the interview was focused. The findings showed that a third of the sample studied had little evidence of knowledge of information seeking skills. It also revealed that postgraduate students relied more on informal information sources such as colleagues and lecturers than formal sources of information. Additionally, it should also be noted that there are several factors which can affect how information is obtained. These factors include, among others, timeliness of information presented, awareness of the sources of information and ability to use information access tools. This brings in the issue of training in the use

of information centres by the information and service providers. (Urquhart & Crane, 1994)

Generally, new postgraduate students often lack the ability to identify experts and leading scholars in their field of study. They often become overwhelmed with material and do not have the time or patience to read all the materials and properly evaluate them (Benshoff, 1993; Benson, 1995a; Leckie, 1996; Simpson, 1998). Most of them are unaware of the relevant bibliographies and reference materials in their field and have little or no experience conducting literature reviews or following citation trails (Benson, 1995a). Johnson, Griffiths & Hartley (2001) argue that several electronic information seekers are unable to use advanced search methods or complex queries when conducting a search. Brophy & Bawden (2003: 73) support this argument as the participants in their study used the advanced search function less. The Ciber (2007) study provides evidence of using advanced search strategies because students expect that search engines would provide them with a better understanding of search queries.

Junni (2007) undertook a study on how students seek information for their Master's theses and the effect of the internet on the behaviour at the Swedish University of Economics and Business Administration in Helsinki, Finland. In the study, reference lists of Master's theses from 1985, 1993 and 2003 were studied in three disciplines: Economics, Psychology and Mathematics, followed by semi-structured interviews of the students who had completed their theses in 2003. The findings showed a substantial increase in the use of scholarly articles as reference sources throughout the time of the studies, although the number of other information sources had remained largely unchanged. One of the main problems that students reported was

lack of training in information searching, and the abundance of irrelevant information on the internet. Similarly, RU and UFH libraries do not have formal Information literacy programmes for postgraduate's students. Information literacy is offered through the library websites and pamphlets, as such there is a need to provide information literacy programs to postgraduate students.

A number of qualitative studies for example by Aula & Nordhausen (2006); McGuinness (2006); Morrison (2007); Haglund & Olsson (2008) and Du & Evans (2011) found out that many faculties at the institutions of higher learning offer information literacy instructions on learning and seeking studies outside the curriculum, although this instruction would be more effective inside the classroom. McGuinness (2006) adds that students acquire information seeking skills gradually throughout their university education. Haglund & Olsson (2008) performed an observational study on three universities in Stockholm Sweden in order to understand the information needs of young university researchers.

The results of the study show that researchers used Google search engines for everything and they had confidence that they could manage on their own, students relied heavily on immediate access to electronic information and had minimum contact with the library, and only a few had knowledge about the value, usefulness and availability of librarian's competence. Their study drew the conclusions that librarians should leave the library building and start working in the research environment; library use was considered complicated in comparison with using Google search engines. Librarians at RU and UFH should assist students in the postgraduate computer laboratories with information search and impart the skills by frequently training postgraduate students to search information on their own.

In Avdic & Eklund (2010)'s study, the researchers examined the problems that students experienced when using a university library reference database. The most significant responses from the students indicated that it took a long time to search for articles in the databases and the English language made the search awkward. They also reported that they had difficulty finding relevant articles. Obviously, learning how to use reference databases was not a minor matter. Even though all participating students were mostly positive about their abilities, the results revealed that their information literacy could be much better if they received a formal training. According to Chowdhury; Gibb & Landoni (2011) uncertainty may prompt users to find information in a vast collection and at the same time, they may be excited to discover new information channels and sources.

Such sources may also provide useful insights for future searches. In a study by Chu & Law (2007: b) three stages of students' information needs were identified as general information need, specific information need and the current information need. The identified various stages of information needs were closely linked to the student's research progress. The study presented the role of different source types at different stages of students' researches. It further showed that many students were initially unfamiliar with many source types important to their research, and the growth of knowledge of many of the sources has contributed to the students' development of information search expertise. Other studies by Chu & Law (2008); Korobili, Malliari & Zapounidou (2011) showed that information search training is still essential at the undergraduate and post graduate levels and that the goal of information search training should be to help all students to become competent in information searching.

Studies by Branch (2003); Brunton (2007); Craig & Corral (2007); Kai-Wah Chu & Law (2008); Samson (2010); Tramullas & Casabon (2010); Urquhart & Rowley (2007) indicated that library instructions or other information literacy programs on information seeking behaviour have influence on the information seeking behaviour of university students. Attempts have been made to associate information seeking behaviour with specific cognitive styles (Ford, Miller & Moss, 2005; Kim & Allen, 2002). Many studies have tried to explore the psychological variables in terms of the personal traits that influence a seeker's behaviour using a variety of psychological theories, models and tools for example Amiel & Sargent (2004); Heinstrom (2000); Heinstrom (2003); Heinstrom (2005) and Landers & Lounsbury (2006) found out that different people behave differently when seeking information.

2.5 Choice of Information Sources

The choice of information source may be a function of factors other than perceptions of quality and accessibility. Several authors have explored relationships among uncertainty, complexity and information use and these are Gifford, Bobbitt, & Slocum, Randolph, Tushman & Nadler (as cited in O'Reilly, 1982). These studies show that, tasks or technologies that are less certain or more complex may require more information use for decision making than simpler more routine jobs. Tushman (1978) for example reports that more complex tasks were accompanied by increased amounts of technical communication in high performing Research & Development (R &D) units. Randolph (1978) also found that uncertainty in the task environment was associated with increased reliance of verbal communications. The R & D study and other studies like (Blandin & Brown, 1997) confirm that, uncertainty in the task

environment was associated with increased reliance on verbal communications. Blandin & Brown; Randolph & Finch; Schroeder & Benbasat, (as cited in O'Reilly, 1982) suggest that the nature of the task may lead to the use of a certain information source.

Many studies have indicated a connection between the type of information needed and the definition of desired information channels and sources, and this has an impact on information systems processes (Malliari, Korobili & Zapounidou, 2011). However, many studies found that users who act regardless of their information need have a tendency to bypass complex information channels and advanced techniques (Fast & Campbell, 2004 ; George et al., 2006; Kerins, Madden & Fulton, 2004 ; Makani & WooShue, 2006 ; Vezzosi, 2009).

The most important entity in information seeking remains the information seeker with his/her key characteristics having an effect upon preferred search strategies and overall seeking performance. These characteristics include demographic cognitive and psychological variables. Demographic variables and their relationship with information seeking choices and strategies have been studied mostly in terms of age/generation as well as academic status as stated by Malliari, Korobili & Zapounidou (2011). Hence a need to investigate diversity in demographic cognitive and psychological variables of students in relation to their information seeking behaviour.

Khathi (2009) in her study of Information seeking behaviour on students at the University of Western Cape (UWC) found out that the first source that the students approached was the internet, which may include Google, Online databases or the

OPAC system. Only the senior students reported that they used Google scholar or Google advance where they had options of what keywords to choose. The second option to use was library books and journals, then lastly their textbooks. When they were asked if they usually found relevant information in those sources, there were more students that said sometimes than those who said always. Only one student said that the information found in the sources was never relevant.

A study of engineering graduate students carried out by Kerins, Madden and Fulton (2004) at the Dublin City University Ireland found out that the majority of students reported that the internet was the first source of information they used for a project. Similarly in a study of first-year undergraduate students by Mittermeyer (2003), in Quebec found that, many students reported that they used the internet extensively for finding course- related information. A survey carried out amongst veterinary medical students at the University of Iowa by Pelzer, Wiese & Leysen (1998) sought to understand the students' information seeking behaviour in the electronic environment, the results indicated that students' main reasons for visiting the library were to photocopy and to study course materials. Handouts, textbooks and assistance from their peers, or instructors, followed by computerized indexes were also found to be the main sources the students used when seeking current information. The internet was reportedly used as a resource by 59 % of the students and over 80 % of them used computerized indexes for seeking current information. Ajiboye and Tella (2006) in their study of information seeking behaviour of postgraduate students at the University of Botswana also found out that internet was the most consulted source. A study conducted by Clink, Crawford & de Vicente (2004) investigated the use and awareness of electronic information services by

students at Glasgow Caledonian University. The study found out that the internet was the most widely used source of information. They also stated that the non-use of electronic information services was due to difficulty of access or use. The study revealed that there was a decline in usage of the databases that were password protected (Clink, Crawford & de Venter, 2004). Whilst all these studies show that the internet is the number one source for accessing information, it is important to investigate the information seeking behaviour of postgraduate students at RU and UFH because the environments and characteristics of students are different from previous studies.

Although previous findings in the literature illustrate that the internet was used as the primary source of information by many users in most studies Liao, Finn & Junlu (2007) and that issues of accessibility and convenience of access, as well as issues of time and constraints or level of difficulty were of concern to students Korobili, Tilikidou & Delistavrou (2006). In other words individuals are not totally free of technical and mechanical barriers which govern their actions. George et al. (2006) indicate that information seeking behaviour of graduate students was iterative and became more refined and organized as they became more knowledgeable in their field of research, while Sadler & Given (2007) showed that there was a relationship between the level of technical support students were receiving and their willingness to explore new digital opportunities.

Kakai, Ikoja- Odongo and Kigongo-Bukenya (2004) in their study observed that most students concentrated on using particular materials recommended by either their lecturers or colleagues who have used them before, rather than searching to find the

most appropriate document to use. While a significant body of literature has been amassed on the information skills and training requirements of undergraduate students, there has been less effort on identifying the needs of postgraduate students Dornhorst (2006). The study on Postgraduate Information Needs and Online Tools Awareness (PINOTA) Project (2010) by Dingley (2010) revealed that postgraduates students have to locate and manage significantly more resources of information than undergraduates because at postgraduate level students should be able to discover and unpack information from different sources. Jagers, Tallman & Waddell (1991) investigated the library services to distance education students of Northern Arizona University and he discovered that, among all information sources available in their library, more students used the instructor-provided materials than any other source.

Riahinia & Zandian's (2008) study dealt with the evaluation of information providers and popular search engines on the basis of postgraduate students' perspectives. They examined information seeking behaviour of the postgraduate students of two universities (Moallem & Modares) in Tehran to find out how students used online databases and general search engines. Their study collected data using a questionnaire. The results showed that 63.4% of the respondents used online databases, followed by search engines (24.3%), and print materials (11.3%). Furthermore participants ranked Google as their favourite search engine. Thomas (1993) investigated whether new doctoral students experienced gaps or anomalies in their state of knowledge which could be articulated as information problems or needs when they first enrolled for their programmes of study. A focus group interview was used to collect data. The findings revealed that the students perceived the faculty as very approachable but the information available for them was fragmented. The study

further revealed that although students appeared to rely on information from each other and from continuing students, they preferred more input from administrators and faculty whom they also considered to be the most credible sources for certain types of information. The identified areas of need were information on personal needs and knowledge of information resources. This is an indication that postgraduates' students do have a wide range of needs therefore RU and UFH postgraduate students are not an exception hence it is important to investigate their information seeking behaviour.

A study that was carried out by Majid & Ai (2002) on the use of information resources by computer engineering students at National University of Singapore found that the top five information sources in order of preference were books (94 per cent), lecturers (89 per cent), the Internet (86 per cent) and friends (84 per cent). The students relied heavily on printed sources of information and their use of electronic journals and databases was very low. According to Hartmann (2001), undergraduate students experienced difficulty in locating items from the library collection and did not understand the processes of retrieving journal articles. A study conducted by Niemand (2010) on information seeking habits of information and knowledge management students at University of Johannesburg noted that students utilized the Internet to gain access to the World Wide Web to perform various tasks. Forty per cent of the respondents indicated that they utilized the Internet to gain access to information relating to course work, homework and/or research. It is also interesting to note that 20% of the respondents indicated that the internet was used to gain access to electronic mail functionality.

2.6 Conceptual Frameworks

Studies in the information seeking domain have yielded a number of models to help us to understand the users' information seeking behaviour. These have ranged from models that view information seeking as a series of stages and a cognitive process, such as Kuhlthau's (1993) Information Search Process model (ISP) (described in **Cf 2.1**), Kuhlthau's ISP model which focuses on the affective and cognitive aspects of the information search process. Kuhlthau's (1993) model is not a plain cognitive model since it also describes the changes of feeling along with the changes of the process. This is based on Kelly's personal construct theory which describes the effective experience of individuals involved in the process of constructing meaning from the information they encounter to those that view information seeking on an individual level based on the cognitive viewpoint e.g. Ellis (1989).

Ellis (1989) identified eight features of information seeking behaviour which are starting, browsing, chaining, monitoring, differentiating, extracting, verifying and ending. These features seem to characterize the information seeking patterns of scientists, engineers and social scientists in both academic and industrial settings. Ellis (1989) also provides a slightly different but comparable package of six features. This set of features has emerged from a sequence of empirical studies. Ellis (1989 : 178) admits that the detailed interrelation or interaction of the features in any individual information pattern will depend on the unique circumstances of the information seeking activities of the person concerned at that particular time to those that regard information seeking as a problem-solving activity e.g. (Wilson,1999). Wilson (1997; 1999) revised his earlier model on information behaviour of 1981 by drawing upon an extensive review of research from a variety of fields other than

information science, including decision- making, psychology, innovation, health communication and information research. (instead of users) These models illustrate different approaches to understanding information seeking and each is likely to yield a slightly different insight into information-seeking behavior.

2.6.1 Information Seeking behaviour Models

Kraaijenbrink and Wilson (as cited in Du Preez, 2008) state that most models attempt to describe information seeking activity, the causes and consequences of that activity or the relationships among stages of information seeking behaviour models study for example information behaviour from a general behaviour or a task performance perspective. According to Wilson (1999:250) theoretical models seldom advance to the stage of specificity relationships among theoretical propositions. The information behaviour models that have been developed to date address user's information behaviour from different perspective Wilson (1999: 250-251) explains that models of information behaviour and information seeking are related. Most models in the general field of information behaviour are of the former variety, they are statements often in the form of diagrams that attempt to describe information seeking activity, the causes and consequences of that activity or the relationship among stages in information seeking behaviour. Rarely do such models advance to the stage of specifying relationships among theoretical proposition rather they are at the pre-theoretical stage but may suggest relationship that might be fruitful to explore or test.

The figure below explain Kuhlthau's (1993) ISP Model

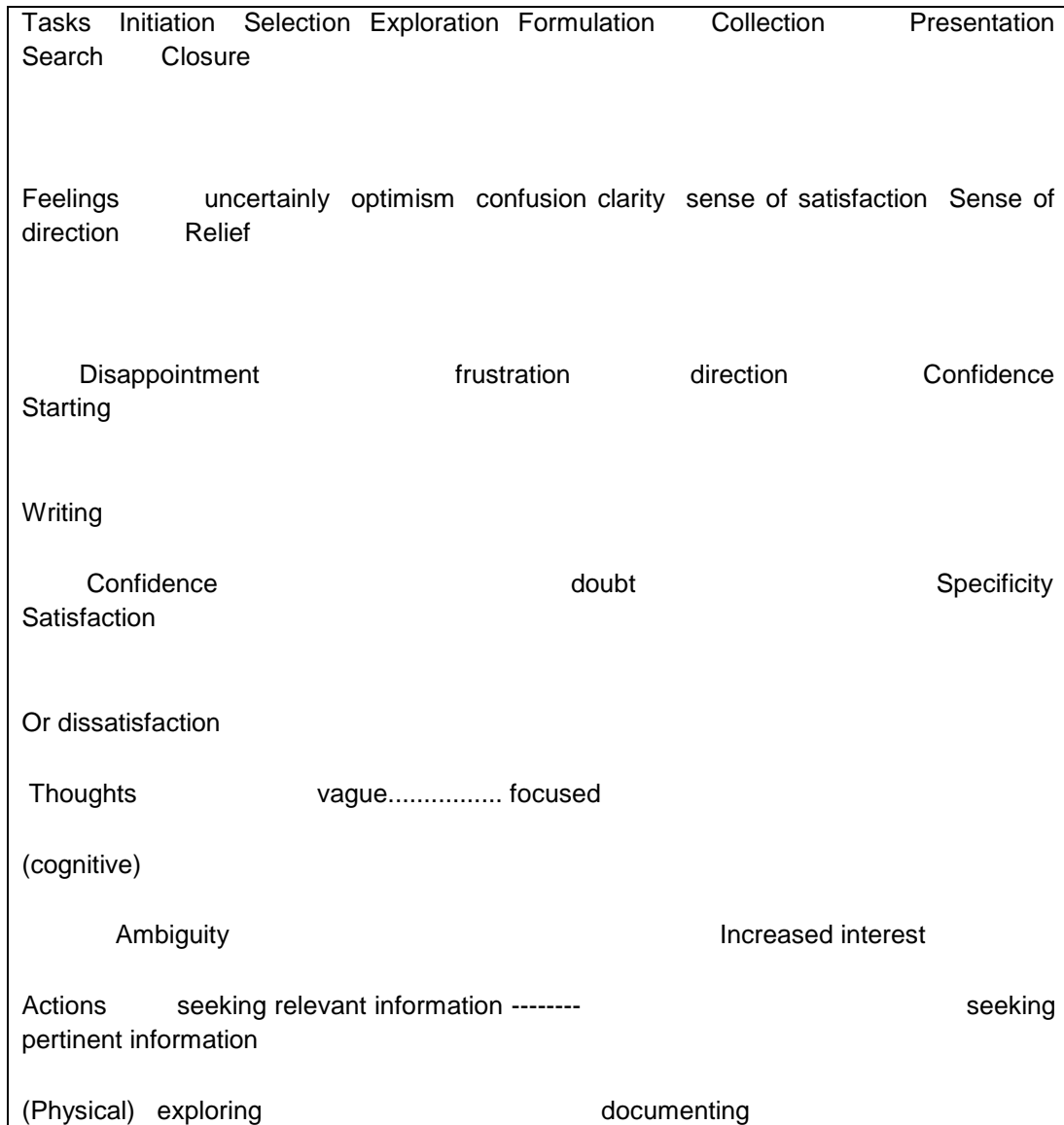


FIGURE 2- 1: KUHALTHAU'S (1993) INFORMATION SEARCH PROCESS MODEL (ISP)

Source: Kuhlthau (2005:231)

2.6.1.1 Kuhlthau's (1993) (ISP) Model

Kuhlthau (1991; 1993 a) has shown in a series of longitudinal empirical studies that learning tasks and problem solving by students and library users consists of several stages. The model maintains that people search for and use information differently depending on the stage of the process. The stages of Kuhlthau's model are as follows:

- Initiation: becoming aware of the need for information when facing a problem.
- Selection: the general topic for seeking information is identified and selected.
- Exploration: seeking and investigating information on a general topic.
- Formulation: fixing and structuring the problem to be solved.
- Collection: gathering pertinent information for the focused topic.
- Presentation: completing seeking, reporting and using the result of the task.

Along the different stages of the process, the person who is seeking information's feelings, thoughts and actions may change (as shown in Figure 2.1). Prior to focus formation, the person seeking information may feel uncertain and his or her thoughts are general, fragmentary and vague and the action involves seeking background information. The person seeking information is unable to formulate the task and express precisely the kind of information needed. After focus formation, information seeking becomes more directed and the thoughts about the task become clearer and more structured. This leads the person seeking information to seek relevant, focused information using a whole range of information sources. Feelings therefore change from uncertainty and frustration towards certainty and confidence. At the end of the process re-checking searches are made for possible additional information

(Kuhlthau, 1991; 1993 a) Kuhlthau's model is not a plain cognitive model since it also describes changes in feelings along the stages of process.

This is based on Kelly's personal construct theory, which describes the affective experience of the individual in the process of constructing meaning from the information they encounter (Kuhlthau, 1993 a). Kuhlthau's early work was based on longitudinal studies on high school students' writing essays. This means that the student's tasks were fairly complex. In particular, Kuhlthau's task involves the pre-focus stages. This means that the "student" needs to formulate the task or the problem, it is not routine enough to be memorized and directly applicable, nevertheless tasks complexity varies in real life. The figure below explain Ellis behavioural model of information seeking

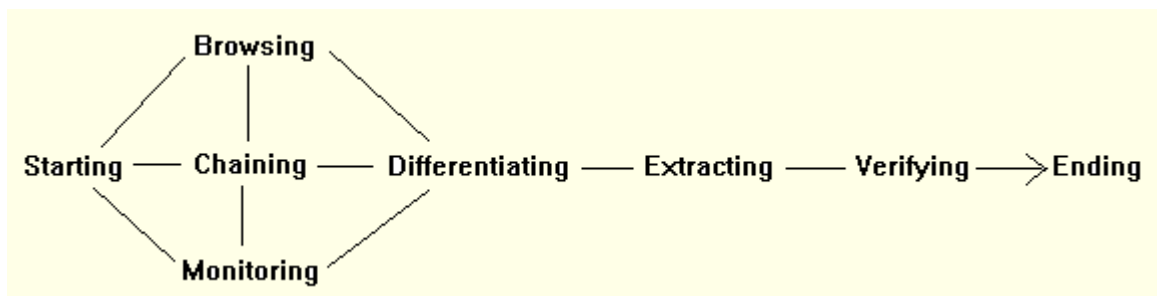


FIGURE 2- 2: ELLIS'S BEHAVIOURAL MODEL OF INFORMATION SEEKING

Source: Wilson (1999: 255)

2.6.1.2 Ellis's behavioural model of information-seeking

Ellis's (1989) model is based on observations of the information seeking behaviour of academics across a number of scientific disciplines: the social sciences (Ellis, 1989), physical sciences (Ellis, Cox, & Hall, 1993) and engineers and research scientists

(Ellis & Haugan, 1997). In addition, a more recent study on social scientists by Meho & Tibbo (2003) re-examined Ellis's findings in order to witness if they were still applicable now that electronic information seeking has become more popular. All of these studies identified similar behavioral characteristics. These information-seeking characteristics, according to Ellis (1989) are non-sequential and it is possible to display more than one characteristic at any given time. The characteristics identified in these studies are:

- Starting/surveying – according to Ellis, Cox & Hall, (1993), involves “activities characteristic of the initial search for information”. Ellis & Haugan (1997) elaborate on this definition by suggesting that this behaviour (which they re-named ‘surveying’) is “characteristic of the initial search for information to obtain an overview of the literature within a new subject field, or to locate key people operating in this field”.
- Monitoring is maintaining awareness of developments and technologies in a field through regularly following particular sources (Ellis & Haugan, 1997:396).
- Browsing is semi-directed searching in an area of potential interest (Ellis, 1989: 179).
- Chaining is following chains of citations or other forms of referential connections between materials (Ellis, 1989: 179).
- Differentiating is an activity which uses differences between sources as a filter on the nature and quality of the materials examined (Ellis et al., 1993, p. 179). In Ellis & Haugan (1997) the behaviours of ‘distinguishing’ and ‘filtering’ were identified instead of differentiating. Distinguishing involves “ranking information sources according to their relative importance based on own

perceptions”. Filtering however is the “use of certain criteria or mechanisms when searching for information to make the information as relevant and as precise as possible”. Distinguishing and filtering can be regarded as more specialized differentiating behaviours.

- Extracting is systematically working through a particular source to identify material of interest (Ellis, Cox & Hall, 1993: 364).
- Verifying is checking the information and sources found for accuracy and errors (Ellis, Cox & Hall, 1993:364). This characteristic was only identified in the study of physical scientists. Information managing is a characteristic that was identified by Meho & Tibbo (2003) in their re-examination of social scientists’ information-seeking behaviour that involves “filing, archiving, and organizing information collected or used in facilitating their research”.
- Ending is the assembly and dissemination of information or the drawing together of material for publication (Ellis, Cox & Hall, 1993: 365). The figure below explain Wilson’s combined model

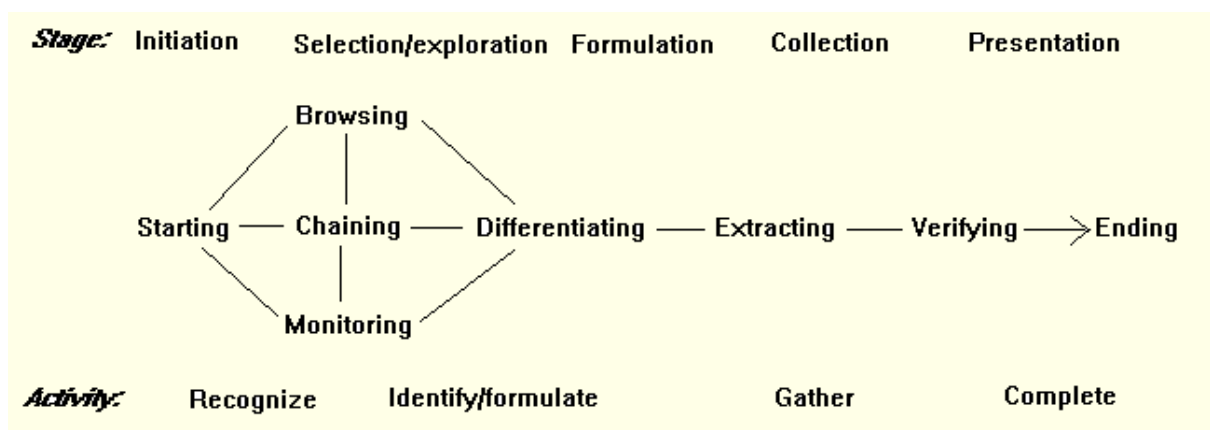


FIGURE 2- 3: WILSON’S COMBINED MODEL (WILSON, 1999)

2.6.1.3 Wilson's combined model

Wilson (1999) combined the two models to make one model so as to easily mark the differences and similarities between the theories by the two authors. Above is his merged model. Wilson (1999) suggests that the two models represent major differences and similarities. For example, Ellis presents his model as elements of the information seeking behaviour, and suggests that the behavioural characteristics may vary with different people or with the same person at different times, whereas Kuhlthau posits stages as the basis of her analysis of behaviour. In this regard, the two models oppose each other. The strength of Ellis's model when compared to Kuhlthau's is that it is based on experimental research and has been tested in successive studies, most recently in the context of an engineering company. The difference found in Kuhlthau's theory is that she brought the feelings and thoughts of the person with the information needs into recognition, and how these thoughts and feelings gradually change as the process progresses. Ellis's model however, focuses on the logical steps that the information seeker takes to obtain useful information.

Although Ellis (1997) suggests that circumstances change from one person to another, there may however be common patterns amongst information seekers that could be observed through more in depth studies. Thus, it can be concluded that the two theories oppose in a way, and complement each other in another, with each theory looking at information seeking process from a different angle.

2.6.1.4 Information Search Process Model (ISP)

This study is anchored on Kuhlthau's (1991: 368) Information Search Process (ISP) because the model is based on years of research in the information seeking

behaviour of school and university students (Kuhlthau, 1993). This model is one of the most frequently cited in information science research (Pettigrew & Mckechnie, 2001: 69). Kuhlthau points out that her model applies in the electronic environment as much as in the printed environment (Kuhlthau, Heinström & Todd, 2008). Students experience the same constructive stages of the information seeking process in digital environments and face the same “difficulties” or same experiences in shelf browsing.

This model is beneficial to those working in the information studies field as it draws attention to information users and how they look for information, what they do with the information and how they feel when searching for this information. In this case it is presumed that the ISP model is appropriate to the study of the information seeking behaviour of postgraduate students as it is not only focuses on the information seeking process, but also on the emotions, thoughts, expressions and mood of the user when he or she searches for information. Holliday & Quin (2004: 363) point out that, participants often felt frustrated with the perception that information seeking should be an easy task, but then became confronted with the complexities of information seeking. Kuhlthau’s ISP model relies on cognitive learning theory as it sees information seeking as a constructive sense- making process that begins with uncertainty and anxiety. It describes what goes on in a searcher’s mind from the beginning of the search to where he or she builds meaning of new knowledge they found. Therefore, it is argued that the ISP model becomes actively involved with a searcher during his or her information seeking process.

This study also overlaps to Ellis (1989) behavioural model of information seeking because Ellis’s model identifies features of information seeking patterns of social

scientists among other fields of study and was tested among other groups; the groups of social scientists and English literature researchers (Du Preez ,2008). This researcher views the two models to be the precise models to anchor the present study, since the study investigates the information seeking behaviour of postgraduate students mainly in the faculties of Humanities and Social Sciences and Education.

The ISP model was tested in order to find out whether Rhodes University and the University of Fort Hare postgraduate students conform to the ISP phases. According to the model, a successful information search has various phases that do not always follow on neatly. The seeker begins with a sense of uncertainty to look for relevant background information to solve a problem or to do an academic assignment. If this is successful, the person has found a personal angle- something meaningful in the topic. This would act as a guide to a more focused search for pertinent information. The ISP model is made up of six stages: Initiation, Selection, Exploration, Formulation, Collection and Presentation. These stages do not only focus on the information seeking tasks but also on how the person feels when he or she is busy conducting searches. The ISP includes emotions, thoughts, expressions and the mood the user when seeking information.

Appropriate methods to investigate information seeking behaviour should include observation, questionnaire, interviews and reflections by means of journals and recordings. Kuhlthau (1991) used these data gathering methodologies in her longitudinal doctoral study of American students that led to the ISP model. This researcher however used questionnaires and interviews since the study is a survey and survey research is the surface analysis where the researcher is looking for views

and opinions not get deeper into how things are done, as in the case of a case study that relies on multiple sources of evidence and based on an in-depth investigation.

2.7 Information retrieval techniques

Information retrieval techniques address the issue of comparing a representation of a query with representations of texts for identifying, retrieving and or ranking texts in a collection of texts that might be relevant to a given query. Croft & Parenty (1985) state that some of the types of information retrieval techniques that are commonly used by information searchers are: Keywords, Boolean operators, Truncation, Phase search, Proximity search, Wild card e.t.c. Johnson et al (2006) in their study of information seeking behaviour of social science graduate students at the University of Thessaloniki Greece found out that social scientists face problems with information retrieval techniques. Hence there is a need to investigate information seeking behaviour of postgraduate students in the faculties of Humanities, Social Sciences and Education at RU and UFH. Lack of understanding of basic retrieval techniques may lead to the choice of information source e.g. the information seekers may opt for printed materials, since they do not require retrieval techniques (Johnson et al, 2006).

In another study of engineers in 1996– 1997 Ward (2001) revealed a severe lack of understanding of the basic retrieval techniques, while a survey of veterinary practitioners conducted by Wales (2000) demonstrated that most respondents used conventional journals, textbooks and conference papers as their main sources of information. These results were consistent with Fidzani' (1998) survey of graduate students at the University of Botswana , which found out that the most popular

sources of information were journals, library books and textbooks. This researcher argues that the reason postgraduate students rely on the textbooks might be because of lack of information retrieval technique skills. Research on Postgraduate Information Needs and Online Tools Awareness (PINOTA) by Connaway & Dickey (2010) indicates that students' information search skills are initially inadequate even at PhD level. Korobili, Malliari and Zapounidou (2011) in their study on factors which influence information seeking behaviour of Greek postgraduate university students noted that students did not seem to be well acquainted with information retrieval activities or information source evaluation techniques. Too much time necessary to explore the needed information had statistically significant relationship with the use of databases and or e-journals and perceived experience in retrieving information from search engines. Finally, there was statistical significant relationship between too much time necessary to retrieve the needed information and inexperience in the use of search engines and the internet.

Wilson (2009) explored the problems and difficulties the searchers experience in carrying out their own searches. He interviewed twenty respondents in his study which spanned over a wide variety of disciplines. He stated that most of the interviewees expressed dissatisfaction with their own capacity to search for relevant information sources; they had difficulty in determining the appropriate keywords and did not bother to explore the advanced search capability of any system. Haglund & Olsson (as cited by Wilson, 1999) after observing young researchers seeking information, found out that they were confident that they could manage searching on their own. Wilson (1999) also presented the intervening variables in information seeking behaviour, which are the personal barriers (emotional, educational, demographic), social- or role-related barriers and environmental barriers such

economic and source characteristics, while risk was seen as another important variable. Wilson argued that personal needs are at the root of motivation to seek information and these arise out of the role an individual plays in social life. Heinström (as cited by Wilson, 1999) explored the relationship between personality and information seeking. She noted that information seeking behaviour was closely related to the unique combination of personality traits that distinguish each individual. Heinström (2009) in addition categorized students according to their motives with extrinsically motivated students searching for information mainly to gather enough facts to meet the task requirements whereas intrinsically motivated students engagement was guided by a true intention to learn. Weiler (2005) also suggested that information seeking is a highly subjective process. Moreover, Bystrom and Jarvelin's (1995) study indicated systematic and logical relationships between task complexity, information types, information channels and sources. Vakkari (1999) argues that task complexity and the related structure of the problem are connected to the types of information people look for and use, to the patterning of search strategies, and to the choice of relevance criteria in tasks.

2.8 Electronic sources of information

RU and UFH have extensive electronic sources of information ranging from library databases to electronic books and journals. The increase in information availability on the web has significantly influenced information seeking behaviour. Several researchers have focused on the web information seeking activities of users (for example, Agosto (2002); Choo & Marton (2003); Hsieh-Yee (2001); Kim & Allen (2002); Pharo & Jarvelin (2004); Rieh (2002), Rieh (2003); Savolainen & Kari (2006); Slone (2002); Wang, Hawk, & Tenopir (2000) and Whitmire (2003). Despite these

extensive Human Information Behaviors (HIB) studies, several issues relating to information seeking in a digital environment such as relevant search strategies and search techniques still remain unexplored. Hence there is a need to investigate information seeking behaviour of postgraduate students at RU and UFH.

Wilson (2006) stress that electronic information resources in different formats and structures have become increasingly important in regular information seeking and therefore user interactions on the web and in a digital library environment will become a key theme for future research. However uncertainty is an important concept within Human Information Behaviour (HIB) research. Researchers in general suggest that the information seeking process begins with uncertainty but as the user proceeds through the information seeking and retrieval (IS&R) process uncertainty gradually decreases. The study that was carried out by Kohrman (2003) at Kansas state university in Manhattan, New York found out that many students were woefully unprepared for the high level of technology found in academic libraries today. Students discovered that their research skills were inadequate for the computerized libraries of today, especially if they are adult learners who have been away from academic studies for a while.

The intricacies of research require searching beyond internet sources. Students therefore need to learn research skills, some truly learning them for the first time at the same time they must also learn a new online catalog, databases, interlibrary loan/document delivery procedures, electronic reserves, and other technical library applications. The technological changes found in the library have moved from the backrooms of the acquisitions, cataloguing, and circulation departments to the front

desk of the reference area (Kohrman, 2003). The library's old wooden card catalog is now a computerized online catalog, greeting students and patrons as they enter into the libraries of today. Students accustomed to e.g. the Dewey Classification System and paper indexes now must learn the Library of Congress Classification or another Classification Scheme that may be used in their libraries or the new classification numbers as the schemes are updated.

The use of the Internet has also become a major resource for librarians and students searching for answers. (Young & Von Seggern, 2001). Since 1992, the Internet browser Mosaic has come and gone, replaced by Internet Explorer and Netscape (Berghel, 2000). Older search engines such as Altavista and Yahoo find themselves competing with Google, Teoma, and newer competitors (OneStat.com, 2002; Teoma 2002). Google is the preferred means to search the Internet (OneStat.com, 2011), even though in 2010 it was found to cover only 7.8 per cent of the web (Lawrence & Giles 1999). The liberating effect of the Internet in providing free access to all kinds of information results in a false sense of confidence in students (Frاند, 2000 Grimes & Boening, 2001; Ren, 2000; Schaffner, 2001).

This "confidence" is countered by the fear and resentment of many students who are new to computers and to research. (Blandy & Libutti, 1995). Even though more students are aware of and use computer technology in their homes, in their work, and in their academic careers, there still are students who lag behind in their confidence and/or desire to use computers. Estimates range from 25 to 58 per cent of higher education students feel or have felt some level of computer anxiety (Ayersman, 1996; Brosnan, 1998a; Rosen; Sears & Weil, 1987).

In view of the fact that these studies were conducted long ago, this researcher felt that it is important to investigate how postgraduate students at RU and UFH seek information in this electronic age. The fear of computers is especially debilitating for students whether they are undergraduate, post graduate or doctorate level, even Library Science Students (Cleveland, 2001; Dolman, 1996; Egan, 1992; Morner, 1995). Many find that they are unprepared for the high level of technology found in academic libraries. Graduate students discover their research skills are inadequate for the computerized libraries of today when they come to universities or colleges for advanced studies after being away from academic studies for a while. Added to this pressure is the expectation held by many professors that postgraduate students already know or should know how to do research (Dreifuss 1981; Morner 1995). The intricacy of postgraduate-level research requires searching beyond the Internet for sources, and students find the need to learn research skills. Dreifuss (1981) report that only 14 per cent of graduate students felt they were familiar with research methods.

When postgraduate students are faced with the research paper, they have to learn new avenues to obtain information. These include the online catalog, databases, interlibrary loan/document delivery procedures, electronic reserves, and other technical library applications. Egan (1992), while referring to different and complex paper indexes not usually found in school or public libraries, aptly stated that library materials give research a hostile face. It can therefore be argued that library technology has given research a .hostile face for many students. The library they knew is no longer the same. There is so much to learn. All these computer

technologies have changed the way student's use, view, and experience libraries. All these factors become sources of anxiety. It is as if students have been lifted by a tornado and transported to a new place. They are facing a new culture and new rules to learn just when they need stability and familiarity (Blandy & Libutti, 1995; Worthington & Zhao, 1999).

Many studies provide a consistent picture of how college students identify, select, evaluate and use information. Clearly, from findings across all studies, majority of students do not practice the multi-source, diversified, high information use strategies library and information professionals prescribe. (O'Connor and Lundstrom, 2010) Ismail (as cited by O'Connor and Lundstrom, 2010) states that students would rather apply a predictable and highly consistent strategy for finding information, whether they seek information for their course work or to fulfil every-day life needs.

In the study, students turned to a small set of common information resources, demonstrating "little inclination to vary the frequency or order of their use regardless of their information goals and despite the overabundance of other online and in-person resources that were available to them." Head & Eisenberg (as cited in O'Connor and Lundstrom, 2010) De Rosa et al. (2009) also concludes that the "majority of college students are not making high use of the array of electronic resources that libraries make available." Although Dervin & Huber (as cited in O'Connor & Lundstrom, 2010) found greater impact of context on source selection, their study describes the same limited information repertoire, particularly for undergraduate students. Information seeking research has generally found that

most people prefer informal, personal forms of information to formal information and that holds true for college students.

Dadzie (2005) undertook a study on the use of electronic information resources by students and academics at 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 was used to collect the data. A total of 169 copies of the questionnaire were distributed and 141 completed copies were returned, giving an overall response rate of 83%. Dadzi's (2005) study noted that general computer usage for information access was high because of the University's state-of-the art information technology (IT) infrastructure. Usage of some internet resources was also very high but the use of scholarly databases was quite low. This low patronage was attributed to inadequate information about the existence of these library resources.

Some reasons attributed to low patronage of online databases included a lack of awareness of electronic resources, lack of time to access and too many passwords to remember" Dadzie (2005: 292) also found 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 effectively use the resources. Dewald (2005) also conducted a study on the acceptance by academic staff in Business Studies of the web and library databases for student research at the Pennsylvania State University, 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) view 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.

A study by Okello-Obura & Magara (2008) of electronic information access and utilisation at Makerere University, in Uganda was carried out to establish the level of computer utilization and literacy skills of Library and Information Science (LIS) students. The aims of the study were 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 LIS students at Makerere University depended on the university computers for their work and 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 that they found accessing e-resources time consuming.

Jagarnath (2004) conducted a study which examined the issue of end-user instruction and access to electronic and full-text bibliographic information resources by postgraduate students of Management Studies at the E.G. Malherbe Library, University of KwaZulu-Natal, Durban. Populations of 39 students were 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). The research concluded that postgraduate students were generally inexperienced in the use of electronic databases. It was also evident that subject librarians played an important role in supporting the need for end-user instruction on the use of electronic databases. End-users were not confident in searching a completely new database in which no prior training was provided (Jagarnath 2004: 100).

Soyizwapi (2005) undertook a similar study to that of Jagarnath (2004). The purpose of her study was to investigate the use of electronic databases by postgraduate students in the Faculties of Science and Agriculture at the University of Kwa Zulu Natal (UKZN). The study population consisted of 500 registered postgraduate students. The survey instrument used was a self-administered questionnaire which was distributed to a sample population of 100 postgraduate students. The study yielded a response rate of 65%. In her recommendations Soyizwapi suggested that a similar study be done focusing on students in other faculties. The study's findings revealed that more than two-thirds of the postgraduate students surveyed did use the electronic databases. The majority (82.3%) of respondents considered current information as a benefit followed by the ability to e-mail, save and print results which was considered by 76.1% as a benefit.

The ability to access information at any time of the day was considered as a benefit by 71.7% of the students. Other benefits that were mentioned included the availability of full-text and the fact that the databases were easy and convenient to use. Problems identified by students included limited off-campus access and slow internet connection because of insufficient bandwidth or the slow network (Soyizwapi

2005: 78). A study conducted by Hadebe & Hoskins (2010) on information seeking behaviour of Master's students using library electronic databases in the Faculties of Humanities, Development and Social Sciences at UKZN, found that majority of the students, (81.3%) used the electronic databases. The students provided various reasons for using electronic databases whereas (80 %) considered current information found on the Internet to be the main benefit. In other studies, lack of awareness was also mentioned as one of the contributing factors for non-use of e-journals (Nelson, 2001; Tenner & Ye, 1999; Teskey & Urquhart, 2001; Tomney & Burton, 1998).

The study conducted by Mawindo (2005) evaluated the students' use of print and electronic information 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 which was distributed to undergraduate students and an interview with the College Librarian to establish background information on issues of budgeting, technological infrastructure, licensing and copyright agreements, archiving and library staff and training. Mawindo (2005) was able to identify the most used electronic databases and it came to light that the majority of students still preferred printed information sources over accessing information through electronic sources. The reasons for these preferences 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).

2.9 Library utilization

The study that was carried out at the University of Washington by Hiller (2002) on library use, priorities and information need of students, found out that, students preferred to visit the library to study their lecturer's notes rather than to seek journals or books. Seiden, Szymborski & Barbara (n.d) also conducted a study of undergraduate students in the digital library at Skidmore College in New York and used focus group interviews to collect data with undergraduate students. Their findings revealed that, students had a strong overall preference for digital resources than printed sources housed in the library. These preferences were reinforced by a lack of familiarity with printed sources of information.

In a study of information needs and information seeking behaviour of graduate students at the University of Botswana, Fidzani (1998) discovered that, graduate students relied heavily on library books, textbooks and journals as sources of information used for course-work. Graduate students primarily relied on scanning the shelves or browsing through journals rather than using the index and abstract databases to locate information. Respondents at the University of Botswana did seek help from the university library staff with 40% receiving help from the reference librarian and approximately 32 % from the subject librarian. Hence there is a need for this study, in order to find out how postgraduate students at RU and UFH seek information and find ways to assist them.

Crawford & Daye (2000) carried out a survey at the Glasgow Caledon University Library on the use of electronic resources by all registered students and found out

that, fear of failure was still a significant reason for procrastination on research projects. They reported that many students (40 %) now cite “juggling their needs to meet competing course demands from other classes” as a reason for delaying work. Finally, most students did not seek help with these issues in libraries or from librarians. Eight out of ten reported rarely, if ever, asked a librarian for help with course-related research. Most of them used very few of the resources or services available to them. Only 12 % had ever used online reference services or attended on-site library training sessions. From the same study, full 39 % of students indicated that, they used the library less now due to Internet use, and most (62 %) indicated they expect their library use to remain flat or decline in the future. Research findings give some indication of why students tend to ignore these potential sources of help. Primarily, 70 % of all students still associate libraries first and foremost with books, while only 7 % with information and 5 % with research and 2 % with reference services; though when asked to describe the main purpose of libraries, 49 % used the word information in their answer.

Secondly, their experiences apparently reinforce their averting behaviors (Crawford & Daye, 2000). When students did seek help, 52 % of college students described the assistance they received from a search engine as equally helpful as assistance from a librarian. Only 32 % thought it was better. When asked if they had ever started with a search engine and ended up at and using the library’s website, a full 76 % of those students answered yes and reported that the library’s site did not completely fill their information needs (66 per cent partially and 10 per cent not at all). Crawford & Daye (2000). Cassner & Adams (1998) in their study of instructional support to a Rural Graduate Population: An assessment of Library Services at the Central Michigan

University found out that the surveyed students used other institution libraries more often than their own university library.

Unwin; Stephens & Bolton (1998) did a comprehensive study on the role of the Library in Distance Learning, a study of postgraduates students in the United Kingdom by conducting five studies on library use by distance-education students, services offered by university libraries to distance learners, services provided by public libraries to distant learning students, and course providers' perception of the issues involved in library services to their students. Among other findings, the home institution libraries were least used by the distant learners whereas public libraries were the most frequently used. Time, distance and lack of institutional arrangements were perceived by the respondents as major obstacles to library use. Exploring the library usage trends of a group of distant education students affiliated to the Texas A&M University (TAMU) System, Tipton (2000) on her study of graduate students' perception of library support services for distance learners at Central Michigan University also reported a higher proportion of respondents using other academic libraries more frequently than using their home institution libraries. Convenient hours and proximity of libraries to home or work were rated higher as reasons for choosing a library than other factors. Another study of distant students' use of electronic resources, a survey of College and Research Libraries at the University of Maryland University College Kimberly by Kelley & Orr (2003) noted that there was a drastic increase of respondents who seldom or never used a library for course-related assignments during a semester and these had a strong liking for electronic resources. Furthermore most of the respondents accessed the electronic resources from home or work for the sake of convenience.

2.10 Academic discipline

Many studies have demonstrated that an academic discipline plays a vital role in information seeking behaviour. In some studies both discipline and work type were found to affect information seeking behaviour a lot, as both comprised basic roles of the individual in social life. However, some studies argued that discipline was not the most important factor that affected information seeking behaviour. Heinström (2009) Banwell & Gannon-Leary (2000) argue that the use of electronic services had greater impact in health studies than in business studies and both had greater impact than in English studies. In other words, other factors may also play a role, for example as the setting of disciplines in their faculty, or how demanding their lecturers and supervisors are and their research methods and objectives. Heinström (2009) showed that personality traits strongly influence information seeking behaviour.

According to Wilson (2004) “something” also depends upon the nature of the discipline and how far it has been affected by the new developments in communication and technology. The science disciplines recognized the possibilities faster than others, probably because historically they were the only departments in universities that even thought of using computers. On the other hand, there are still departments in the humanities in some places that are not well provided with the appropriate technology and have not yet got into the habit of equipping their students with skills in computer use. There is also the point, of course, that the sciences differ from the humanities in the nature of their practice - for the scientist, the record of the experiment, assuming it is validated as authentic and rigorous, is acceptable, whereas the historian will need to seek out the original records of events in preference to a secondary analysis of the same documents. (Wilson, 2004)

Wang (2006) wrote about disciplinary and cultural differences among information seekers in the internet age, concluding that there are differences across disciplines and cultures in terms of how they rank the importance of these resources and how much they use them. In her 2007 paper on the information seeking behaviours of academic researchers in the internet age, a user study in the United States, China, and Greece, he further discussed the information needs, information seeking behaviours and resource use of selected special interest groups. In their review of scholarly information practices in the online environment. Palmer, Tefteau & Pirmann (2009) began to address the problem by reporting on the state of knowledge on scholarly information behaviour, focusing on the information seeking activities involved in the research process and how they differ across disciplines. The report showed that information practices may be enhanced or advanced by new information resources and tools. What has changed in the digital environment is not the value of these kinds of sources, but rather how they are searched, accessed, and used in the scholarly process. The use of electronic journals was highest among physicists.

Other surveys (Rusch-Feja & Siebeky, 1999) verified the finding that use of electronic journals is high among physicists, biologists, and biomedical scientists and this fits with transaction statistics obtained from publishers. Smith (2003) also found that science faculty members make more use of e-journals than those from the social science faculty. Tomney & Burton (1998) found the highest e-journal use among the business, science, and engineering faculties at a British university, while history faculty members made no use of e-journals. Another survey conducted by Nelson (2001) at another British university showed that the highest use of e-journals

among academics was in the business school, while the lowest use occurred in the art, media, and design faculties. This researcher assumes that the use of electronic journals or electronic sources of information depends on the availability and the awareness of those information sources and the level of information literacy skills that the users possess.

Tenopir (2003) and Finholt & Brooks (1999) surveyed economics and history faculties at the University of Michigan and found that historians use abstracts of e-journal articles less than economists. Users of internet-based subject gateways preferred to browse rather than search for a specific article, and when they did they tend to use “keyword” searching (Monopoli & Nicholas, 2001). Use of the online help facility is not widespread. Browsing and chaining (following bibliographic references already known) or citation pearl growing is also a popular method (Talja & Maula, 2003). In relation to cognitive processes and the academic environment, some studies have found that discipline plays a significant role in information seeking (George et al., 2006; Kerins et al., 2004; Makani & WooShue, 2006; Nicholas, et.al. 2009; Whitmire, 2002; Sadler & Given, 2007; Talja & Maula, 2003; Urquhart et al., 2005), while others have noticed the existence of significant variations between different institutions (Nicholas, Huntington & Jamali, 2007; Nicholas et al., 2009) due to different “faculty models of research behaviour” (Barrett, 2005). However, a number of studies also found little or no correlation between discipline and information seeking behaviour (Ellis, Cox, & Hall 1993; Heinstrom, 2003; Korobili, Malliari, & Zapounidou, 2011; Sharifabadi, 1996)

2.11 Web2.0

Web 2.0 refers to a growing area of interactive and social tools on the web with which to create and share dynamic content. Connor (2007) state that online activities are a growing to be a part of many people's lives both engaging in interactive and social events on the web and, increasingly become active partners creating new contents. Web 2.0 is the unifying term for these kinds of new technologies that enable users to interact and personalize web sites. Examples include social networking, blogging and wikis. There is a wide range of literature concerned with exploring the techniques (Miller, 2006) University students and staff now has at their disposal a wide range of forms and tools for Web 2.0 authoring, including audio and video podcasting, blogging, social bookmarking, social networking, virtual world activities and wiki writing.

Furthermore, there is a growing range of Web 2.0 authoring tools which are designed specifically to suit educational users – both freestanding services such as CiteULike, Edublogs, Serious Games and Teacher Tube and tools incorporated within newer versions of learning management systems such as Blackboard , Moodle, You tube e.t.c .Additionally neither staff nor students need to rely any longer on the online learning infrastructure provided by their educational institutions to gain access to their choice of purpose designed or popular tools. So staff and students together, and students independent of staff, are freer than ever before to use these new web authoring forms as they choose, to support learning and teaching, inside and outside of academic policies and protocols. Furthermore, academics are being encouraged to implement Web 2.0 authoring in student learning activities Alexander; Dalsgaard; Franklin & van Harmelen (as cited in

Holmberg et.al, 2009). Student Web 2.0 authoring is thought to improve learning in a variety of ways, for example it engages and empowers students, increases peer learning and creative expression, develops literacy and communication skills and to inculcates lifelong learning Barnes & Tynan; Berlanga et al.; Brown & Adler, Godwin; Lamb & McLaughlin and Renner (as cited in Gray et.al, 2010). Web 2.0 authoring knowledge and skills may be increasingly important to students after graduation too, given that serious use of Web 2.0 authoring are proliferating in the civic, business, professional and research settings where students may be destined ACLS; Boulos, Maramba & Wheeler; Bughin; Burgess, Foth & Klaebe (as cited in Gray et.al, 2010).RU & UFH offer students access to Black board facilities to make facilitation and communication easier between students and lecturers as well as among students, hence there is a need to investigate information seeking behaviour of postgraduate students at RU and UFH in this electronic age.

2.12 Social networks

Social networking sites such as Face book, Flickr, MySpace, Mixit, WatsApp, Linked in, BBM, Twitter etc. are amongst the developments of Web history in the twenty-first century and postgraduate students at UFH and RU are not “immunised”from them. The Pew Internet and American Life Project (2006) conducted a study about the influence of social networking on the internet. The results of the study were gathered from conducting telephone interviews between October 23 and November 2006. The sample was drawn from 935 young people between the ages of 12 and 21. The young people were asked about their use of social networking sites (SNS). The Pew Internet and American Life Project (2006) found that in general young people used social networking sites for personal reasons. The study also revealed that (55%) of

the young people had a profile on either MySpace or Face book. The results also showed that 91% of the participants used social networking sites to stay connected with friends whereas (82%) used social networking to stay connected with friends they do not see too often. This researcher opines that social networks are used widely by young people and university students in general and UFH and RU postgraduate students are not an exception. Therefore, academic libraries should act upon meeting the needs of students by marketing their services and have the profiles of academics and postgraduate students in order to provide them with information in advance instead of waiting for students to come to the library.

Charnigo & Barnett-Ellis (2007: 27) carried out a survey of 127 US academic libraries on how librarians feel about Face book. Their findings revealed that academic librarians are aware of social networking sites such as Face book and that Face book could be used as a tool to communicate and provide library services to students. Other respondents viewed Face book as a disruption and as part of an obsession with no role to play in the academic library profession. It is important that libraries should include global competitiveness as part of their strategic goals. Libraries should rate their performances against the standards of the successes of social networking sites such as MySpace and Face book (Adams, 2009). The web provides information seekers with variety of information sources. Among others students can exchange information through social networks, hence the need for this present study.

2.13 Chapter Summary

This chapter reviewed available literature related to information seeking behaviour of postgraduate students. The literature review revealed a combination of various approaches in conducting studies in information seeking behaviours of higher education students in general. Information seeking behavior and the Internet, difference in academic discipline seeking behavior, library utilization, usage of electronic sources of information, information retrieval techniques, information seeking theories, choice of Information sources was also outlined and studies were quoted. The next chapter describes the methodological framework that was employed to gather data in two universities that the study was conducted from.

CHAPTER 3 : RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methods that were followed in conducting this study. That is it gives an overview of the data collection methods, procedures and instruments used in the study. The chapter identifies the target population and describes the sampling techniques used for the study. This study adopted a survey research design to establish how postgraduate students go about when seeking information at the University of Fort Hare and Rhodes University. The Survey research design was selected because the researcher was interested in collecting original data for describing a population too large to observe directly (Barbie, 2010).

An integrated approach involving qualitative and quantitative data collection methods was used in the study to find out if postgraduate students conform to Kuhlthau's (2004)'s information seeking behavior model, (Information Seeking Process) and Ellis (1989)'s model of behavioural information seeking. This approach is usually referred to as the mixed method approach and it will be explained in detail later in the chapter. This study used triangulation; the combination of the results of two or more rigorous studies conducted to provide a more comprehensive picture of the results from one method used to corroborate findings generated through other method.

3.2 Research methodology

According to Nachmias & Nachmias (as cited in Nkomo, 2009) research methodology is a scientific system of explicit rules and procedures upon which

research is based and against which claims of knowledge are evaluated. Leedy & Omrod (2005) suggest that research methodology is the general approach a researcher follows when carrying out a research project. Methodology relates to the broader principles and philosophies governing research. This can be classified based on the distinctions between qualitative and quantitative research methodologies. The main distinction between the two is that quantitative methods deal with data that is in numerical form while qualitative methods deal with narratives. In other words, quantitative research is about how many people the particular views on an issue have and qualitative is about what people have to say about those issues. However, quite often researchers combine techniques from both research frameworks in a single study. Maxwell (1998:1) reveal how previous studies highlight the complementary crossover of qualitative and quantitative approaches, which had long been viewed as separate spheres with little overlap. Shenton & Dixon (2003:2) agree that research can profit from the use of both qualitative and quantitative methods because of the contribution each can bring to a study. Sydenstricker-Neto (1997) opines that, the crossover achieved through triangulation in a study tests the consistency of findings obtained using different instruments. It also increases the ability to control, or at least assess some of the threats to the validity of the results and it reduces the risk of systematic distortions inherent in the use of only one method. Often, a study that uses only qualitative data or quantitative data misses the rich interpretation that an integrated approach makes possible, particularly when investigating social phenomena such as behaviour. In this study, this was achieved through the use of a questionnaire, which is considered to be a quantitative data collection technique, and interviews, which fall under qualitative data collection methods. Through the questionnaire, a relatively large target

population was reached, while the interviews catered for a detailed examination of the views, perceptions and sentiments of the respondents with regards to information seeking. Using both quantitative and qualitative research approach in this study, enabled easier capturing of data and provided richness in detail concerning the information seeking behaviour of postgraduate students.

Fidel (1993) noted that as a method of studying behaviour, qualitative research centres on processes. It neither provides snapshots nor concentrates on products. It examines the dynamics of a process (e.g. interaction during a search), rather than the static attributes of a process (e.g. users' levels of education, cognitive styles or system capabilities). Ellis (1993) however felt that a quantitative approach was "ideal for obtaining an overall picture of information use by a particular group, but it is ill-suited for providing a more authentic picture of researchers' perceptions of their information environments and more integrated accounts of their information seeking activities. Combinations of both qualitative and quantitative methods were ideal for this study.

3.2.1 Quantitative methods

This research relied more on the quantitative approach than the qualitative. Quantitative research places emphasis on quantification in the collection and analysis of data and the data can be expressed in numbers, percentages and tables (Barbie, 2010:35). Quantitative research is associated with deductive approach (Barbie, 2010:36). Quantitative researches emphasize the need for research to be reliable and generalizable and the results from the limited sample to apply to the population from which the sample was drawn. One of the strengths of quantitative

data analysis is to arrange large amounts of unclear data in graphical form or numerical summaries answering research questions posed (Ngulube, 2009). Quantitative research is more formalized and controlled than qualitative research and it has the possibility of replicating using different groups of subjects (Strangor, 2011; Barbie, 2010). Some of the weaknesses of quantitative research methods are as follows: (1) Quantitative research makes use of experiments yet social processes observed in a laboratory setting may not necessarily occur within natural settings (Weingand, 1993). (2) Quantitative research focuses more on quantity than quality, the questions are posed in a way that channels the respondent to choose from answers given and does not give the participant an opportunity to elaborate more and share his/ her own feelings and understanding of the subject or the question. However in this study quantitative data facilitated the measurement of information sources valued, places where information sources are conveniently accessed, frequency of information seeking activities, time spent on information gathering activities, techniques used for retrieving relevant information, frequency in evaluating an information source, frequency in using the information sources and feelings when relevant information is not found or found after information seek.

3.2.2 Qualitative methods

This study used qualitative techniques such as focus groups interviews to gather qualitative data. Qualitative research takes place in a natural setting of the phenomena to be studied as opposed to a laboratory in the case of quantitative research (Ngulube, 2009). Whereas in quantitative research the questionnaire is the main data collection tool, in qualitative research methodology, researchers are the main data collection tool by using their senses, common sense and human relations

skills rather than instruments (Ngulube, 2009). By interacting with participants researchers gather first- hand information. Qualitative research is a form of social inquiry that focuses on the way people interpret and experience events and the world in which they live (Stangor, 2011). According to McMillan & Schumacher (1993) a number of different approaches exist within the wider framework of qualitative research, but most of these have the same aim that is to understand the social reality of individuals, groups and cultures. The researcher in this study used qualitative approaches to explore the behaviour, perspective and experiences of the postgraduate students studied. This is in line with a contention by Holloway (1997) that the basis of qualitative research lies in the interpretive approach to social reality.

Stangor (2011:15) explains that the data forming the basis of qualitative research include audio and or video recordings and is presented in a narrative form which tries to capture the flavor of the natural setting. In line with this, the researcher used audio recordings to capture data. Qualitative research also involves the use of qualitative data such as in- depth interviews, document and participant observation, ethnography to understand and explain social and cultural phenomenon (Ngulube, 2009). In this study the researcher used focus groups interviews, interviews were recorded using audio recording. Qualitative research emphasizes words rather than quantification in the collection and analysis of data and the data are expresses in words information about feelings, values and attitudes (Barbie, 2010: 35). Qualitative research often focuses on viewing the experiences from the perspective of those involved. Qualitative data helped the researcher to find out in details the opinions of participants about different types of information sources, what determine their choice

of an information source and how they keep abreast of current developments in their fields of study. This is because participants were given an opportunity to explain.

One of the major weaknesses of qualitative data gathering techniques such as individual interviews and focus groups interviews is that it is time consuming and focus group interviews may only take place at a convenient time for both participants and the researcher, whereas with questionnaires participants may complete them at their own convenient time and possibly without the researcher's presence. Qualitative research is also associated with researcher bias because only participants who are available at that "natural setting" will get a chance to be interviewed. In this study, the quantitative technique of using the questionnaire catered for the weakness of the qualitative research technique. Qualitative and quantitative research approaches complemented each other.

3.3 Triangulation

Kelly (2006) defines triangulation as collecting material using as many different ways and from as many diverse sources as possible, thus assisting researchers to understand better a phenomenon by approaching it from several different angles. Social researches have embraced triangulation, the idea that looking at something from a multiple points of view improves accuracy (Stangor, 2011). To gain better understanding of information seeking behaviour of postgraduate students, this researcher made use of questionnaires and interviews. The study triangulated the methods and the data were analysed qualitatively using SPSS and quantitatively using narratives.

3.3.1 Benefits of mixed methods research

As stated above, this research used the mixed method approach (both qualitative and quantitative methods) to collect and analyse data. The advantages of using this method are listed below

- Mixed methods research can answer research questions that other methodologies cannot. According to Punch (1998) quantitative research has typically been more directed at theory verification while qualitative research has typically been more concerned with theory generation. The advantage of using mixed method research is that it enables the researcher to simultaneously answer confirmatory and exploratory questions and therefore verify and generate theory in the same study.
- Mixed methods researches provide better (stronger) inferences. Brewer & Hunter (1989); Greene & Caracelli (1997); Creswell, Goodchild & Turner

(1996) postulate that mixed methods should be mixed in a way that has complementary strengths and non-overlapping weaknesses, one method gives greater depth while the other gives greater breath.

- Mixed methods provide the opportunity for presenting a greater diversity of diverge views. Johnson & Turner (2000) states that one of the major reasons for following the fundamental principles of mixed methods research is to “elucidate the divergent aspects of the phenomenon”

3.4 Research Design

Research design guides a researcher in collecting, analysing and interpreting data and giving meaning to it (Ngulube, 2009) Du Plooy (2001) defines research design as a plan of how the research will be conducted, indicating who or what is involved, where and when the study will take place. According to Stangor (2011) research design is a specific method a researcher uses to collect, analyse and interpret data. Research design provides the logical and strategic framework for conducting the research project and enables the researcher to gather evidence that answers the research questions (Barbie, 2010; Durrheim, 2006).

The researcher wanted to find out the information seeking behaviour of postgraduate students at RU and UFH and determine whether among other behaviours, postgraduate students conform to the stages of the ISP with regards to thought, feelings and actions as pointed out by Kuhlthau (2004). This research project used a survey research design to gather data necessary to answer the research questions as well as to meet the research objectives. Surveys are mostly used to capture the thoughts of a large population and collect descriptive information (Stangor, 2011: 6.107) and it is the best method to the social researcher who is collecting original

data (Barbie, 2010). Survey research seems to be the most common in the field of Library & Information Science and it is the best study design as it uses more than one research method (Kemoni & Ngulube, 2007:125; Barbie, 2007:110) Survey research is perhaps the most frequently used research design in social sciences. Van Staden & Visser (1991) explains that in a review of research articles published in the South African Journal of Sociology during the eighties, the survey approach was identified as one of the most common research designs

This researcher found it suitable to employ the survey method in this study as surveys are chiefly used in studies that have individual people as the unit of analysis (Barbie, 2010:254). The main aim of a survey is to produce a picture of the opinions, attitudes and behaviours of a group of people at a given time (Stangor, 2011:107). Other considerations were that surveys save money and time without sacrificing efficiency, accuracy and information in the research process (Ikoja-Odongo as cited in Dube, 2005:106).

Chair et al. (n.d) also confirm that surveys provide a speedy and economical way to gather facts about people's levels of knowledge, attitudes, beliefs, expectations, and behaviour. Surveys provide a high level of general capability in representing a large population. Due to the usual huge number of people who answer surveys, the data being gathered possesses a better description of the relative characteristics of the general population involved in the study. As compared to other methods of data gathering, such as case studies, action research, ethnographic research etcetera surveys are able to extract data that are near to the exact attributes of the larger population. As questions in the survey should undergo careful inspection and standardization, they provide uniform definitions to all the subjects who answer the

questionnaires. Thus, there is a greater accuracy in terms of measuring the data gathered. Due to the above mentioned strength the researcher found the survey design quite appropriate to use in this study.

The disadvantages of the survey, however, seem to be that participants could be studied outside of the context of their “information seeking environment”, which could decrease the level of pragmatism. Kellar; Watters & Shepherd. (as cited in Nkomo, 2009) Westmarland (as cited in Nkomo, 2009) also note that criticisms of surveys often focus on the crudeness of survey questions and the resultant data, which are arguably too simplistic to examine the complexity of the social issues being addressed. Again it has been said that the data collected may be superficial (Edwards & Talbot, 1994:37). Data errors due to question non-responses may exist. The number of respondents who choose to respond to a survey question may be different from those who chose not to respond, thus creating bias. However this study overcame such by visiting postgraduate students at their lecture halls, libraries and computer laboratories where they seek and gather information. Both qualitative and quantitative research methodologies were applied so as to draw insightful data. The researcher used more samples to collect data until the data was saturated.

3.5 Population of the study

The population of a study is that group about whom the researcher wants to draw conclusions (Barbie, 2007) or every possible case that could be included in the study (Barbie, 2010). The population should be selected with great care bearing in mind the selection criteria, the desired size and the parameters of the survey (Powell, 1997). David & Sutton (2004: 149) expand that a population is every possible case that could be included in a study. A population therefore is the entire group of people

that the researcher desires to learn about (Strangor, 2011:110), any set of persons or objects that possess at least one common characteristics (Busha & Harter, 1980:56-57) or a target group who would, in the ideal world be the subject of the research and about whom one is trying to say something (Punch, 2005). In light of the above statements, all postgraduate students at the four universities in Eastern Cape formed the population of the study

This researcher targeted postgraduate students in the four universities in Eastern Cape whose Libraries or Information centres hold a membership of SEALS but narrowed down to a selected number of cases from the population of the whole group (sample) thus the University of Fort Hare and Rhodes University were selected. The two institutions were selected because they share the same library catalogue; they are also close to each other geographically and were accessible to the researcher, though it has to be pointed out that their cultures are different. Although their cultures are different when looking at the history of both universities, there was a time when the University of Fort Hare was affiliated to Rhodes University though the affiliation came to an end in 1959. The researcher further narrowed the scope of the study down to the faculties of Humanities and Social Sciences (HSS) and Education the reasons for this further delineation are outlined in the scope and limitation of the study (**Cf1.5**)

3.6 Sampling

Sampling is a process that allows a researcher to scientifically choose who or what is Included in an investigation. According to Trochim (2001), sampling involves selecting units (e.g. people, organizations) from a population of interest so that one

may fairly generalize the results of a study back onto the population from which they were chosen. Sampling is necessary because surveying every person or a whole set of units in a population is often impossible and it may be very costly in terms of time money and handling of data. Furthermore, since research requires reliable forms of evidence from which to draw robust conclusions, samples help by enabling the detailed examination of a sizeable group or case to take place.

3.6.1 Sample selection

A sample is a number of individuals selected from a population for a study, preferably in a way that they represent the larger group from which they were selected (Huysamen, 1994). Mc Millan & Schumacher (1993:693) define the concept sample as a number of individuals selected from a population for a study. In this study, respondents were randomly selected among postgraduate students using probability stratified random sample methods at the two universities. The researcher opted for proportional strata of full time and part time postgraduate students because of their diverse backgrounds. Part- time students are known to carry work and family responsibilities in addition to their educational role, while full-time students focus on their educational roles only. The researcher therefore assumed that information seeking behaviour for these two groups of postgraduate students varies; as such different support systems may be required to help postgraduate students with information seeking skills. The researcher used Simple Random Sampling (SRS) which means respondents were selected randomly in each class, computer laboratories and libraries. Simple random sampling is a sampling design in which every unit in the population has an equal chance of being selected.

The researcher visited the participants in the postgraduate computer laboratories, libraries and respective lecture halls. Proportional sampling is when sampling numbers match the proportions in the population. In most cases, it is sometimes difficult to gain access to the individuals one intends to interview or distribute questionnaires to within a limited time frame. Some may be busy, others may lack interest, and others may not be reached for other reasons. Due to the above mentioned challenges, the researcher applied SRS method to select respondents for each stratum and to obtain participants.

The survey population was categorized according to faculties using a proportionate stratified random sample. Respondents were divided into two strata, full-time and part-time postgraduate students. The target population was selected proportionally at institutional population levels. In distributing the questionnaire, the researcher took steps to verify which faculty postgraduate students belonged to.

3.6.2 Sample size

Researchers like Chair et al. (n.d) are of the opinion that there is no effortless rule governing what sample size should be used for all surveys. However Krathwohl (1998) advises on the following key questions concerning the sample size, how precise do you want to be? How much variation is there in the studied population? Krathwohl (1998) also advises that a sample should be 10-20 per cent of the population, depending on the size of the population the sample is drawn from. This study used a sample of 18.5 per cent of the total population in each institution. Fraenkel & Wallen (2000:116) agree that the question remains open as to what constitutes enough or a satisfactory size for a sample. Several things need to be

considered in deciding how many cases to take in a sample. Key among them is cost, the budget available, the objectives of the study, the study problem and the number of cases needed to detect differences of interest.

Analysts usually find that a reasonable sample size is sufficient for most needs. Nachmias & Nachmias (1996:194) claim that any increase in the sample will increase the accuracy of the results. Seaberg as cited in Grinnell; (1994:253) also agree that the general rule of thumb is the bigger the sample, the better. There are concerns as well about the level of accuracy expected. This researcher considered all the above mentioned issues when deciding on the sample size. Neuman (2006:149) states that research methodology should also be considered when determining the sample size. Neuman (2006:149) adds that qualitative research is less concerned with issues of sample size and more with richness, texture and feelings. In other words, qualitative research focuses less on how representative a sample is and more on how it illuminates social life (Neuman, 2006:219). Seaberg (as cited in Grinnell, 1994:254) also noted that a fairly common problem relating to sample size is the failure to consider the number of categories of the sample which may be required to analyse the data appropriately. In the current study, this problem was addressed by proportionate sampling within predetermined strata. The sample size of 350 respondents was chosen as a compromise between cost, accuracy and ensuring sufficient numbers for meaningful subgroup analysis as recommended by De Vaus (1991). He also recommends that a rule of thumb is to ensure that the smallest sub-group has at least 50 to 100 cases. To reach this figure of 350, the postgraduate student sample was calculated at a ratio of 18.5 per cent of the total population in each institution.

The size of the sample in each stratum was then taken in proportion to the size of the stratum for each institution. At the time of data collection UFH had a total of 876 registered postgraduate students in the faculties of Social Sciences and Humanities as well as Education of which 544 were registered full-time and 332 were registered part-time. RU had the larger population of 1018 postgraduate students of which 648 were registered full-time, whereas 370 were registered part time in the faculties of Humanities and Social Sciences and Education.

The total number of postgraduate students from both universities in the faculties of Social Sciences, Humanities and Education was 1894. The following formula was applied when calculating the percentage of respondents according to stratum of full-time and part [time students that formed the sample frame. UFH full-time students ($544/1894 \times 100 = 29\%$) 29% of 350 = 101 ($544 \times 350 / 1894 = 101$). UFH part-time students ($332/1894 \times 100 = 18\%$) 18% of 350 = 61 ($332 \times 350 / 1894 = 61$) RU full-time students ($648/1894 \times 100 = 34\%$) 34% of 350 = 119 ($648 \times 350 / 1894 = 120$) RU part-time students ($370/1894 \times 100 = 19\%$) 19 % of 350 = 68) Few students were randomly selected from these samples for interviews. The basic goal of this sampling process was to develop a sample that represents the whole population. One hundred and sixty two (162) questionnaires were distributed at UFH, while 188 questionnaires were distributed at RU. The size of postgraduate students enrolled at these two universities during the time of data collection for this study influenced the disparity of questionnaire distribution; RU had more postgraduate students than UFH at the time of research.

3.7 Responses

Response rate is the percentage of people who actually complete the questionnaires and return them to the researcher (Strangor, 2011:109) of 350 questionnaires distributed and administered 200 questionnaires were returned, providing an overall response of 57 %.The responses to the questionnaires at the University of Fort Hare and Rhodes University are summarized in the table below.

TABLE 3- 1: QUESTIONNAIRE RESPONSES BY INSTITUTIONAL AFFILIATION

UNIVERSITY OF FORT HARE					
Full time target sample	Response rate	Part time target sample	Response rate	Overall target sample	Overall response rate
101	57	61	35	162	92
Rhodes University					
Full time target sample	Response rate	Part time target sample	Response rate	Overall target sample	Overall response rate
120	68	68	40	188	108

7 focus groups interviews were conducted as follows: 3 focus groups at UFH and 4 focus groups were conducted at RU.

3.8 Data collection instruments

In the most general sense, techniques are described as the specific procedures that determine how a researcher gathers data. The most commonly used data collection tools in a survey consist of self-administered questionnaires, personal interviews and/or focus groups. In this study the researcher used a questionnaire and focus groups interview to collect data. The instruments used in this study is similar to Kuhlthau's data gathering instruments as seen in her longitudinal doctoral study of American students that led to the development of ISP model. Kuhlthau (1991, 1993, 2004, and 2005) used a questionnaire in her studies to gather data from all types of library users (public, school, and academic). Her questionnaire results have consistently proven reliable over the development of the model and through replicated studies.

3.8.1 Questionnaires

A questionnaire is a set of fixed-format self-report items that is completed by respondents at their own pace, often without supervision (Stangor, 2011:108). The use of questionnaires to collect data is very popular in a lot of information seeking research. As mentioned earlier, Kuhlthau (1991, 1993, 2004, and 2005) also used questionnaires in her replicated studies with all types of library users. Hence the researcher felt that the questionnaire would be the better tool to collect data of information seeking behaviour of postgraduate students at RU and UFH.

A questionnaire can either be used alone or in conjunction with other methods of data collection. The written questionnaire, whether administered through the mail or

as part of a personal interview process, can be a highly effective means of obtaining data (Loose & Worley, 1994:144). The questionnaire's ability to draw both qualitative and quantitative data on unobservable behaviour, such as feelings, attitudes, ideas, opinions, and viewpoints made it the instrument of choice. Barbie (2010:254) elaborates that surveys use questionnaires to collect large amount of original data. This form of data collection allowed for a number of people to be involved in the study, thus completing the questionnaire at their convenience. Questionnaire may produce more honest responses and answers than interviews because of their anonymous nature (Stangor, 2011).

The questionnaire also has the advantage of accommodating a variety of questions and minimizing time and money constraints. Furthermore, questionnaires give respondents time and the freedom to independently respond to questions, therefore leading to well thought out responses. Because the researcher has less influence on the responses, the respondents' enjoy greater anonymity, resulting in less bias. According to Cockburn & Mackenzie (as cited in Nkomo, 2009) the main attraction of questionnaires is the relative ease of gathering a large set of responses. Their primary limitations, however, are their narrow scope and their separation from the user's task. They report on the user's perceived, rather than actual, interaction. Limited application means application is limited to a study population that can read and write.

Often questionnaires also have a low response rate, some questions may be left unanswered, and their inflexible nature leaves no room to follow up or probe reactions and seek clarification on ambiguous or unclear areas. Due to the inherent

lack of quality control, questionnaires require very careful question design and are more prone to error than other methods, such as telephone or in-person interviews. To overcome these limitations the researcher self-administered the questionnaire; the population of this study can read and write, since they are university students. The researcher also provided respondents with her contact details on the introductory page of the questionnaire so that respondents can anonymously contact her for clarification of some questions that they did not understand. To validate the questionnaire, the researcher applied content validity method by consulting information professionals to review the content of the questionnaire to ensure that it contains everything it should and make corrections before the main study.

The researcher carried out a pre-test of the questionnaire with postgraduates' students in the Department of Library and information science at UFH. Their interpretation of the questions provided a guideline on how the participants would answer the questions without errors. A pilot study was conducted to obtain postgraduate student's views on the structure and wording of the questionnaire. A pilot study was conducted to check on a number of aspects so as to improve on the questionnaire. Due to a above mentioned reasons, the researcher considered the questionnaire as the better research instrument to achieve the objectives of this study.

3.8.1.1 Questionnaire design and layout

This study used a seven paged questionnaire with fourteen questions. The questionnaire consisted of five sections and was used to achieve the research objectives. The first part of the questionnaire (Section A) covered general biographic

data or demographic background of the respondents. This was done to create the respondents profile for the purposes of classification and comparison at the data analysis stage (David & Sutton, 2004: 162) Section B contained questions on information sources that postgraduate students value most and where they conveniently access them.

According to Ingwersen & Jarvelin (2005:387) Information sources can be defined as the physical or digital entities in a variety of media providing information. Three questions required participants to choose relevant answers from the given list of answers and one question in five point Lickert scale where 1 = Strongly Disagree (SA), 2 = Disagree (D), 3= Neither Disagree nor Agree (N), 4=Agree (A) and 5= Strongly Agree (SA). Section C contained questions about information seeking activities that postgraduate students engage in on a daily, weekly and monthly basis and questions were presented in ordinal rating scales.

Section D posed questions on factors which influence postgraduate students information seeking and they required participants to choose the relevant answer from the given list of answers. Section E contained questions on methods that postgraduate students apply in obtaining relevant information and questions were presented in different rating scales. The last question was structured around Kuhlthau (1991)'s theoretical framework the ISP model which not only focuses on the information seeking process but also on the emotions, thoughts, expressions and mood of the user when he or she searches for information.

The results from the pilot study helped the researcher to reshape the questionnaire and the questions were clear and understandable. Barbie (2010:262) opines that a questionnaire should be spread out and organized. The researcher made efforts to

design an attractive professional questionnaire that had boxes adequately spaced apart, with a clear view of twelve Ariel font to persuade and encourage the respondents to complete it. The main aim of the questionnaire was to obtain quantitative data, so the study made use of closed questions where respondents had to choose from fixed set of answers. Closed questions are popular in survey research because they provide greater uniformity and are easily processed as compared to open ended questions (Barbie, 2010:257). Some of the advantages of closed questions are:

- They are quicker and easier for both respondents and researcher, respondents will save time by choosing the appropriate answer from the given list and it will be easier for the researcher to code and analyse statistically
- Answers of different respondents are easier to compare
- Respondents are more likely to answer sensitive questions like their feelings when those questions are scaled either using ordinal ranking scales, Interval ranking scales, or nominal scales

Closed questions also have weaknesses and are outlined as follows:

- They can suggest ideas that the respondents would not otherwise have
- The researcher may overlook some important responses on the questionnaire
- They force respondents to give basic responses to complex issues
- Respondent might make choices that they would not make if they had more options.

To overcome these disadvantages, the researcher used focus groups interviews to avoid total reliance on closed questions. Postgraduate students from selected disciplines were briefed about the study, its objectives and significance, the

procedure that was to be followed, the credibility of the researcher and how the results would be used. This was done to make sure that any participant made an informed decision on whether she or he would want to participate in the study or not. A number of post graduate students offered to participate in the study.

Questionnaires were distributed to postgraduate students in the selected faculties at the University of Fort Hare and Rhodes University. The researcher visited postgraduate students from the selected disciplines in their computer laboratories and lecture rooms to distribute questionnaires. Some interested participants requested the researcher to email the questionnaire as they did not have enough time to complete the questionnaires at that time. The researcher opted to leave print copies of the questionnaires and also email the electronic copy of the questionnaire in case the respondents misplaced the print copy. A total of 350 questionnaires were distributed and emailed to respondents as follows: a total of 188 questionnaires were distributed to RU whereas 168 questionnaires were distributed to UFH.

The size of postgraduate students enrolled at these two universities during the time of data collection for this study influenced the disparity of questionnaire distribution. RU had the larger number (1018) of which 648 were registered full-time and 370 were registered part-time in the faculties of Humanities and Social Sciences and Education. UFH had a total of 876 registered postgraduate students in the faculties of Social Sciences and Humanities as well as Education of which 544 were registered full-time and 332 were registered part-time. To calculate the sample, the researcher applied proportionate allocation and used sampling fraction in each of the strata. The purpose of the questionnaire was to find out information sources that

postgraduate students value most and where they find such sources; activities postgraduate students engage in when seeking information, establish the factors which influence postgraduate students' information seeking behaviour and determine methods that postgraduate students use to obtain relevant information.

3.8.1.2 Focus groups interviews

An interview is a purposeful interaction between two or more people who are caught in conversation and negotiation for specific purposes associated with some agreed subject matter (Hlatywayo, 2006). A variety of interviews have been identified in research, including but not limited to the focused group interviews, semi-standardized interviews, individual interviews, problem centred interviews, expert interview and the ethnographic interviews. The researcher conducted some focus groups interviews with postgraduate students at UFH and RU at the faculties of Humanities and Social Sciences and Education, depending on who was available and or interested to participate.

Focus groups interviews have become accepted method used in the initial stages of survey research (Arrow et al., 1993; Carson et al., 1994; Chilton & Hutchinson, 1999a). A total of seven focus groups of twenty five minutes each were conducted from both institutions. The researcher conducted three focus groups of five respondents at UFH and four focus groups of five respondents at RU. According to Krueger (1998), a rule of thumb in focus group research has been to conduct three or four focus groups and decide if additional groups should be added. Morgan (1996) support the view by Krueger by suggesting three to five groups in a social research. RU had a large number of postgraduate students so more interviews were

conducted there. The researcher opted for smaller groups of five (5) participants per group because if participants are few in a group they all have an opportunity to engage in the discussion. Morgan (1996) opines that, the ideal size of a focus group for most non-commercial topics is five to eight participants. Small focus groups, or mini-focus groups, with four to six participants are becoming increasingly popular because the smaller groups are easier to recruit and host and are more comfortable for participants. According to Krueger (1998) the following factors should be considered when deciding how many people to recruit to a focus group:

- The purpose of the study. If the purpose is to understand an issue or behaviour, invite fewer people. If the purpose is to pilot-test an idea or materials, invite more people.
- The complexity of the topic. More complex, invite fewer people.
- Participants' level of experience or expertise. More experience, invite fewer people.
- Participants' level of passion about the topic. More passionate, invite fewer people.
- The number of questions the researcher want to cover. More questions, fewer people. (Krueger, 1998)

In the current study, the researcher opted for fewer participants in a group because the purpose of the research was to understand behaviour. Participants had more experience about the research questions because they are the ones seeking for information, lastly the number of questions the study covered were many so fewer participants were ideal for the study. Participants had a high level of involvement with the topic and the researcher's goal was to find out detailed stories and personal

accounts about information seeking behaviour of postgraduate students and a smaller group allowed all participants to have enough time to share their ideas.

The mixed approach that was used in this study balanced the broader, more prescriptive survey questions, providing participants with an opportunity to give more spontaneous, in-depth accounts of their information seeking situations. Interviews reduced the shortcomings of the questionnaire. Interviews are highly efficient in obtaining qualitative data, in this case impressions about and sentiments on the information seeking behaviour of postgraduate students. Other benefits of using interviews are that the interviewer can clarify any points that are unclear and probe further whenever the responses are particularly important or revealing (Fraenkel & Wallen, 2000:137). However, interviews require the cooperation of the respondent in one way or another and involve some kind of intrusion into people's activities. Interviews are a resource-and time-intensive method and occasionally people may react unfavourably to such an intrusion (participants may dislike or resent being interviewed). The researcher overcame these shortcomings by availing herself whenever the respondents were available and ready to be interviewed. The researcher followed the seven stages of an interview process as outlined by Kvale (1996) which are as follows:

- Thematising : The researcher decided on focus group interviews and due to unforeseen circumstances, individual interviews were also considered
- Designing : The researcher designed structured questions for the interview

- Interviewing : The researcher introduced herself to the respondents, explained the objectives of the study and gave the respondents the concerned form to read and decide if they want to participate or not
- Transcribing : The researcher constructed written text of the conducted interviews using paper and tape recorder
- Analysing : To find meaning of the written text
- Verifying : To ensure the validity of a written text by cross checking the questionnaires since the study used triangulation and used the same sample for qualitative and quantitative data gathering, the researcher verified the answers from the questionnaires and interviews
- Reporting :To present or report the findings by analysing data

3.9 Data collection procedures

The researcher distributed questionnaires and conducted interviews with postgraduate students at both institutions in their lecture rooms, libraries and computer laboratories. Libraries and computer laboratories were chosen because of their convenience as places where students normally congregate when searching for information. Moreover, all the various categories or elements of the sample were often represented in these service areas (part-time, full-time, males and females from all faculties). At the lecture halls, the researcher arranged with some lecturers to speak to their students after their lessons. In some classes it was not possible as students had to rush after their lessons. Part-time students were more convenient because students were attending their classes on Saturdays, the researcher met with the interested participants during their breaks for questionnaire distribution and interviews.

Most questionnaires were administered and collected in person, however, other participants preferred to take the questionnaire with them and notify the researcher after completing them for collection, though other participants did not return the questionnaires. This data collection strategy assisted in gathering reliable data because the researcher took time to explain everything to the respondents (who were gathered together) before they went ahead with the questionnaire. The researcher was also able to immediately respond to any queries. This gave the researcher control over the data collection procedures and increased the overall response rate.

3.10 Validity and Reliability of Instruments

Reliability of an instrument refers to its ability to produce consistent measurement each time the instrument is administered under the same or similar conditions to the same population. That way, the instrument may be considered reliable. According to David & Sutton (2004:171) reliability is the degree to which the indicator or test is a consistent measure over time. Reliability is about dependability and consistency (Neuman, 2006:188). It is the degree to which the results are repeatable (Riet & Durheim, 2006: 92). Punch (2005:95) states that reliability basically means consistency and it is the central concept in measurement. Neuman (2006:188) argues that though researchers strive for perfect reliability, it is difficult to achieve.

Validity refers to whether the research instrument measures what it intends to measure (Smith, 1991). According to David & Sutton (2004:171). Validity refers to the degree to which a measuring instrument actually measures and describes the concept it was designed to measure. Validity refers to the degree to which the

research conclusions are sound and suggested truthfulness. (Neumann, 2006:188) Measurement validity means the extent to which an instrument measures what it is claimed to measure (Punch, 2005:97). In order to ensure the reliability and validity of the questionnaire, the researcher conducted a pilot study, where a small number of (25 respondents) were asked to complete the pre-test questionnaire. To assess the validity, the researcher used the content validity method by consulting people who have knowledge of the subject for example consulting information professionals to review the content of the questionnaire to ensure that it contained everything it should and corrections were made before the main study.

3.11 Pilot Study

To achieve reliable and valid results, the researcher carried a pre-test of the questionnaire and interview schedules with postgraduate students in the Department of Library and information science at the University of Fort Hare. Their interpretation of the questions provided a guideline on how the participants would answer the questions without errors. A pilot survey was conducted to obtain postgraduate student's views on the structure and wording of the questionnaire. Riet & Durrheim (2006:94) posit that pilot studies are preliminary studies on small samples that help to identify potential problems with the design and the research instrument.

A pilot study was conducted to check on a number of aspects so as to improve on the data collection instruments. Twenty five questionnaires were completed and one focus group interview of 25 minutes was conducted. The information that was obtained from the pilot study was used to "refine the questionnaire and the interviewing process". Barbie (2010:267) elaborates that the results of questionnaire pretesting can help to avoid errors and justify ambiguous questions and those that

cannot be answered. The essence of this pilot study was to test the instruments both for appropriateness of the context and the ease of completion for the prospective respondents.

The pilot study indicated that questionnaire was too long and respondents tend to lose focus when completing it, some questions were not clear and the researcher adapted it and took out some questions that were duplicating and errors were identified and then corrected. The pilot interview was conducted with one focus group. This gave the researcher an opportunity to practice using a voice recorder and to make easier the questions that were not clear. The researcher learnt that it is best practice to test the instrument prior to implementation to suit the purpose of the main study because if the chosen instrument does not meet the objectives, then another instrument should be applied.

3.12 Data Analysis

Data analysis is the process of obtaining meaning and implications from raw data. Raw data conveys little information until it is compiled, analysed and interpreted. The data analysis methods associated with survey research design are content analysis, descriptive statistical analysis, and a little bit of statistical testing (Edwards & Talbot, 1994:98) The methods used in the analysis of data in this study were dependent on the methods used for data collection. Since both quantitative and qualitative data analysis methods were employed, both qualitative and quantitative data analysis methods were used. Descriptive analysis using the Statistical Programme for Social Sciences (SPSS) was used. Quantitative analysis techniques (statistical analysis) were used to summarize the findings in a clear, precise and

reliable way that is, by tallying the total number (N) of items and the equivalent percentage (%) frequencies.

3.12.1 Meaning condensation and content analysis

Meaning condensation involves a process of summarizing long statements by compressing the statements into more concise statements (Kvale & Brinkmann, 2009: 205). The researcher rephrased the statements of the participants, identified main themes “meaning units” within the transcribed text and rephrased it into plain and easy to understand text. The themes (meaning units) applied to the purpose of the study. Descriptive writing described the information seeking behaviour of postgraduates in their everyday life of information seeking.

3.12.2 Transcribing Interview responses

Transcribing of interviews is known as an interpretive process (Kvale & Brinkmann, 2009) where the researcher is expected to make sense of the oral interview. Since the interview process is an oral dialogue where the participants and the researcher are present, the dialogue needs transcribing in written form. In this case, the transcription process is seen as the empirical data of the conducted interview. Kvale & Brinkmann (2009) explain the concept of transcribing to be a translation, starting with the oral discourse (interview) and ending with the written discourse (transcribing). The researcher transcribed the dialogue between the researcher and respondents in a written form.

3.13 Ethical considerations

Ethics are as important as scientific considerations when reviewing a research project. Respect for dignity, safety and well being of participants should be a primary concern in the research involving human participants. Ethical considerations cover such aspects as voluntary participation, protection from all forms of harm, confidentiality, anonymity, informed consent, privacy and the conduct of the researcher when executing the research exercise (Barbie, 2010:64-67; Neuman, 2006 :129 ; Bless, Higson-Smith & Kagee, 2006 :142-146 ; David & Sutton, 2004 ; 136-137). In order to obtain informed consent from the potential respondents, the researcher attached a letter on the questionnaires spelling out that participants were not forced to take part in the study and assuring respondents that they would not be prejudiced in any way if they did not want to participate in the study, All research subjects have ethical rights to be consulted, to give or withhold information and consent.

The informed consent forms were also attached for the participants to read and provide their signatures if they agreed to participate (See appendices A & B) According to Barbie (2010: 64) ethics are typically associated with morality and concerns matters of right and wrong. In this regard the researcher had to protect and preserve institutions and people's individual privacy, anonymity and confidentiality. The researcher did not reveal the identity of specific persons who participated as respondent in this study. The researcher assured and transformed into reality that the respondents' identities would remain anonymous and all information provided was treated as confidential. Social researchers need to respect participant's privacy

(Stangor, 2011:51) and according to Newmann (2006:139) privacy takes two forms, anonymity and confidentiality.

Confidentiality refers to the researcher ensuring that no one outside the research team will be able to identify the participants in the study (Barbie, 2010:136). Anonymity refers to the practice of ensuring that no one will be able to identify the participants in the study (Barbie, 2010 :136) and the data must not be obviously associated with the participant's name (Bless, Higson-Smith & Kagee, 2006 ;142-146). The ethical quality of anonymity in this study is that the researcher and the people who interact with this report cannot identify a given response with a given respondent. Anonymity is the ethical protection that participants names will not be revealed, their identity remains unknown (Newman, 2006:139).

In the case of focus groups interviews, the researcher visited prospective participants in their computer laboratories, libraries and lecture halls and addressed the consent issues verbally. With regard to interviews, the researcher reminded the participants about how confidentiality and anonymity would be observed and treated and also reminded the participants that they would be recorded by voice recorder and how the data will be used. The data that are presented here were ethically and accurately collected, recorded and processed. To avoid plagiarism, the researcher, acknowledges all the ideas borrowed from other people's writings as recommended by (Newman, 2006:130)

UFH and RU have policies on research ethics that applies to every researcher who wants to undertake a study at those universities. Ethics policies of these universities

ensure that all research activities at those universities must be performed responsibly and meet highest ethical standards. This is particularly relevant for teaching and research involving humans or animals. Any research and class projects in which humans or animals are involved must therefore have prior clearance from both universities ethics committees. This follows a formal application using an application form and mostly supplemental information, such as informed consent forms and a research methodology.

This study was reviewed by and received approval from both the universities' research ethics boards. The researcher presented the study proposal to the postgraduate students; potential participants were asked to contact the researcher if they were interested in learning more about the study. Students who chose to participate met with the researcher to review the aims and procedures of the study and had an opportunity to ask questions. If they chose to participate, they completed a consent form. Procedures to protect the privacy and confidentiality of the participants were strictly followed.

3.13.1 Informed Consent

All research subjects have ethical rights to be consulted to give or withhold information and consent. Barbie (2010); David & Sutton (2004). When conducting research, researchers should obtain people's permission and voluntary participation on a full understanding of the risk involved. In order to obtain informed consent from the potential respondents, the researcher attached a letter on the questionnaire spelling out the purpose of the study and that prospective participants are not forced to participate in the study and if they decide to participate, confidentiality will be

observed always and all required details were also outlined on the covering letter. The researcher made clear that participation was voluntary and those who chose to participate were free to withdraw their participation at any stage if they so wished. The researcher ensured that anonymity was upheld in this study and even in the final report.

3.13.2 South Africa ethical considerations

South Africa is a non-racial, non-sexist democratic state in which human dignity, equality and advancement of human rights are respected, promoted and protected under the South African Constitution Act, 1996 (Act no. 108 of 1996). Section 12 (2) of the bill of rights provides that “everyone has the bodily and psychological integrity which includes the right to security and control over their body, and not to be subjected to medical and scientific experiment without their informed consent. To be ethical all research on animals and on human participants must be scientifically sound. The researcher adhered to the research ethics by introducing herself to the respondents, explained the objectives of the study and asked postgraduate students to participate voluntarily in the study if they wanted to.

3.14 Chapter Summary

This chapter described the methodology that was used in this study. The research design, research method, the triangulation and data collection procedures, tools, instruments validation, population, institutional background, sampling, data analysis as well as ethical considerations were outlined. Both quantitative and qualitative techniques were employed for data collection. The survey questionnaire provided the quantitative data, while the interviews catered for the qualitative data. The next chapter presents the research findings from this study

CHAPTER 4 : DATA ANALYSIS AND INTERPRETATIONS

4.1 Section 1: Questionnaire results

4.1.1 Introduction

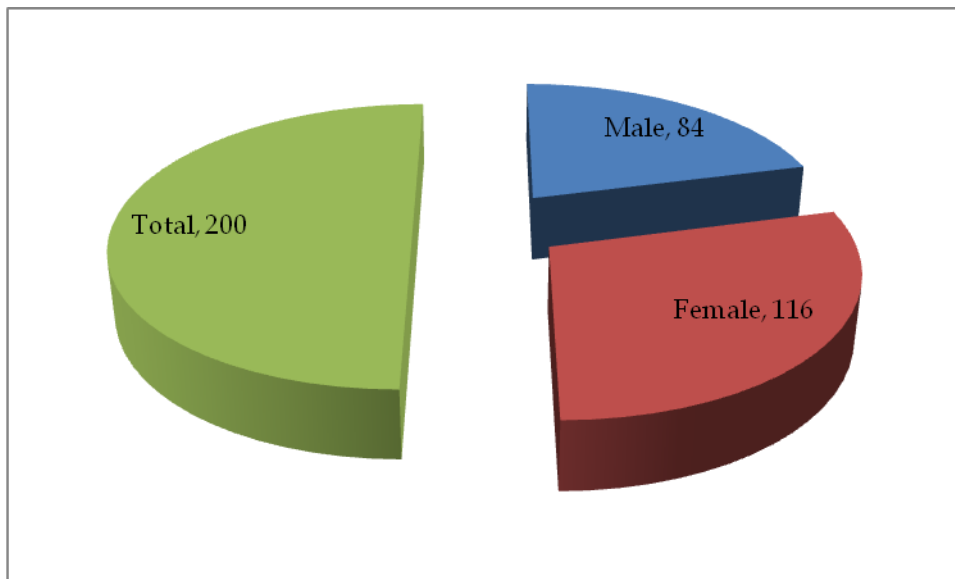
This chapter presents and discusses the findings of the study based on the questionnaires in an attempt to understand the information seeking behaviour of postgraduate students at RU and UFH. The researcher focused on students studying in the faculties of Humanities, Social sciences and Education. These are the areas identified as soft disciplines, where students are most involved in information seeking activities (Whitmire, 2002: 637) such as having to search for information to write an academic assignment. The researcher used SPSS and EXCEL computer programmes to analyse quantitative data

4.1.2 Distribution by campus affiliation

UFH is made up of three campuses, Alice campus, East London and Bisho campus. Only Alice campus was surveyed. It was felt that in terms of information seeking behaviour the environment at the Alice campus was homogeneous to those of East London and Bisho campuses and that Alice would sufficiently represent the University of Fort Hare in its entirety. Alice campus was selected because it is also the university's main campus. Rhodes University has only one campus at Grahamstown where the study was carried out.

4.1.3 Profiles of the respondents

Each questionnaire and interview session opened with biographical information of the respondents which was presented as follows: gender, age, level of study, university affiliation, faculty, and type of study. This was informed by the understanding that information seeking behaviour differs in accordance with different demographics. This also allowed the researcher to delineate the identities/characteristics of a study's respondents for statistical purposes. In this section, the target populations were classified by their affiliations and various designations as listed above.



4.1.3.1 Gender

Respondents were asked to state their gender on question 1. 1 of the questionnaire. This was done to make sure that all genders were represented and the statistics are as follows: Figure 4.1 indicates that of 200 respondents, 84 (42.0%) were males whereas 116 (58.0 %) were females.

4.1.3.2 Age

Respondents were asked to state their age, given the age brackets from 21 to 51 plus on question 1. 2. This was done to confirm that information seeking behaviour differs according to the age of the information seeker as literature affirms. Additionally this was done to confirm that generally younger students attend school on a full-time basis while older students attend school on part-time basis and carry work as well as family responsibilities in addition to their education roles. Table 4.1 below shows the age range of respondents; from 21-50.

TABLE 4- 1: RESPONDENTS AGE BRACKETS

Age brackets	Number of respondents	Percentage
21-30	94	47.0
31-40	69	34.5
41-50	37	18.5
51 +	0	0
Total	200	100.0

From table 4.1 majority of respondents (47 %) were aged between 21 and 30, while those aged between 31 and 40 made up 31% of the respondents and those aged between 41 and 50 made up 21% of the respondents. There were no respondents aged 51 and above. These statistics show that the younger generation was active while older generations were passive when it comes to information sharing. Another reason might be that during the time of data collection older students were not available as they may be at work, since they might have registered part-time.

4.1.4 Distribution by university affiliation

The majority of responses were from RU 92 (54 %) whereas UFH's response rate was 108 (46 %). The figures are illustrated in Table 4.2 below

TABLE 4- 2: DISTRIBUTION BY UNIVERSITY

University	Number of respondents	Percentage
UFH	92	46.0
RU	108	54.0
Total	200	100

The reason for this disparity may be that RU had a larger number of postgraduate students than UFH at the time of data collection

4.1.4.1 Distribution by faculty affiliation

Respondents were asked to state their faculty in question 1.6. This delineation was informed by the understanding that information seeking behaviour differs in accordance to academic discipline. UFH and RU each have six faculties. UFH faculties are Education; Law; Management and Commerce; Science and Agriculture; Social Sciences and Humanities whereas RU has the following faculties ; Commerce; Education; Humanities; Law; Pharmacy and Science. Data was collected from two faculties from each university. Education and Humanities and Social Science. At RU Social Sciences is incorporated in Humanities and the faculty is called Humanities whereas at UFH the faculty is called Humanities and Social Sciences. The respondents were distributed as follows according to faculty.

TABLE 4- 3: DISTRIBUTION BY FACULTY

Faculty	Number of respondents	Percentage
Education	63	31.5
HSS	137	68.5
Total	200	100

The response rate across these two faculties in both institutions was relatively good. Most of the respondents were from the faculty of Humanities and Social sciences 68.5 % whereas responses from the faculty of Education were at 31.5 %. The reason might be that faculty of Humanities and Social Science is composed of many departments unlike the faculty of Education.

4.1.4.2 Distribution by type of study

Since the sample of this study was based on the postgraduate stratum which is comprised of full-time and part-time students, the researcher ensured that all sections were represented.

TABLE 4- 4: DISTRIBUTION BY TYPE OF STUDY

Type of study	Number of respondents	Percentage
Full time	125	62.5
Part time	75	37.5
Total	200	100

Table 4.4 indicates that the majority of respondents 62.5% were registered full- time in both institutions whereas 37.5% were registered part-time. The cause of this disparity is based on the postgraduate statistics that were released to the researcher by the two universities before data collection. The enrolment of full- time students in both universities was higher that the part- time enrolment.

4.1.5 Sources of Information preferred by postgraduate students

The university of Fort Hare and Rhodes University offer wide range of information sources from print to electronic to support learning, teaching and research. Information sources have a huge impact on the academic environment. Users today have to integrate new, changing formats with the traditional formats they have grown accustomed to. The preferred sources of information (in this study) refer to the respondents' most favoured and used information sources. This study aimed to find out information sources valued or preferred by postgraduate student and findings are presented in Figure 4.2 below

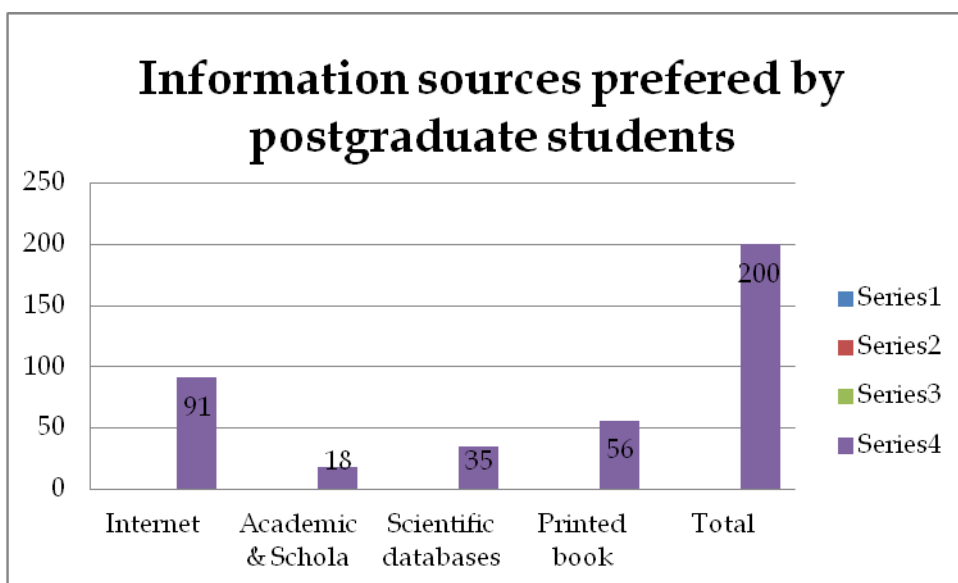


FIGURE 4- 1: INFORMATION SOURCES PREFERRED BY POSTGRADUATE STUDENTS

The findings indicate that postgraduate students accessed different sources of information, although the internet was the most preferred information source. Figure 4.2 above shows that out of 200 respondents, 91 (45.5%) used or valued the Internet as the main source of information, 18 (9.0 %) used academic and scholarly search engines, 35 (17.5 %) used scientific databases and 56 (28 %) used printed books as their primary source of information. The Internet was a popular source of information among the respondents.

4.1.6 Points of access to electronic sources

Electronic sources of information can be accessed anywhere if a person is connected to the internet. The two universities under study offered their students access to internet at the library, computer laboratories and through wireless connections. In line with the objectives of the study, respondents were asked to identify places where they conveniently accessed electronic sources of information for academic purposes. Respondents were instructed to select as many places as may apply to them and figure 4.3 below shows the results.

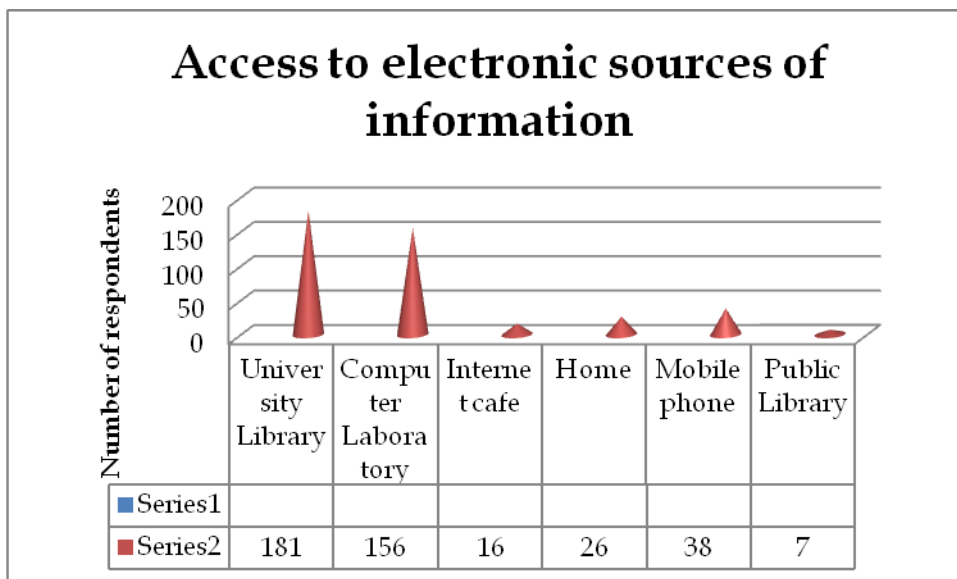


FIGURE 4- 2: ACCESS TO ELECTRONIC SOURCES OF INFORMATION

Chart 4.3 above indicates that the majority of postgraduate students 181 (90.5 %) accessed electronic sources of information in the University library, followed by 156 (78 %) who conveniently accessed electronic sources of information in the computer laboratory, whereas 16 (8 %) conveniently accessed electronic sources at the Internet cafes, 26 (13%) accessed electronic sources at home, 38 (19 %) accessed electronic sources of information through mobile phones whereas 7 (3.5%) accessed electronic sources of information at the public library. Postgraduate students were more comfortable with accessing electronic sources of information at the university library and computer laboratories because it was free of charge.

4.1.7 Views about electronic sources of information

Respondents were asked to state their opinions about electronic sources of information. Given the options below, the questions were posed in a five point Lickert scale as discussed below

4.1.7.1 Electronic sources make it easy to access information

Respondents were asked to state if electronic sources of information made it easy or more difficult to access information, and also to state the effect of electronic sources of information on information retrieval. In this study, the electronic sources of information referred to are the internet, library databases, electronic journals and books, scholarly search engines as opposed to print sources of information. The question was posed in a five point Lickert scale from strongly disagree (SD); Disagree (D); Neither Disagree nor Agree (N); Agree (A) to strongly agree (SA). The views of the respondents are presented in Figure 4.4 below.

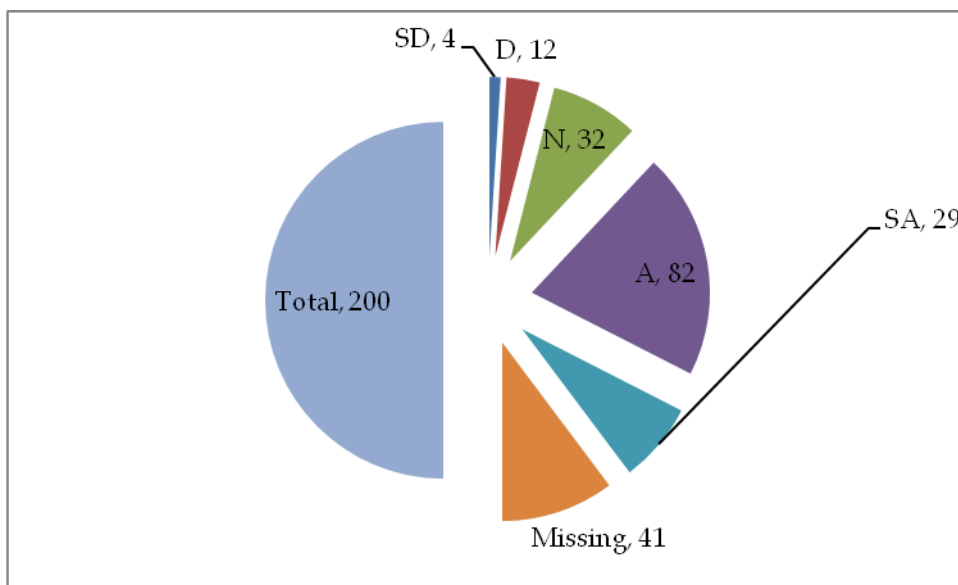


FIGURE 4- 3: ELECTRONIC SOURCES MAKE IT EASY TO ACCESS INFORMATION

The responses were as shown in chart 4.4 above, 82 respondents (41 %) agreed that electronic sources of information made it easy to access information, 41 (20.5 %) of the respondents did not respond, while 32 (16 %) respondents neither agreed nor disagreed, 29 (14.5 %) strongly agreed, 4 (2.0 %) of the respondents strongly disagreed and 12 (6.0 %) disagreed.

4.1.7.2 Same amount of time

The researcher also aimed to find out from the respondents if they spent about the same amount of time accessing information electronically sources of information compared to manually. The outcomes are presented diagrammatically below

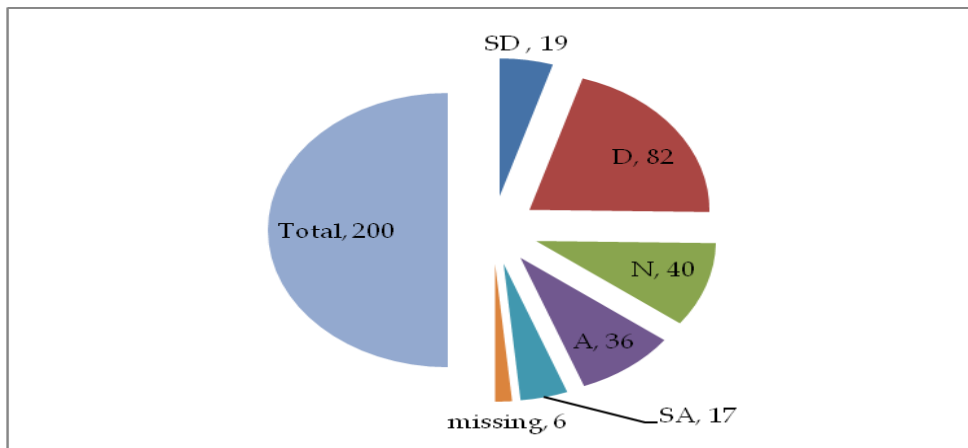


FIGURE 4- 4: SAME AMOUNT OF TIME

From the entire group of participants 19 (9.5 %) of respondents strongly disagreed that they spent the same amount of time when they accessed information using electronic sources of information compared to non- electronic sources of information, while 82 (41 %) of respondents disagreed with the statement, 40 (20 %) of respondents neither agreed nor disagreed whereas 36 (18 %) agreed to the statement ;17 (8.5%) of respondents strongly agreed, while 6 (3 %) did not respond to the question.

4.1.7.3 It takes more time

Additionally, the researcher sought to find out from the respondents if electronic sources of information consume more time when gathering and sorting information.

The statistics representing the participants' answers are presented in Figure 4.6 below

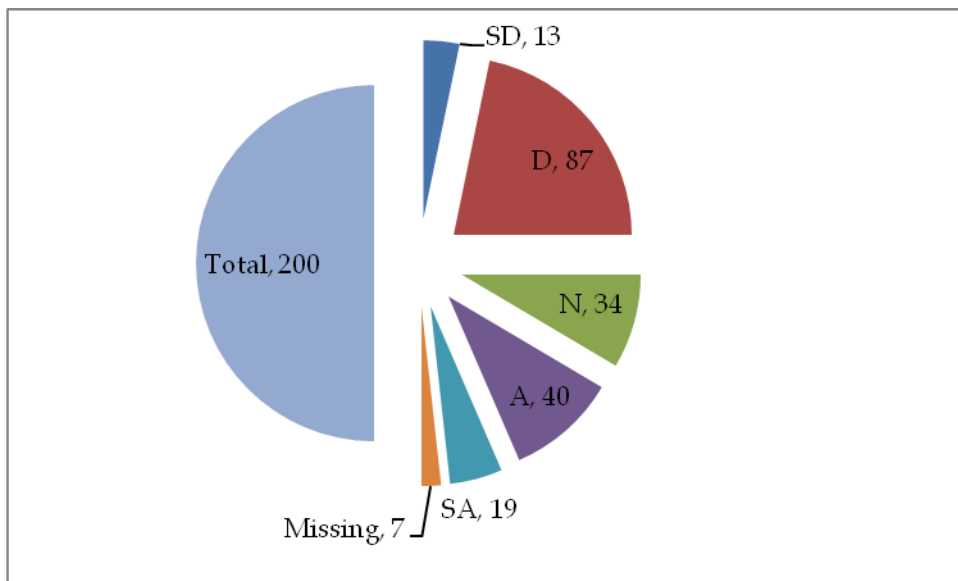


FIGURE 4- 5:IT TAKES MORE TIME

The responses shown in Figure 4.6 above indicate that 87 (43.5%) of the respondents disagreed that they spent more time when accessing information using electronic sources of information, where as 40 (20 %) of the respondents agreed to the statement, while 34 (17%) neither agreed nor disagreed; 19 (9.5 %) respondents strongly agreed while 13 (6.5 %) respondents strongly disagreed with the statement and 7 (3.5%) respondents did not respond to the question.

4.1.8 Frequency of information seeking activities

Information seeking activities involves searching for information using external and internal sources, human and documentary sources or formal and informal sources of information. In this study external sources of information are referred to as the sources that are not owned by the university and were borrowed from other institutions either in print or electronically using the Inter library loan. Internal sources are referred to as sources that are found in the university library or departmental libraries of postgraduate students, formal sources are referred to as databases, books, journals, etc. Informal sources are referred to newspapers, Internet search engines, colleagues etc. Respondents were asked how frequently were they involved in the following information seeking activities and the outcomes are presented in the following sections..

4.1.8.1 Internet

According to the National Research Council Staff Committee on the Internet in the Evolving Information Infrastructure (2001), Internet refers to diverse sets of independent networks interlinked to provide its users with the appearance of a single, uniform network. The networks that compose the Internet share a common architecture and software protocols that enable communication within among the constituent networks. Internet has been termed a technological revolution whose effects are as pervasive and important as modern transportation and electricity (Berghel) as cited by Chee- Wai & Angela (1999). With the support of browsers such as Google, Yahoo (Pfaffenberger) as cited by Chee- Wai & Angela (1999), people all

over the world are accessing what appears to be a limitless source of information. Search engines help to sort through information available on the Internet, but has this far failed to shoulder any responsibility for the content which appears on the pages they present on their indexes. Internet lacks any transparency to clarify how results were found and how they are connected to the search terms. The internet user is confronted with an exponentially growing mass of information that makes it more difficult to find appropriate responses to targeted queries (Machill; Neuberger & Schindler, 2003). The responses of the participants are presented in Figure 4.7 below.

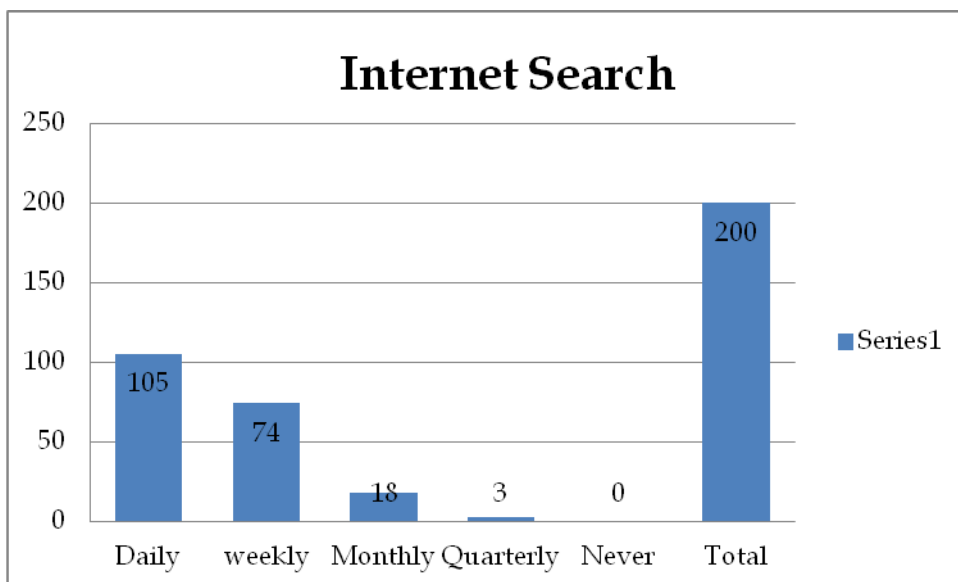


FIGURE 4- 6: FREQUENCY OF INTERNET SEARCH

The researcher aimed to find out how frequently the respondents used the Internet when seeking information. Figure 4.7 above indicates that the majority of respondents 105 (52.5 %) searched the Internet on a daily basis, followed by 74 (37 %) of respondents searched the Internet weekly, followed by 18 (9.0 %) of respondents searched the Internet monthly and 3 (1.5 %) of respondents searched

the Internet quarterly. These findings indicate that postgraduate students relied more on the internet when seeking information for academic and non academic purposes.

4.1.8. 2 Academic & Scholarly search engines

Academic & scholarly search engines provide a simple way to broadly search for scholarly literature in many disciplines, such as peer-reviewed papers, theses, books, abstracts and articles from academic publishers, professional societies, preprint repositories, universities and other scholarly organizations. Chakravarty & Randhawa (2006) explains that these search engines help in identifying the most relevant research across the world of scholarly research. Figure 4.8 below present the responses of participants about the frequency they searched Academic & Scholarly search engines.

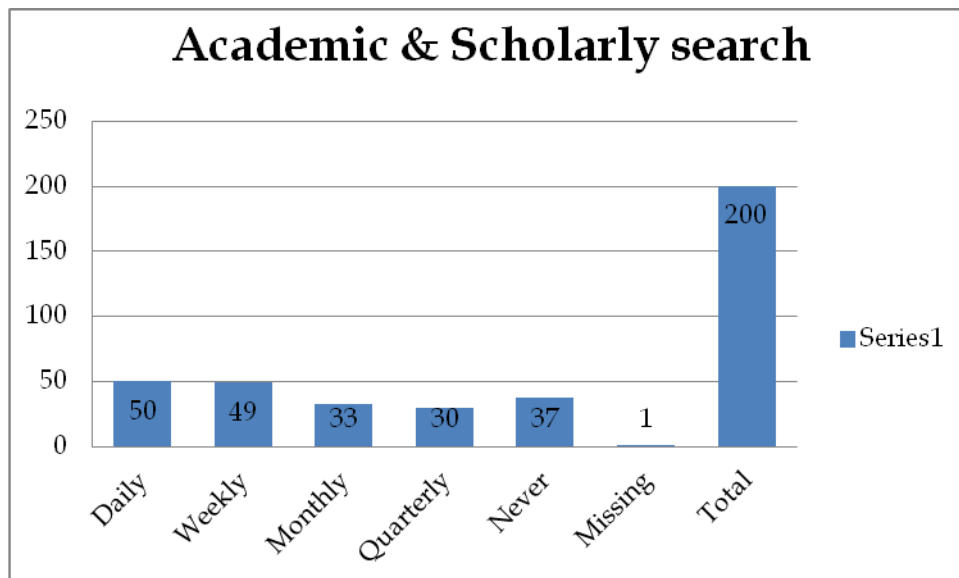


FIGURE 4- 7: FREQUENCY OF ACADEMIC & SCHOLARLY SEARCH ENGINES

Figure 4.8 above indicates that 50 (25 %) of the respondents searched academic and scholarly search engines on a daily basis, 49 (24.5 %) on a weekly basis, 33 (16.5 %) on a monthly basis, 30 (15 %) quarterly whereas 37 (18.5 %) indicated that they had never used academic and scholar search engines, 1 (.5 %) respondent did not respond to the question. These findings illustrate that postgraduate students did not make use of academic & scholarly search engines adequately; they tend to use the internet more frequently than the academic & scholarly search engines whereas these search engines are more relevant to academic information needs. According to these figures, respondents were neglecting these information sources; this indicates that postgraduate students have little knowledge about information sources that will cater for their academic information needs.

4.1.8.3 Online Public Access Library Catalogue (OPAC)

OPAC is a computerized library catalogue which is the primary automated point of connection between library users and those information resources which the library and or the network of libraries own (Wells, 2007; 386-394). OPAC has a necessary role in promoting access to library collections, maintaining a consistent and authoritative form of bibliographic control and providing a targeted information environment for specific client groups, (Calhoun in Wells, 2007). Through the OPAC, library users can identify information sources that are available in that particular library or networks of libraries or libraries worldwide throughout the world and also provide links to electronic sources of information. OPAC serves as navigation to the library shelves by directing the user to where the physical information source is located in the library through a call number. In view of the fact that the OPAC is regarded as the gateway to the library information sources, the researcher wanted to

find out how frequently the respondents searched the OPAC when seeking for information and figure 4.9 below present the findings.

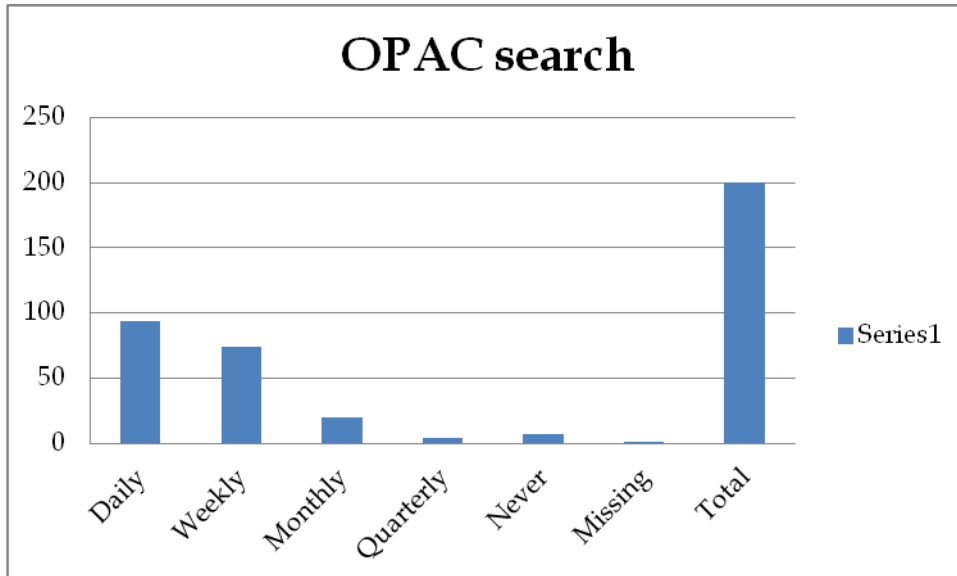


FIGURE 4- 8: FREQUENCY OF OPAC SEARCH

94 (47 %) of the respondents searched the OPAC daily, 74 (37 %) searched the OPAC weekly, 20 (10 %) indicated they searched the OPAC monthly, 4 (2 %) of respondents searched the OPAC quarterly, while 7 (3.5 %) of respondents indicated that they have never used the OPAC, and 1 (0.5) did not respond to the question..

In general, frequency of use of OPAC were very low despite the assistance that online catalogues provide by pointing users to scholarly and scientific information found in a library and network of libraries such as SEALS libraries. This could indicate that library use is declining. However, it could also indicate that library instruction and orientation programmes are ineffective. The other reason may be that these students know where to find their books on the shelves, for example, Social science students knows that their books are on shelf 300, Theology students knows that their books are on 200, Library and Information science students knows that their books are found on 025 according to the Dewey Decimal Classification Scheme

(DDC) that the libraries of these two institutions are using when classifying the library materials for shelf arrangements.

But this is not always the case because the DDC is always upgrading as new editions replace old ones and new numbers may replace old ones in the scheme. Librarians then reclassify those materials and allocate new numbers for them. Searching the OPAC would save the user, time by helping them to find the physical library materials on the right shelf without any waste of time. Successful online catalogue searches are very dependent on a user's computer skills and his/her knowledge of OPACs' features (skills that respondents perhaps do not possess).

4.1.8.4 Databases search

In this study, databases are referred to as collections of scientific articles, journals, dissertations, reviews, abstracts etc. that are stored in an "online file" database for easy access of scientific information. UFH and RU purchased a massive amount of databases for students' academic information needs e.g EBSCO HOST, Science direct, Emerald e.tc for every field of study be it Education, Library & Information Science, Social sciences among others. Using a database allows users to search for information in an organized collection. The user benefits from these databases because they provide more relevant results, through the use of subject headings and descriptors or other search indexes. In view of the fact that databases provide relevant scholastic information, the researcher wanted to find out how frequently the postgraduate students search the databases when seeking information and the results are presented in the diagram below.

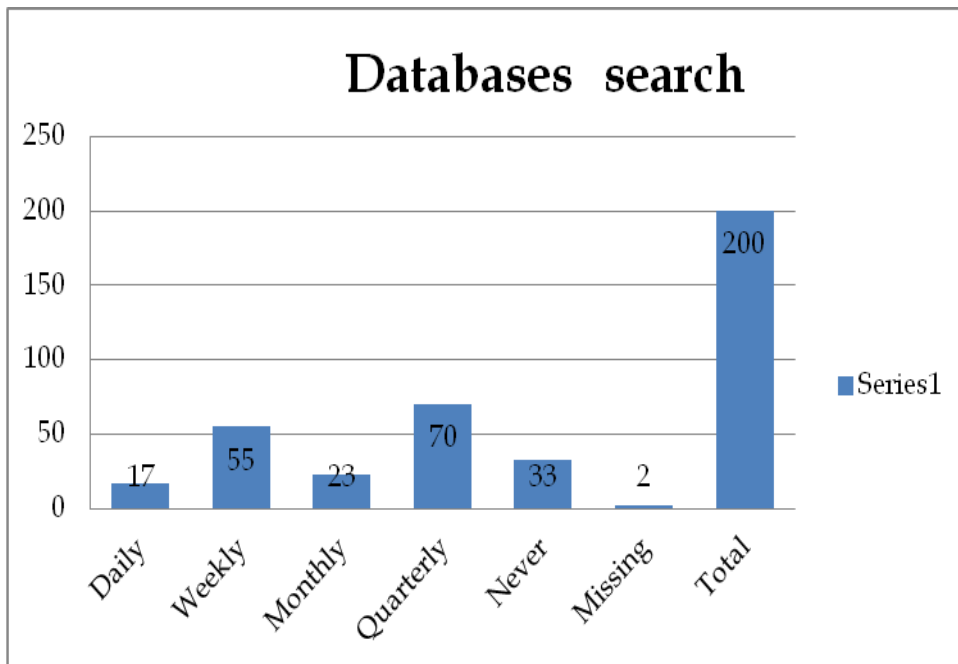


FIGURE 4- 9: FREQUENCY OF DATABASES SEARCH

On the issues of databases search, chart 4.10 above indicates that 70 (35 %) respondents searched databases quarterly, 55 (27.5 %) respondents searched databases weekly. 33 (16.5 %) respondents has never used databases, 23 (11.5) respondents searched databases monthly while 17 (8.5 %) respondents searched databases daily and 2 (1 %) respondent did not respond to the question. Most respondents who responded “Never” were part time students and their age ranged from 41-50.

Generally the use of databases was unexpectedly low. These universities spent a lot of money on licenses paid to online database vendors for quality services that students appear not to make use of. It seems therefore that valuable information (contained in databases) is abandoned in favour of easier-to-use but often less reliable, accurate, and objective sources of information like Internet. These findings indicate that respondents possess low to medium level of information-seeking skills

and also indicate that postgraduate information literacy programmes of these two universities were ineffective at the time of the study.

4.1.8.5 Library shelf browsing

Respondents were asked how frequently they were involved in library shelf browsing when seeking for information for academic purposes. This means how frequently they searched physical sources of information, for example monographs, serials and DVD's etcetera in the library. Browsing the library shelves is one way of discovering sources of information in that particular library. The frequencies are shown in chart 4.11 below.

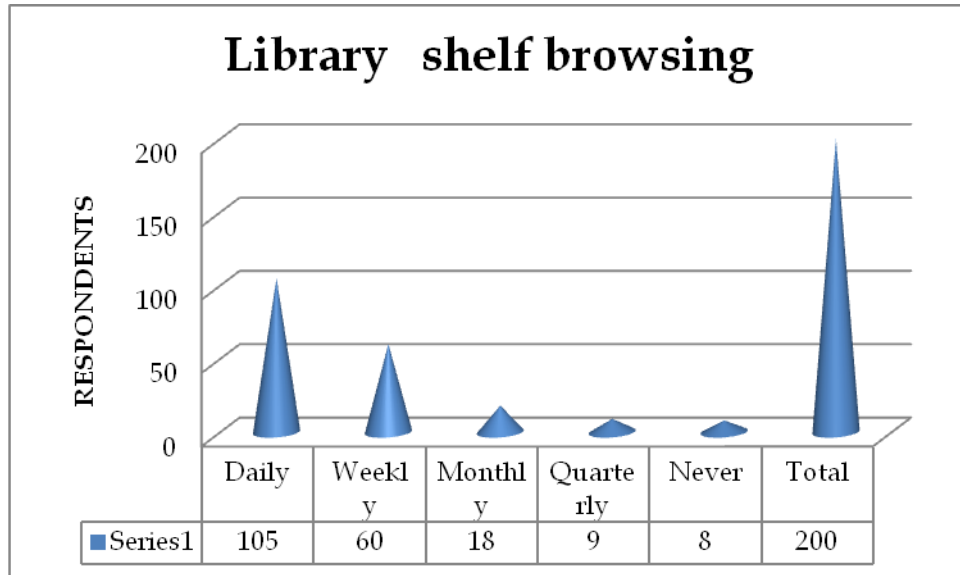


FIGURE 4- 10: FREQUENCY OF LIBRARY SHELF BROWSING

Chart 4.11 above shows the frequency at which post graduate students browsed the library shelves and 105 (52 %) respondents browsed the library shelves daily, 60 (30 %) of the respondents browsed weekly, 18 (9.0 %) browsed the library shelves

monthly, 9 (4.5 %) respondents browsed the library shelves quarterly, whereas 8 (4 %) respondents indicated that they had never browsed library shelves. In contrary to the OPAC search, these findings demonstrate that postgraduate students made use of the library, though the majority started with shelf browsing rather than the OPAC, Library shelf browsing can be an infinite task if one does not know the particular shelf of the required books. Another purpose of orientation programmes is to introduce library users to OPAC. Lack of OPAC skills might therefore mean that these respondents never attended orientation programmes during their undergraduate study or maybe they graduated from other institutions. In general postgraduate students utilize the library physical collection.

4.1.8.6 Consulting colleagues

According to Gralewska –Vickery (1976:267) information sources can also be classified as external and internal sources, human and documentary sources or formal and informal sources of information. In this study colleagues are referred to humans and informal sources such as fellow postgraduate students at the same institution and from other institutions. Some of these colleagues could be met through social networks. In view of the fact that colleagues from other institutions or even the same institution can have information that they have acquired through workshops, conferences or social networks, the researcher wanted to find out how frequently did postgraduate students consult their colleagues to acquire information, verbally or through social networks. The diagram below illustrates the outcome.

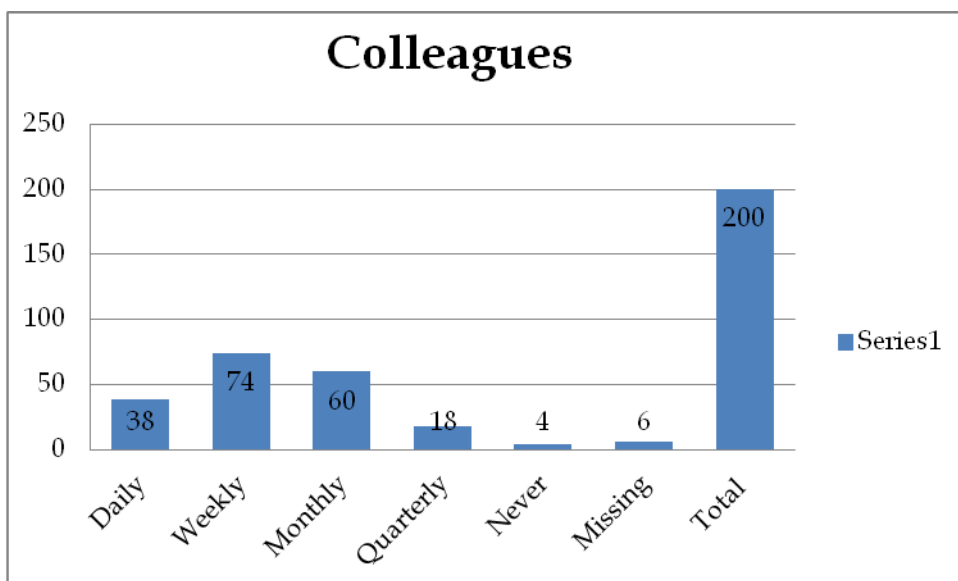


FIGURE 4- 11: FREQUENCY OF CONSULTING COLLEAGUES

On the issue of how frequently postgraduate students consulted colleagues when seeking for information, chart 4.12 above shows that 74 (37%) respondents consulted colleagues weekly, 60 (30 %) consulted colleagues monthly, 38 (19 %) respondents consulted colleagues daily, 18 (9 %) consulted quarterly while 4 (2 %) respondents indicated that they had never consulted colleagues and 6 (3 %) respondents did not respond to the question. An information literate person utilises all information sources that are available to him/her, colleagues can also help others by sharing information and or recommend the link where relevant information can be accessed. At an average these respondents showed that they did consult colleagues to share and acquire information.

4.1.8.7 Consulting librarians

In the current study, librarians are referred to as qualified information specialists. That is people who went through training in the field of library and information science, who are information literate and capable of transferring the knowledge they

acquired through training and experiences to the community they serve. These people are to be found in the library, they are there among other duties to serve the university community by purchasing information sources according to the needs of the university community, to support teaching, learning, research and to help library users to access information from all sources. Librarians are the “gateway” to information since they can also help the users to access information sources from other libraries through Inter Library Loans (ILL). The researcher wanted to find out how frequent did postgraduate students consult librarians when seeking for information and the diagram below shows the statistics.

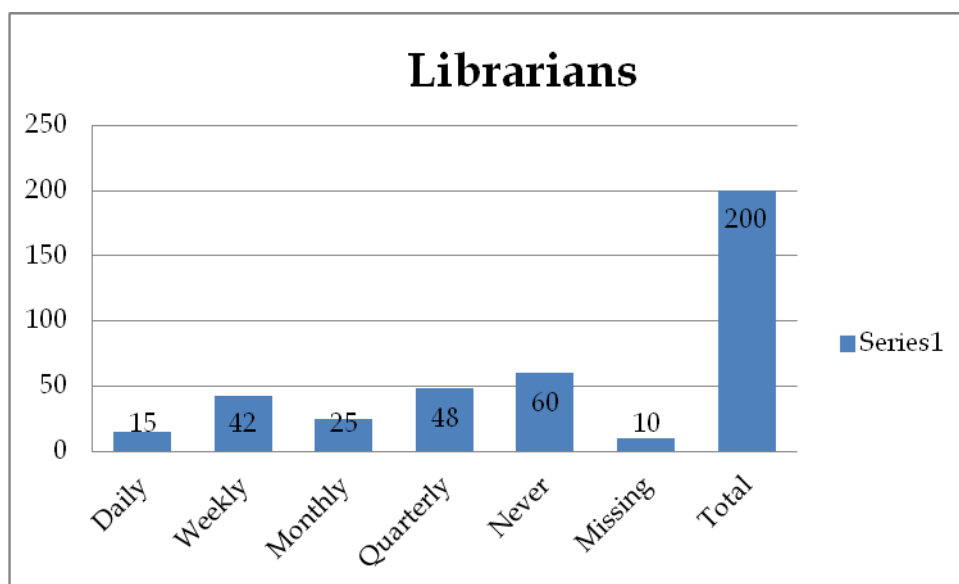


FIGURE: 4.13 FREQUENCY OF CONSULTING LIBRARIANS

The diagram above reveals that 60 (30 %) respondents never consulted librarians for help when searching for information, 48 (24 %) respondents consulted librarians quarterly, 42 (21 %) respondents consulted librarians weekly, 25 (12.5 %) respondents consulted librarians monthly, 15 (7.5 %) respondents consulted

librarians daily whereas 10 (5 %) did not respond to the question. Generally, reports of consulting librarians were very low. This could indicate that library instruction and orientation programmes of these institutions were ineffective in view of the fact that, respondents did not know what the librarians are there for. At postgraduate level, students should be aware that librarians can purchase information sources for their academic needs, can borrow information sources from other institutions on their behalf and they can approach librarians for individual information literacy training, etcetera.

4.1.8.8 Consulting the reference list at the end of an article, book or journal

In this study, reference lists are referred to as references and bibliographies. That is, those are the lists of information sources that the author consulted and cited when writing a particular article, book or journal. These lists can help users to access information from those sources that the author has consulted. They can serve as a “gateway” to other sources through citation pearl growing search strategy. With the citation pearl growing search strategy, the starting point when searching for information is one relevant document, the idea of this search strategy is to find more similar documents to the already found reference lists. This helps searchers to find more relevant articles through the listed authors; this may also help the user to get primary information from the authors that are cited. With reference to the above mentioned, the researcher wanted to find out how frequent did postgraduate students consult the reference lists. The frequencies are shown in Figure 4.14 below

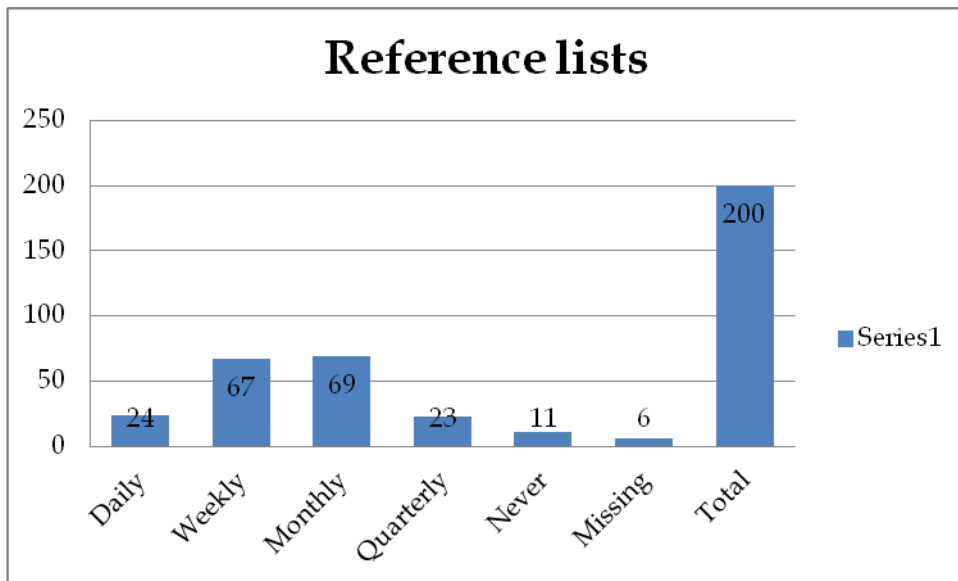


FIGURE 4- 12: FIGURE: 4.14 FREQUENCY OF CONSULTING REFERENCE LISTS

Figure 4.14 above reveal that 69 (34.5%) respondents consulted reference lists monthly, 67 (33.5%) respondents consulted reference lists weekly, 24 (12.0%) respondents consulted reference lists daily, 23 (11.5%) respondents consulted reference lists quarterly, whereas 11 (5.5 %) respondents had never consulted a reference list and 6 (3.0 %) respondents did not respond to the question. This indicates that respondents were not applying all search strategies when looking for information. An information literate user utilises all search strategies to acquire sufficient and relevant information for his/ her information needs. These results may also indicate that the respondents did not have sufficient information seeking skills.

4.1.8.9 Consulting e-mail alerts

Email alerts are free services offered by scientific databases to provide researchers with a time saving solution to keep abreast with new online issues which are of

interest to them. To receive these free emails alerts the researcher must register his /her details online on the database and state his/her information needs. An e-mail will be sent to the researcher’s inbox at the time of online publication or when there is new information that matches the query of the researcher and this allows the researcher to browse the latest content immediately. E-mail alerts may also be used to update the researcher when new information related to her/his search is available. The diagram below illustrates whether or not postgraduate students utilized e-mail alerts.

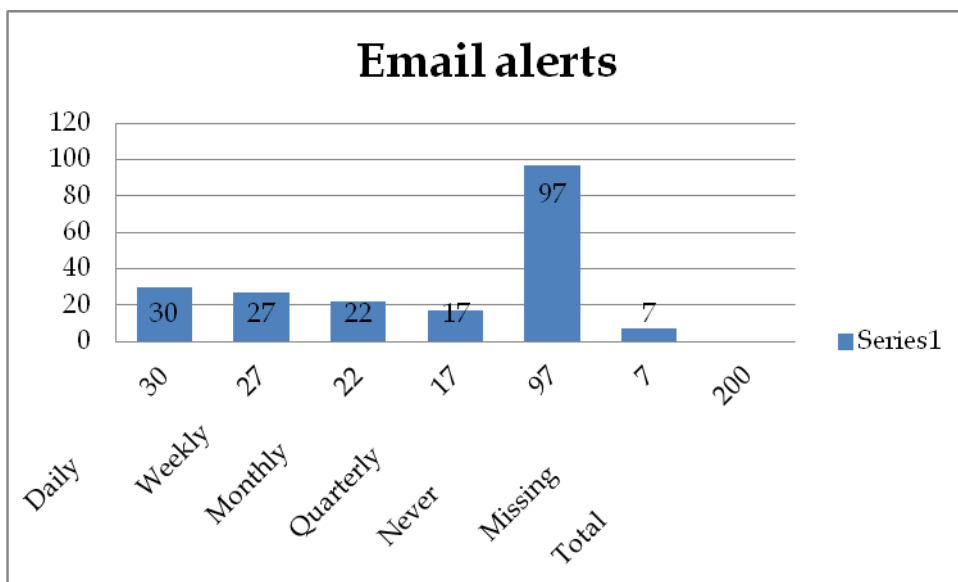


FIGURE 4- 13: FREQUENCY OF CONSULTING EMAIL ALERTS

Email alerts proved to be most unpopular to postgraduate students. Findings reveal that 97 (48.5 %) had never used email alerts 30 (15 %) used email alerts daily, 27 (13.5 %) used email alerts weekly, 22 (11 %) used email alerts monthly, 17 (8.5 %) used email alerts quarterly while 7 (3.5 %) did not respond to the question. An information literate person knows where to find relevant information; thus findings in this study reveal that these respondents’ relied more on social networks than

scientific database services. It is possible that the use of these email alerts is low because students were unaware of their existence. This however demonstrates that postgraduate students might not be well acquainted with information seeking skills. This also shows low levels of information literacy, perhaps because the information literacy programmes of these two universities were not effective.

4.1.9 Time spent on information gathering activities

Respondents were asked to indicate the approximate amount of time they spent per week on information gathering activities. One of the objectives of this study was to find out the type of activities postgraduate students engage in when seeking information. This kind of data may be essential to their university libraries so that they may invest more on what their students utilise and spent more time on. Students were required to select as many information gathering activities as may apply to them. Findings are indicated in Table 4.5 below

TABLE 4- 5: TIME SPENT ON INFORMATION GATHERING ACTIVITIES

Information gathering activities	Amount of time spent per week (Hours)			
	0-3 hours	4-6 hours	7-9 hours	Morethan10 hours
Reading emails	131	53	11	05
Photocopying	113	63	18	01
Conferring with fellow students	74	77	42	03
Reading books, article	56	61	62	18
Searching electronic databases/ books & journals	46	48	22	14
Searching the Internet	31	46	58	65

Table 4.5 above indicates that 131 (65.5 %) respondents read emails for information gathering 0-3 hrs per week, 53 (26.5 %) read emails 4-6 hours, 11 (5.5 %) read emails 7-9 hours while 5 (2.5 %) respondents read emails more than 10 hours per week. With regard to photocopying materials for academic information gathering, findings reveal that 113 (56.5 %) respondents spent 0-3 hours per week photocopying information, 63 (31.5 %) respondents spent 4-6 hours per week photocopying, 18 (9.0 %) respondents spent 7-9 hours per week photocopying and 1 (.5 %) respondent spent more than 10 hours per week photocopying. When it comes to conferring with fellow students it was reported that 74 (37 %) respondents spent 0-3 hours per week discussing with fellow students to gather information. 77 (38.5 %) respondents spent 4-6 hours, 42 (21.0 %) spent 7-9 hours, while 3 (1.5 %) respondents spent more than 10 hours per week conferring with fellow students.

In response to the question on reading books and articles to gather information, 56 (28.0 %) participants spent 0-3 hours per week reading books and articles, 61 (30.5 %) spent 4-6 hours, 62 (31.0 %) spent 7-9 hours whereas 18 (9.0 %) spent more than 10 hours per week. Concerning searching electronic databases, 46 (23.0 %) respondents spent 0-3 hours per week searching electronic databases to retrieve information, 48 (24 %) spent 4-6 hours, 22 (11 %) spent 7-9 hours, while 14 (7.0 %) spent more than 10 hours per week searching electronic databases to gather information. Internet usage rated highly with 31 (15.5 %) respondents spending 0-3 hours per week searching the internet for information gathering, 46 (23 %) respondents 4-6 hours per week, 58 (29 %) respondents 7-9 hours while 65 (32.5 %) respondents spent more than 10 hours per week searching the internet to retrieve relevant information for academic purposes. These findings indicate that in general respondents spent time in all the above mentioned information gathering activities though internet usage takes the lead.

Respondents spent most of their time surfing the internet to retrieve information for academic purposes even though the libraries spent more money subscribing to electronic sources. This implies that library marketing programmes were not effective or did not reach to all postgraduate students. Additionally it is possible that some students did not use university email addresses and thus when the libraries marketed their services through emails, those students could not be reached, as a result they were not aware of the newly subscribed databases, electronic journals and books etc of interest to them.

4.1.10 Factors that influence choice of information sources

The study sought to establish the factors which influenced postgraduate students' choice of information sources. Four options were given and these are lecturer/supervisor recommendation readings, librarians' recommendations, fellow students' suggestions and previous experience. Students were required to select as many sources as may apply to them. The outcomes of this variable are presented in Figure 4.15 below.

Factors that determine postgraduate students choice of information source

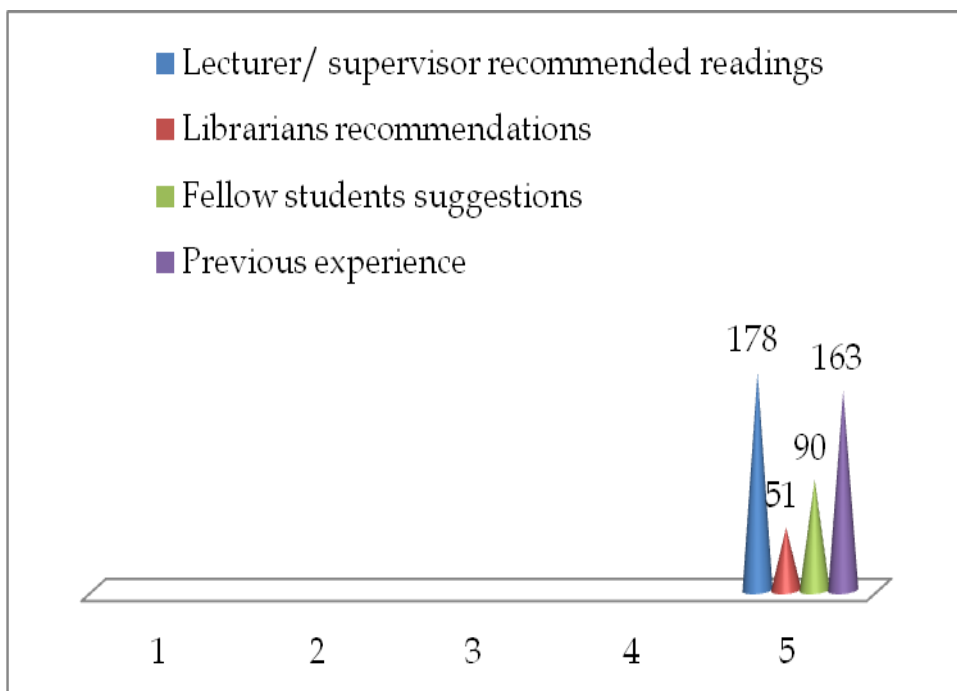


FIGURE 4- 14: FACTORS THAT DETERMINE CHOICE OF INFORMATION SOURCE

Figure 4.15 above indicates most respondents' choices 178 (89 %) were determined by lecturers/supervisors' recommended readings, 163 (81.5 %) of respondents' choice of information source were determined by previous experience, 90 (45.0 %)

were determined by fellow students suggestions, whereas 51 (25.5 %) of respondents' choices of an information source were determined by librarians. Postgraduate students indicate a high level of dependency on the lecturers/supervisor's recommendations, followed by fellow student's suggestions, followed by their own experiences and lastly librarian's recommendations.

This might be caused by poor information seeking skills. At postgraduate level all students must be able to independently search appropriate information without depending on lectures /supervisors recommendations, fellow students or previous experience because unlike undergraduate students, postgraduate students have to gather more information and study independently.

4.1.11 Awareness of current developments

Postgraduate students need to keep track of current trends in their fields of study and understand the scholarly body of knowledge on a deeper level in order to become better researchers and share their knowledge through publishing. Current developments also shape postgraduate students' information seeking behaviour hence respondents were asked about the channels they use to keep ahead with current developments. These findings are presented in Figure 4.16 below.

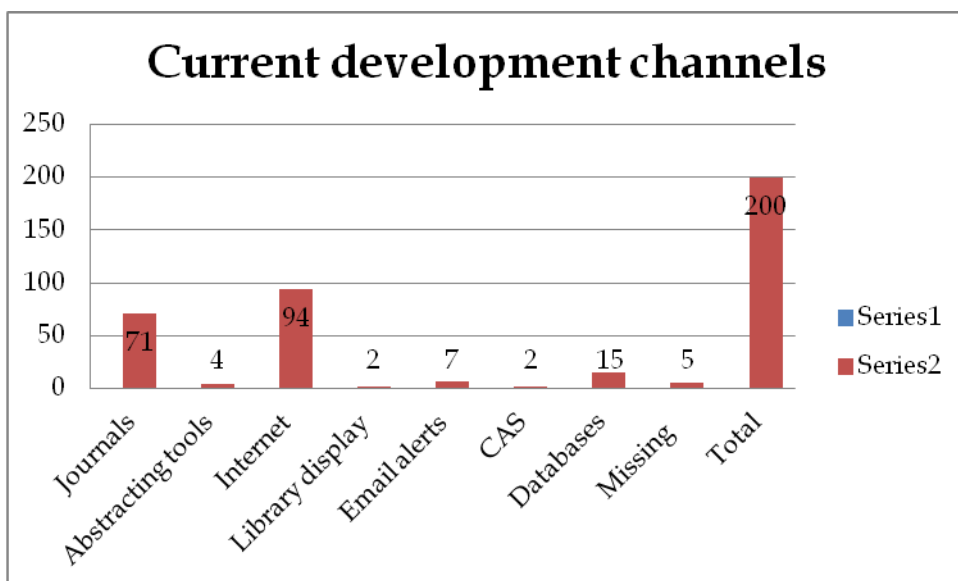


FIGURE 4- 15 :KEEP ABREAST OF CURRENT DEVELOPMENT

Figure 4.16 above indicates that 94 (47.%) of the respondents made use of Internet to keep abreast with new developments in their areas of study, 71 (35.5 %) used Journals, 15 (7.5 %) used databases, 7 (3.5 %) used email alerts, 4 (2 %) used abstracting tools, 2 (1.0 %) used library display, 2 (1.0 %) respondents used Current Awareness Services (CAS) in the library and 5 (2.5 %) did not respond to the question. These figures illustrate that most respondents relied on the internet for almost everything and tended to ignore library displays and current awareness services in the library. The reason for this might be lack of library services marketing. The channels that were outlined by students like workshops, meetings, conferences and circulars are good platforms for keeping on track of current developments and knowledge sharing among postgraduate students.

4.1.12 Search techniques for obtaining relevant information

Search techniques are methods that are offered by scientific databases to help users to retrieve relevant information. Search techniques help the Information Retrieval System to recall precise information according to and beyond the index term that the

indexer used to store information in that particular information retrieval system. In relation to this variable, respondents were asked about search techniques that they use to retrieve relevant information from electronic sources. Respondents were asked to select as many answers as may apply to them. Findings are presented in Table 4.6 below.

TABLE 4- 6: SEARCH TECHNIQUES CONSULTED

Search techniques	Number of respondents	Percentages
One keyword	116	58
More than one keywords	97	48.5
Phrase search	57	28.5
Boolean operators	38	19.0
Proximity search	23	11.5
Truncation	24	12.0
Search within results	53	26.5
Find similar results	54	27
Search within specific date range	84	42

Table 4.6 above indicates that the majority 116 (58 %) of the respondents made use of one keyword for retrieving relevant information for their academic purposes, 97 (48.5 %) respondents used more than one keyword, 57 (28.5 %) respondents used a phrase search, 38 (19.0 %) respondents used Boolean operators, 23 (11.5 %) respondents used proximity operators, 24 (12 %) respondents used Truncation, 53 (26.5 %) used search within similar results, 54 (27 %) find similar results whereas 84 (42 %) used search within a specific date range. According to these findings, postgraduate students possess low to medium information literacy skills. This is because an information literate person makes use of all search techniques in order to obtain relevant information. Scientific databases offer search techniques to help users to find relevant information as quickly as possible.

The main purpose of information literacy programmes offered by academic libraries is to teach the university community how to make use of search strategies and search techniques. These findings therefore show that information literacy programs at these two universities are not effective. The other reason might be that respondents did not attend information literacy instructions during their undergraduate study maybe because they did not know the importance of information literacy instructions or maybe they did not have time to attend. Another possibility is that they are from other institutions that do not offer information literacy instructions.

4.1.13 Modifying a search

Most scientific databases offer a search results page that displays a list of article that fit the search terms. Users thus can modify their search if the search results do not include the information that they are looking for in order and to make it more specific to match the user's query. In the light of this information, respondents were asked if they ever modify their search strategies when they search electronic sources of information and their responses are presented below

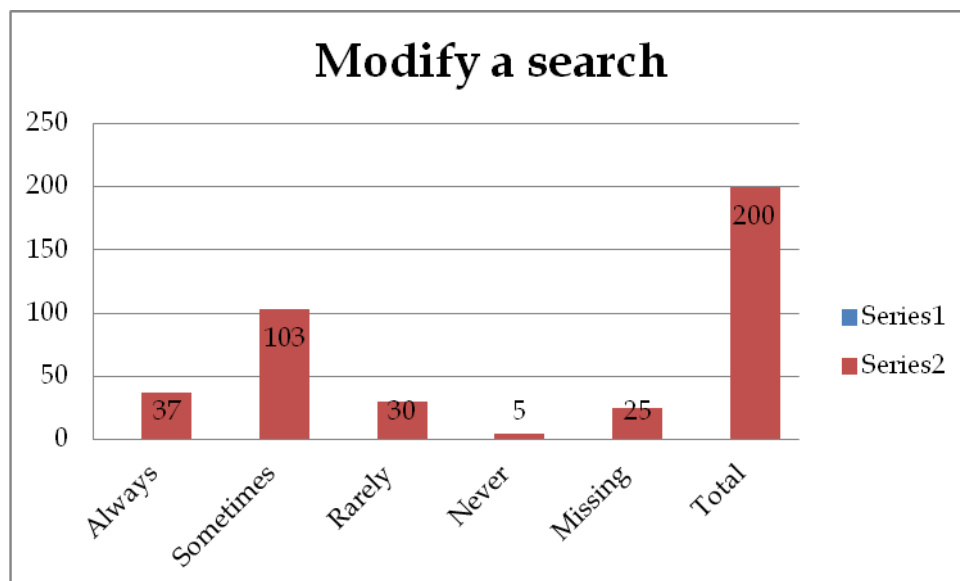


FIGURE 4- 16: MODIFY A SEARCH

Figure 4.17 above indicates that the majority of respondents 103 (51.5 %) sometimes modify their search strategies, 37 (18.5 %) respondents always modify their search strategies, 30 (15 %) respondents rarely modify their search strategies whereas 5 (2.5 %) respondents never modified their search strategies and 25 (12.5 %) did not respond to the question. Most respondents sometimes modified their search strategies. An information literate person must always modify the search strategies in order to retrieve accurate information. These findings therefore show that the respondents have low to medium level information literacy.

4.1.14 Methods employed to modify search strategies or techniques

A search strategy is an overall plan or approach to find information and to solve an information need. This relates to having good guidelines that will lead to a successful search output by identifying the appropriate search tools and search techniques. In

other words a strategy is a plan and a technique is a method. There are various methods that information seekers can make use of to modify search strategies to obtain relevant information. Respondents were asked how they modified their search strategies; in cases their searches did not return satisfactory results. Respondents were instructed to select as many answers as may apply to them from a given list of answers. The findings are illustrated in Table 4.7 below

TABLE 4- 7: METHODS UTILIZED TO MODIFY SEARCH STRATEGIES

Methods	Number of respondents	Percentages
I choose different keyword/ keywords	103	51.5
I choose different source of information	157	78.5
I change search technique	65	32.5
I presume there are no satisfactory results and stop the search process	29	14.5

Table 4.7 reveals that 103 (51.5 %) respondents chose different keywords; the majority of respondents 157 (78.5 %) chose different information source, 65 (32.5 %) respondents changed the search techniques while 29 (14.5 %) respondents presumed there were no satisfactory results and stopped the search process. These findings show that most respondents opted for a different source of information if they failed to get relevant information from the first sources. The reason for this might be that the respondents thought the information source they first used was not relevant, nevertheless there were still some other techniques and strategies that they should have applied using the same source of information if they possessed high information seeking skills. These skills can be obtained by attending information

literacy programmes. The study shows that the majority of respondents have not attended information literacy offered by their institutions or they might have but the programmes are not effective and require to be reviewed.

4.1.15 The frequency of evaluating the quality of an information source

Evaluating an information source before using it can save the user time of reading the whole document that might not be useful to him/ her. In view of the fact that the study is about information seeking behaviour of postgraduate students, the researcher wanted to find out all activities and methods that postgraduate students applied in obtaining relevant information from the sources they used. The rate of recurrence that postgraduate students evaluated the quality of an information source is also an important attribute of information seeking behaviour.

A relevant information source to the user query will help the user to obtain relevant information as easily and quickly as possible. There are many aspects of evaluating an information source and in this study the participants were given following options: article title, journal title, thematic descriptors, abstract and the reference list to choose from to determine how frequently they evaluated the source. Table 4.8. below shows the findings.

TABLE 4- 8: EVALUATING THE QUALITY OF AN INFORMATION SOURCE

Aspect	Frequency				
	All the time	Frequently	Fairly frequently	Seldom	Never
Article title	80	75	22	12	08
Journal title	71	74	27	14	08
Thematic descriptor	20	29	64	25	42
Abstract	45	78	34	12	18
Reference list	34	51	64	24	13

Table 4.8 above indicates that 80 (40 %) of the respondents evaluated the quality of an information source using the article title all the time, 75 (37.5 %) used the article title frequently, 22 (11.0 %) respondents evaluated the quality of an information source by the title fairly frequently, 12 (6.0 %) respondents seldom/ rarely evaluated the quality of an information source by an article title, 08 (4.0 %) respondents had never evaluated the quality of an information source by an article title, while 71 (35.5 %) respondents evaluated the quality of an information source by the journal title all the time; 74 (37.0 %) respondents however evaluated the quality of an information source using the journal title frequently, 27 (13.5 %) respondents evaluated the quality of an information source by a journal title fairly frequently, 14 (7.0 %)

respondents seldom evaluated the quality of an information source; Of all the respondents who participated in the study, 08 (4.0 %) respondents never evaluated the quality of an information source by the journal title, whereas 20 (10 %) respondents evaluated the quality of an information source using a thematic descriptor always, while 29 (14.5 %) respondents evaluated the quality of an information source by a thematic descriptor frequently, 64 (32 %) used a thematic descriptor fairly frequently and 25 (12.5 %) respondents seldom evaluated the quality of an information source by thematic descriptor.

In the study, 42 (21 %) respondents never evaluated the quality of an information source by thematic descriptor, whilst 45 (22.5 %) respondents evaluated the quality of an information source using an abstract all the time, 78 (39 %) respondents evaluated the quality of an information source by an abstract frequently, 34 (17 %) respondents evaluated the quality of an information source by an abstract fairly frequently, 12 (6 %) seldom evaluated the quality of an information source by an abstract and 18 (9 %) respondents never evaluated the quality of an information source by an abstract. With regard to the use of reference lists 34 (17 %) respondents evaluated the quality of an information source using reference lists all the time, whilst 51 (25.5 %) respondents evaluated the quality of an information source by a reference list frequently, 64 (32 %) evaluated the quality of an information source by a reference list fairly frequently, 24 (12 %) seldom evaluated the quality of an information source by reference list and 13 (6.5 %) respondents never evaluated the quality of information source by a reference list..

In general, the findings reveal that on average respondents used all the above mentioned aspects to evaluate the quality of an information source, which is good behaviour of seeking information.

4.1.16 Frequency of utilizing available information sources

UFH and RU offer a wide range of information sources to support teaching, learning and research. Postgraduate students and the whole university community have access to all the information sources from the library, computer laboratories and university residences that has wireless connection. These information sources can also be accessed out of campus through the user's passwords that are provided by the university library. Postgraduate students have more benefits because they can also access information sources that are not available in their academic libraries through interlibrary loans. Based on the information sources available for postgraduate students, the researcher wanted to find out how frequent postgraduate student made use of these information sources to retrieve relevant information for their academic use. The outcomes might help these institutions to purchase more of the information sources that are frequently used by the students. Table 4.9 below presents the results.

Table 4- 9: Utilizing Information Sources

Information source	Frequency				
	All the time	Frequently	Fairly frequently	Seldom	Never
Internet search engines e.g. Google, Yahoo etc.	94	85	17	01	02
Academic and scholarly search engines e.g. Google scholar, DIVA etc.	47	51	38	34	26
Electronic journals, scientific databases, electronic books etc	54	32	26	63	22
Print books	56	47	16	13	04
Print Journals	47	30	19	16	05

Table 4.9 above indicates that 94 (47 %) respondents used internet all the time to retrieve relevant academic information, 85 (42.5 %) used internet frequently, 17 (8.5 %) used internet fairly frequently, 1 (.5 %) respondents seldom used the internet and 2 (1.0%) never used internet to retrieve relevant information for academic purposes.

Regarding academic and scholarly search engines findings indicate that 47 (23.5 %) respondents used academic and scholarly search engines all the time, 51(25.5 %) respondents used academic and scholarly search engines frequently, 38 (19%) respondents used academic and scholarly search engines fairly frequently, 34 (17 %) respondents seldom used academic and scholarly search engines while 26 (13 %) respondents never used academic and scholarly search engines to retrieve relevant information for academic use.

With regard to electronic journals, scientific databases, electronic books, this study found that 54 (27 %) respondents used electronic journals, scientific databases, electronic books all the time, 32 (16 %) respondents used electronic journals, scientific databases, electronic books frequently, 26 (13 %) fairly frequently, 63 (31.5 %) seldom used electronic journals, scientific databases, electronic books whereas 22 (11 %) never used electronic journals, scientific databases, electronic books to retrieve relevant information for academic use. On the subject of print books findings revealed that 56 (28 %) respondents used print books all the time, 47 (23.5 %) respondents used print books frequently, 16 (8 %) respondents used print books fairly frequently, 13 (6.5 %) seldom used print books whereas 4 (2 %) respondents reported that they had never used print books to retrieve relevant information for academic purposes.

Concerning print journals this study noted that 47 (23.5 %) respondents used print journals all the time, 30 (15 %) used print journals frequently, 19 (9.5 %) respondents used print journals fairly frequently, 16 (8 %) respondents seldom used print journals and 05 (2.5 %) respondents reported that they never used print journals to

retrieve relevant information for academic use. From the findings, it seems most postgraduate students made use of internet to retrieve relevant information for academic use; whereas the two universities use a lot of money to purchase licenses for scientific databases and electronic sources as well as print books and journals to support teaching, learning and research but many students even at postgraduate level still use internet. The rationale behind the use of internet might be its accessibility and students do not require passwords to access it, while print books are heavy and one has to browse shelves to access them. Furthermore books can only be borrowed for a specific period whereas with internet anyone can access it any time convenient for them.

4.1.17 Feelings and emotions when the search did not produce relevant information

The last question was framed around the ISP model by Kuhlthau (1991). The ISP model does not only focus on the information seeking process but also on the emotions, thoughts, expressions and mood of the user when he or she searches for information. Respondents were asked to affirm their emotions and feelings in cases they did not find relevant information from their searches. The following options were provided as choices: frustrated, confused, disappointed, and demotivated. The question was presented in a five point Lickert scale from 1 Strongly Disagree (SD), 2 Disagree (D), 3 neither Disagree nor Agree (N), 4 Agree (A) to 5 Strongly Agree (A). The findings are presented in Table 4.10 below

Table 4- 10: Feelings and emotions when the search does not produce relevant results:

Emotions	Responses				
	Strongly Disagree (SD)	Disagree (D)	Neither Agree nor Disagree (N)	Agree	Strongly Agree (SA)
Frustrated	9	8	12	73	98
Confused	10	13	34	54	89
Disappointed	11	9	26	64	90
Demotivated	19	25	24	39	93

4.1.17.1 Feelings of Frustration

Table 4.10 indicates that 98 (49 %) respondents strongly agreed, 73 (36.5 %) agreed, 12 (6 %) neither disagreed nor agreed (N), 8 (4 %) disagreed (D), 9 (4.5 %) strongly disagreed (SD).

4.1.17.2 Confusion

When asked if they felt confused in case the search did not produce relevant information, given the 5 point Lickert scale from strongly disagree (SD) to strongly agree (SA) Table 4.9 indicates that 89 (44.5 %) strongly agreed (SA), 54 (27.0 %) agreed (A), 34 (17 %) neither disagree nor agree (N), 13 (6.5 %) disagreed (D), 10 (5 %) strongly disagreed (SD).

4.1.17.3 Disappointment

When asked if they feel disappointed in case the search did not produce relevant information, given the 5 point Lickert scale from strongly disagreed (SD) to strongly

agreed (SA) Table 4.10 indicates that the majority of respondents 90 (45 %) answered strongly agreed (SA), 64 (32 %) agree (A), 26 (13 %) neither disagreed nor agreed (N), 9 (4.5 %) disagreed (D), 11 (5.5 %) strongly disagreed (SD).

4.1.17.4 Feeling demotivated

When asked if they felt demotivated in case the search did not produce relevant information, the majority of the respondents 93 (46.5 %) strongly agreed (SA), 39 (19.5) agreed (A), 24 (12 %) neither agreed nor disagreed (N) 25 (12.5 %) (disagreed (D), 19 (9.5 %) strongly disagreed (SD)

In general, respondents strongly agreed that they felt frustrated, confused, disappointed and demotivated if they did not find relevant information for their searches. This is because information seeking can be complex especially if the person who is seeking information is not well acquainted with information seeking strategies. The outcomes of the study validate Kuhlthau (1991)'s ISP model which does not only focus on the information seeking processes but also on emotions, thoughts and expression of the users when searching information

4.2 Section 2: Interview results

4.2.1 Introduction

Qualitative data obtained from the focus groups were analyzed and interpreted and subsequently presented in this section. This combination is called triangulation. The two research instruments were used together because of their ability to crossover or complement each other. The questionnaire was successfully used to reach a large population, while the interviews were used to gain qualitative data on the information

seeking behaviour of postgraduate students. The researcher conducted a limited number of focus group interviews with postgraduate students at RU and UFH. A total of seven focus groups of five members each were conducted.

Leedy & Ormrod (2001:150) are of the view that data analysis in qualitative research is a systematic process of selecting, categorizing, synthesizing and interpreting data to provide explanations of the single phenomenon of interest. McMillan & Schumacher (1997: 500-503) also indicate that qualitative data analysis often takes the form of written language. White (2002) further indicates that it can also take on other forms, e.g. video recording where the analysis is aimed at identifying units of meaning (themes) and by reading the data sentence to identify the storyline. Sentences or graphs which support the story line were then underlined. Central sentences that support the central theme were identified as well as categorized and subcategorized. Direct quotations from the data were used to support the story line. The report of the results was represented in a descriptive or narrative form. In this study, the transcribed interviews and tapes were analyzed using narratives qualitative methods.

4.2.2 Sources of Information preferred by postgraduate students

Postgraduate students were interviewed to determine sources of information they preferred among all sources of information that their universities offers, ranging from books, journals, internet, databases etc. Generally the majority of respondents preferred internet. Respondents felt that information from the internet was up to date as opposed to information from library books which are outdated. The internet was

also preferred by respondents because of its convenience as one may “access everything at one place”. Respondents also said that they “preferred Internet because books are heavy and cumbersome”. Nevertheless printed information sources are still in use.

4.2.3 Points of access to electronic sources

Respondents were asked to identify places where they conveniently accessed electronic sources of information. Among others, the university library was identified as the most convenient place for respondents to access electronic sources of information. This trend of conveniently accessing electronic sources of information where it is most convenient for the user was supported by the following statements :

Respondent no 1 said *“Internet cafes are too expensive”*, respondent no 2 *“We were Born Before Technology (BBT) we prefer university library because we wait for librarians or anyone to come and help us with searching information”*. Respondents number 3 explains that *“we cannot access electronic sources of information at the residence because some residences do not have wireless”*. When asked to specify other places where they access electronic sources of information, respondent mentioned KFC outlets and Mark & Bean where he bought a meal and asked for an internet voucher which is free of charge. He also mentioned that at times he used his mobile phone or IPAD to access internet. Generally the university library and computer laboratories were conveniently used by respondents. Lack of knowledge and or money may contribute to these points of access to electronic sources because university registered students can access electronic sources of information anyway and produce a password where it is required.

4.2.4 Views about electronic sources of information

Respondents were asked to indicate their views about electronic sources of information.

4.2.4.1 Electronic sources make it easy to access information

Respondents were asked to elaborate their views about electronic sources of information and also to state the effect of electronic sources of information on information retrieval. The question was posed in a five point Lickert scale from strongly disagree to strongly agree. Generally respondents agreed that electronic sources of information made it easy to access information. This was also supported by the following views from respondent 1 "*Electronic sources make it easy if you know what you are looking for*". Respondent no 2 added that it is "*Easy if you know where to start*", respondent 3 elaborated that "*It depends on what you are looking for*" and respondent number 4 explained that "*It is easy to use electronic sources because you cut and paste*". These findings showed that postgraduate students thought that electronic sources of information made it easy to access information especially if one knows how to access information using information technology.

4.2.4.2 Same amount of time

The researcher also aimed to find out from the respondents if they spent about the same amount of time accessing information electronically sources of information compared to manually. Responses indicated that the majority of respondents disagreed to the statement. This was also supported by the following statements: respondent number 1 said it is "*not easy if you don't know how to access information*". Respondent 2 was on the view that "*Electronic sources of information are quick to access*", while respondent number 3 stated that "*if the internet is slow,*

electronic sources can take time to access". These findings show that the majority of postgraduate students appreciate electronic sources of information.

4.2.4.3 It takes more time

Furthermore, the researcher sought to find out from the respondents if electronic sources of information consume more time when gathering and sorting information. Respondents indicated that the consumption of time is caused by other factors and supported their views with the following statements: respondent number 1 explained that *"It takes time when you don't know what to do and wait for someone to come and help with computers"* and respondent number 2 added that *"it takes more time when the internet is slow"*. Respondent number 3 concurred with the above views that *"It takes time if the computers in the lab are fully occupied and one must wait for someone to leave"*

4.2.5 Frequency of information seeking activities

Respondents were asked how frequently they were involved in the following information seeking activities:

4.2.5.1 Internet search

Responses indicated that the majority of respondents searched the Internet on a daily basis. Some respondents (part time postgraduate students) indicated that they searched the Internet only when there was a need e.g. when they had to write assignments. Respondents also made the following statements: respondent number 1 explained that *"There is always something new on the Internet."* Respondent 2 added that *"When I open the computer I start by Google"* and respondent 3 said *"Google makes life easier"*. Respondent 4 stated that *"Every day we check if there is anything new on the Internet"* and respondent said *"I read news on the Internet"*

everyday". These findings indicate that postgraduate students trust information that is available on the Internet above other sources of information that are available for them.

4.2.5.2 OPAC

Findings indicated that in general OPAC was not used frequently by postgraduate students. Respondents also made the following statements: respondent number 1 said "*I search the OPAC when I am looking for outdated books that I wants to refer on*". Respondent number 2 said "*I search the OPAC only when I am in the library and have assignments*" and respondent 3 explained that "*I don't normally search the OPAC since I know where to find Education books*". Respondent no in turn said "*I don't really search the OPAC, I go straight to the shelves when I am looking for books*" and respondent 5 elaborated that "*I don't search OPAC since I am using electronic sources*". These indicates that postgraduate students do not understand the importance of OPAC in their libraries

4.2.5.3 Databases search

Findings indicated that, generally postgraduate students did not make use of databases frequently. The following statements were also made: respondent 1 said "databases are tricky" and respondent 2 explained that "*We don't use these databases we are Born Before Technology (BBT)*". Respondent no 3 explained that "*when searching databases sometimes the information that you are looking for is not available, only the abstract and the abstract do not have full information*". The researcher further asked the respondent that, in case they find only abstracts on the databases what do they do? Respondent 3 elaborated that "*I become frustrated and post it on my face book status*" and respondents number 4 revealed that "*we are not familiar with those databases*".

4.2.5.4 Library shelf browsing

This study found out that respondents did browse the library shelves frequently and made the following statements respondent number 1 said *“when the lecturers recommend books that we can use, we go to browse the library shelves”*, and others supported the respondent. The findings indicates that postgraduate students did utilize the library print materials to obtain information they need.

4.2.5.5 Consulting colleagues

Findings indicated that postgraduate students did not consult colleagues frequently. The following statements were also made: respondent 1 explained that *“I consult colleagues only when I missed a lecture and looking for some lecture notes”*. All respondents concurred with the statement.

4.2.5.6 Consulting librarians

Findings indicated that, generally postgraduate students did not consult librarians frequently and made the following statements: respondent number 1 said *“There is only one librarian for the whole faculty, even those who consulted her or him never got help because we are too many, every time when you go to check your information she / he is still busy until we give up”* and respondent 2 revealed that *“The last time I consulted the librarian I did not get help, I assumed she was busy”*. Respondent no 3 explained that *“I don’t usually consult librarians”*. Respondent 4 concurred saying *“same applies to me I don’t really consult librarians”* and respondent number 5 elaborated that *“I consult librarians if I did not get information”*. All respondents agreed to these statements. These results indicate that postgraduate students did not consider the importance of librarians in their libraries.

4.2.5.7 Consulting email alerts

Findings indicated that in general, postgraduate students did not have an idea of what email alerts were, the following statements were made: respondent number 1 said *"I never heard of emails alerts"*, respondent 2 explained *"I am not sure I know about email alerts"*. Respondent 3 questioned *"what are those email alerts?"* and other respondents agreed to the statement. When asked to specify any other information activity they utilized respondent 4 mentioned lever box and Research gat, face book and other social networks.

4.2.6 Factors that influences choices of information sources

Respondents were asked to identify factors which influence their choice of information source. The following options were given, Lecturer/Supervisor's recommended readings; Librarians recommendations; Fellow students suggestions; Previous experience. The following statements were made: respondent 1 said *"Supervisors and lecturers recommendations guides us to the books and articles that have relevant information"* while respondent 2 explained *"I don't really consult a librarian, unless if I can't find a book on the shelf"*. Respondent number 3 added that *"when we are gathered for a lecture we share information on which sources to consult for that particular task that the lecturer gave us in class or for our researches"* and respondent number 4 shared that *"sometimes I post what I am looking for on my face page and ask for suggestions from my friends"*. Respondent 5 elaborated that *"I go for something that has been working for me for example I started using internet since I came to varsity and it has been working for me"*. All respondents agreed to the statements.

4.2.7 Awareness of current trends

Respondents were asked about the channels they use to keep ahead with current developments and findings were as followed: Respondent no 1 commented that “*I Google everything*” and other participants agreed with this statement. Some post graduate students from the department of education indicated that they keep track of current developments in their areas of study by attending workshops and cluster meetings, conferences as well as reading circulars and pamphlets that were distributed by the national department and district offices.

4.2.8 Search techniques for obtaining relevant information

Respondents were asked to identify the search techniques that they used to retrieve relevant information when using electronic sources of information and the following statements were made: respondent 1 stated that “*I need training on how to use those search techniques*” and respondent 2 said “*Google does not require those search techniques*”. Respondent number 3 explained that “*I use one keyword and follow suggestions from the computer*”. All participants agreed to the statements.

4.2.9 Methods employed to modify search strategies or search techniques

Respondents were asked to identify methods they used to modify their search strategies; in cases their searches did not return satisfactory results and the following statements were made: respondent 1 said “*I choose different keywords and follow suggestions*” and respondent number 2 explained “*I normally opt for different information source for example i switch from internet to a journal or vice versa*”. Respondent 3 added that “*I presume there are no satisfactory results and*

respondent number 4 stated *“I think the library must give us training at the beginning of the year as a compulsory module because I remember there was a call for students to attend information literacy training but we did not go because we didn’t have time as we were attending our accredited modules.”* Other participants agreed with the statements.

4.2.10 Evaluating the quality of an information source

Respondents were asked to indicate how they evaluate the quality of an information source, given the options below: article title; journal title; thematic descriptor; abstract and reference list. The following statements were made: respondent 1 said *“from the title of an article, I know if that is what I want”* and respondent number 2 stated that *“The title of an article can give a clue of what the article is about”*. Respondent number 3 commented that *“Yes, abstract can say a lot about the quality of an article”* and respondent 4 explained *“I usually consider all of the above”*. All the other respondents agreed with the statements.

4.2.11 Feelings and emotions when the search did not produce relevant information

Respondents were asked to state their emotions and feelings in cases they did not find relevant information from their searches. The following options were provided as choices

4.2.11.1 Frustration

Respondents indicated that they did feel frustrated in case their searches did not retrieve relevant information. When asked what they did when feeling frustrated

respondent 1 said *"I give up on the search and post it on my face book page"*. Respondent 2 on the other hand explained that *"I go to the librarian and submit my topic even though they take time until you give up"*. The whole group agreed with the statements.

4.2.11.2 Confusion

When asked what they did when confused, respondents made the following statements: respondent 1 stated that *"I take a break"* and respondent 2 said *"I just don't know what to do any more"*. Respondent number 3 explained that *"I don't get confused at all, I just change the information source"* and respondent 4 elaborated that *"I go to the lecturer and tell him/her that I cannot find information"*

4.2.11.3 Disappointment

To demonstrate their level of disappointment when the search did not retrieve relevant information respondents made the following statements: respondent number 1 said *"It is so disappointing if you do not get relevant information and you have spent the whole day looking"* and respondent 2 added *"I post it on face book"* and respondent number 3 explained that *"I consult my lecturer"* and respondent number 4 stated *"I just think of the time I have wasted"*. All respondents agreed with the statements. Generally the respondents felt frustrated, confused, disappointed and demotivated after spending a lot of time retrieving irrelevant information. Holiday & Quin (2004) also concur that participants often felt frustrated because of the perception that information seeking is an easy task.

4.2.12 Chapter Summary

The data presented in this chapter were gathered through questionnaires and interviews to determine information seeking behaviour of postgraduate students at Rhodes University and the University of Fort Hare. To analyse data, the researcher used the Statistical Package for Social Sciences (SPSS). Data were presented in tables and charts as well as narratives when the quantitative data overlapped to qualitative data. Direct quotations from the respondents were also used to support the story line. The analysis helped in obtaining imperative information on how postgraduate students behaved in the selected universities when seeking for information as well as the sources of information that the participants consulted or valued most. Among other findings, the presented data indicated that information seeking behaviour of the participants may to a large extent be shaped by the information skills of an individual. The results presented here provide the background for the discussion of the findings in the next chapter.

CHAPTER 5 : DISCUSSIONS OF THE FINDINGS

5.1 Introduction

This chapter discusses and interprets data that were presented in the previous chapter to show how the findings contribute to the existing body of knowledge. According to Blaxter, Hughes & Tight (1998:196) interpretation is a process by which a researcher attaches meaning to collected data and findings and compares that meaning to other authors. The main objective of this chapter is to bring the findings into the fold of the existing literature regarding information seeking behaviour of postgraduate students. This chapter discusses the findings in relation to the research questions and the research objectives which are as follows:

- To find out information sources that postgraduate students value most and determine where they find such sources.
- To identify the activities postgraduate students engage in when seeking for information.
- To establish the factors which influence postgraduate students' information seeking behaviour
- To determine methods postgraduate students use to obtain relevant information
- To discover ways that postgraduate students utilize information

5.2 Respondents' Profiles

5.2.1 Gender

Section A of the questionnaire and interview sessions opened with the respondents' demographic backgrounds. This section illustrated that out of 200 respondents, 116 (58 %) were females and 84 (42 %) were males. However the researcher concludes that information seeking behaviour of postgraduate students does not depend on gender. The researcher also noted that male postgraduate students did not show interest in participating in research though it should be noted that the effect of gender on behaviour is not investigated. In a study by Chowdhury et al. (2011) that also investigated information seeking behaviour in an academic environment a similar response rate was recorded whereby out of 668 respondents 51% were females while 49 % were males. In another study on information seeking among postgraduate students by Okello-Obura & Ikoja –Odongo (2010) out of 25 participants 52% were females while 48 % were males. This indicates that male students are not interested in involving themselves or participating in most activities that takes place around them.

5.2.2 Age

Out of 200 respondents 94 (47 %) were in the age bracket 21-30; 69 (34.5 %) were in the age bracket 31-40 and 37 (18.5 %) were in the age bracket 41-50. Regarding age, the findings of the study reveal that those aged between 21-40 years were registered as full-time students and preferred electronic sources of information over print. These findings corroborate statements from some of the respondents such as *"books are too heavy to carry"*. *"With the Internet you access information from one*

place". This age category is also regarded as "Generation Y". The findings from the current study corroborate the findings of Adams (2009) that report that "Generation Y" students enter the university with knowledge of how to use the different technological tools available to them. In general, younger generations have more exposure to electronic screens, computer screens, television, movies and video games (Weiler, 2004:46) than students from previous generations and are accustomed to the use of the internet when finding their information. Most "Generation Y" students belong to online social networks such as Face book and can be assumed to use these networks to find information. In contrast with "Generation Y" students, postgraduate students in the age category of 41-50, who studied on a part-time basis valued or preferred print sources of information over electronic sources of information.

These verbatim statements taken from some of the students support this view, "*with books we are sure of the author and the content*". *We are Born Before Technology (BBT) we don't really know how to use technology*". "*When I am in the library or computer laboratory, I always wait for someone to come and help me with the searches, while with books I can do it myself*". This confirms Niemela- Nyrhinen (2007)'s study on the factors affecting acceptance of mobile content services among mature customers in Finland. Niemela- Nyrhinen (2007)'s findings revealed that older people encountered technology anxiety. His findings were supported by the following quotes "I have avoided technology because it is unfamiliar to me". "I feel apprehensive about using technology". "I have difficulty understanding most technological matters" Technological terminology sounds like confusing jargon to me".

The findings from literature related to the impact of age on attitudes toward ICT usage are mixed. A study of Internet use in an academic library environment by Rosenthal & Spiegelman (1996) at New York state university found out that older librarians were less likely to use the Internet (Rosenthal & Spiegelman, 1996). Spacey, Goulding, & Murray, (2003) reported that younger workers had higher average intention to use the Internet and ease of use scores than their older counterparts. Positive perceptions of one's computer skills might relate to the familiarity younger workers have with ICT since it is used extensively at school, college and university. Hence Swann (2003) observes, "Information Communications Technology (ICT) is so recent that most people over the age of 28 have not had the benefit of computer training in their own schooling". Dyck & Smither (1994) in their study of age differences in computer anxiety: the role of computer experiences, gender and education at Cornell University found a significant relationship between age and levels of computer anxiety.

In another study by Czaja et al. (2006) that examined factors predicting the use of technology in the United States it was noted that older and middle aged adults had lower self-efficacy with respect to use of computers and higher computer anxiety than did younger adults. Maurer (2001) in his study of career relevant learning and development, workers age and belief about self-efficiency for development at Georgia Institute of technology, school of psychology, discovered that older participants reported lower self-efficacy for career-related training, revealing age related declines for specific efficacies. Conversely, in the study of Teo (2008) on pre service teachers attitudes towards computer use in Singapore it was reported that

pre-service teacher's attitudes toward computer usage were age-related. This researcher concludes that although some studies on age and computer anxiety were conducted long ago, it takes time for older generation to learn new things especially technology and postgraduate students at UFH and RU are not an exception. This is stated in view of the fact that most respondents are primary school teachers and did not use technology at their workplaces and also most postgraduate students were raised in rural areas at a time when technology was not popular.

5.3 Valued and or preferred information sources

People consider source preferences in the early phase of the information seeking process, while relevance judgments are made in the later phase of that process, often in conjunction with the process of information use. Julien & Michels (2004) identified two major criteria of source selection in ELIS contexts, that is, ease and speed of use, and value of information. Fisher et al. (2005) and Fisher, Landry & Naumer (2006) drew similar conclusions in a study on information grounds among college students both undergraduate and postgraduate students at the University of Washington, USA. The participants were asked to explain the reasons for the source or information seeking habit and they identified preference criteria such as "gives reliable information/trustworthy", "quick to contact/access/convenient", "inexpensive", "easy to use or communicate with", and "knows me and understands my needs."

In the current study, the researcher revealed that the majority of respondents 91 (45.5 %) preferred Internet in their early phase of information seeking. This revelation is supported by research that was conducted at the Dublin City University Ireland by Kerins, Madden & Fulton (2004). The scholars found out that the majority

of the respondents reported that the Internet was the first source of information they used for a project. Similarly a study of incoming first-year undergraduate students in Quebec Mittermeyer (2003) also found that many respondents used the Internet extensively for finding course-related information. Khathi (2009) in her study of information seeking behaviour of students at University of Western Cape (UWC) also discovered that, the first source that the students approached was the Internet, which may include Google. In another study on information seeking behaviour of postgraduate students at the University of Botswana Ajiboye & Tella (2006) also revealed that Internet was the most consulted source.

A study by Niemand (2010) on information seeking habits of information and knowledge management students at the University of Johannesburg found that students utilized the Internet to gain access to the World Wide Web to perform various tasks. Forty per cent of the respondents indicated that the Internet was utilised to gain access to information relating to course work, homework and/or research. Twenty per cent of the respondents indicated that the Internet was used to gain access to electronic mail. A study conducted by Clink, Crawford & de Vicente (2004) investigated the use and awareness of electronic information services by students at Glasgow Caledonian and also found out 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. Another study by Liu & Ye Yang (2004) on factors influencing distance education graduate students use of information sources: A user study that was conducted at Texas A & M University (TAMU) at college station found that when the respondents were asked to select one of the listed sources as their primary information source for their distance education,

coursework and other academic activities the highest percentage of them (49.7 percent) chose the Internet as their primary information source. A study by Saiti & Prokopiadou (2008) on postgraduate student and learning environments: user's perceptions regarding the choice of information sources at the University of Athens, Greece also revealed that when postgraduate students were questioned as to whether they would use a library or the internet as a primary information source, the vast majority (77.3%) chose the internet. The remaining respondents (22.7%) chose the library. Haglund & Olsson (2008) performed an observational study at three universities in Stockholm Sweden in order to understand the information needs of young university researchers.

The results of their study showed that researchers used Google for everything and they had confidence that they could manage on their own. The students relied heavily on immediate access to electronic information. Another study of Doctoral students' information behaviour: an exploratory study at the University of Parma (Italy) by Vessoni (2008) found that nearly all the doctoral students reported that the internet was their first and favourite point of access to any type of information, both for their everyday life and for their research work and Google appeared to be the starting point for information seeking in most situations.

Even if many students stated that they were familiar with databases, catalogues and online journals, almost all named Google as a crucial information tool. In all the above studies, internet was described as an immense and indistinct space where information is quickly available to everybody, but students appeared to be aware of

the difference between free and fee resources, referred and unreferred documents and in general between scientific and popular information.

5.4 Access to electronic sources of information

Generally students prefer to access information sources at a convenient, less charge and user friendly places where they can get help whenever they need it. Marchionini (1989:54) suggested that studies of where people look for information highlight the interaction between personal factors, such as experience and knowledge with their ability to fulfil their information needs. The findings from this study reveal that 90.5 % of the respondents accessed electronic sources of information in the university library compared to other options. This is corroborated by some of the direct quotes taken from some of the respondents such as “We are Born Before Technology (BBT) and we prefer university library because we wait for librarians or anyone to come and help us with searches”, “Internet cafes are too expensive”.

Another finding was that the two universities had separate postgraduate students' computer laboratories but there were no qualified research librarians based in the computer laboratories to help postgraduate students with information search. Another issue is that not all postgraduate students' residencies had free internet access (wireless connection) and the library databases were password protected. This made it difficult for students to access information from other places other than the university library. The outcomes of this research are corroborated by research conducted by Soyizwapi's (2005: 68) that found out 53.1% of the students viewed the password requirement for the use of some of the databases as a problem while

46.9 % students were concerned about limited off-campus access to internet. A similar study by Jagarnath (2004:29) reported students viewed as problematic the fact that online databases were password-controlled, as this limited access to only one or two users at a time. Some were IP (Internet Protocol) controlled, meaning students could only access them from within the campus and not from home or anywhere outside the institution.

5.5 Views about electronic sources of information

In this study, postgraduate students' views on electronic sources of information vary. Given the options ranging from strongly disagree to strongly agree on the five-point Likert scale, 41% of the respondents agreed that electronic sources of information made it easy to access information, though they emphasised that it was easy to search information if one knew where to start or when one is information and computer literate. They also reported that it takes more time to gather information from electronic sources of information when the Internet is slow. Mawindo (2005: 103) also found that accessing electronic resources was a major problem among the users. Forty-eight percent (48%) of students responded in her study indicated that major problems included: limited access to computer terminals (95.8%); slowness of the Internet given that the server was always down (77.1%) lack of computer skills to effectively search and retrieve information while (39.6%) reported that staff were not always available to help.

5.6 Frequency of use of different determinants

The current study established that students consult information sources that they can utilise and feel comfortable with more often. Spink, Ozmutlu, & Ozmutlu (2002)

concur with this contention and add that the practice of seeking information within the ever changing technological environment may be referred to as, 'multitasking information behaviour'. The findings of this study reveal that the majority of respondents (52.5%) searched the Internet and browsed the library shelves on a daily basis followed by OPAC search where it was found that (47 %) searched the Open Public Access Library Catalogue (OPAC) daily, followed by academic scholarly search engines like Google scholar where 25 % indicated that they used it daily. Only 8.5% of the respondents reported that they searched the library databases daily and 19 % reported consulting a colleague daily whereas 7.5% reported consulting a librarian daily and (15%) reported consulting email alerts daily. Lastly 15.5% reported consulting the lecturer's recommended readings daily. A similar study by Niemand (2010) at the University of Johannesburg found that the near instantaneous nature of the environment frequented by digital natives has created a situation where these individuals have come to expect a very high level of responsiveness in the use of online services as part of their day-to-day activities within the hyper connected environment. In Niemand (2010)'s study 40% of the respondents reported that they used the Internet on a daily basis.

Another study on the factors that influence Information seeking behaviour of Greek graduate students at the Aristotle University of Thessaloniki (AUTH) by Korobili, Malliari & Zapounidou (2011) revealed that with regard to specific activities, "searching search engines" was found to be the most common method used by graduate students followed by "consulting reference bibliography by a professor" and "use of personal printed sources." It seems that searching databases, consulting a librarian and using personalized/alerting services were very seldom used, perhaps

once or twice in six months on average. Another study by Ge (2010) on information seeking behaviour in the digital age: A multidisciplinary study of academic researchers in the social sciences and humanities at Tennessee State University (TSU) found that among the eight types of electronic information resources; the Web was used by the majority (96.7%) participants for research and information-gathering purposes.

5.7 Factors that influence choice of information source/s

Students identify the articles they read through different methods. Some articles might be recommended by friends or colleagues. A researcher might identify an article through searching a general database, such as Science direct or a subject-specific database like Emerald. An article might also be identified through email alerts a user receives or through browsing e-journals websites. Following the references in other resources might also result in finding more articles. Conducting pearl growing search strategy may also help users to retrieve relevant and related articles to the ones they already have. Students' choices of information source/s were determined by several factors and time and conveniences were some of those factors. In today's information age, evidence suggests that information tends to overwhelm people and users of information systems want to find information quickly and conveniently.

Convenience is a situational criterion in peoples' choices and actions during all stages of the information-seeking process. (Connaway, Dickey & Radford, 2011). The concept of convenience can include people's choice of an information source, their satisfaction with the source and its ease of use, and their time horizon in

information seeking. This study revealed that 89 % of the respondents' choice of information source was determined by lecturer/ supervisor's recommended reading list, followed by 81.5 % determined by previous experience and 45.5 % were influenced by fellow students suggestions, while 25.5 % were guided by librarians' recommendations.

The researcher's impression is that, postgraduate students' choices of information source were largely influenced by convenience. From the findings of this study it seems like postgraduate students found their lecturers and supervisors to be more convenient than the librarians and or searching information by themselves. Correspondingly Kakai, Ikoja- Odongo and Kigongo-Bukenya (2004) in their study observed that most students concentrated on using particular materials recommended by either their lecturers or colleagues who have used them before, rather than searching to find the most appropriate document to use. Another study by Jagers, Tallman & Waddell (1991) that investigated the library services to distance education students of Northern Arizona University found that among all information sources available in their library, more students used the instructor-provided materials than any other source. This study also revealed that even at this information age where massive amounts of information are available, students still rely heavily on lecturers and supervisors recommended materials rather than discovering new information sources by themselves.

5.8 Keeping up to date

Postgraduate students rely on different methods for keeping abreast or up to date with new developments in their respectful fields of study. Some may rely on the word

of mouth and what they heard from their friends and colleagues. Some rely on meetings held within their departments or research groups and some attend conferences for that purpose. (Jamali & Nicholas, 2010) Besides interpersonal communication methods, there are also print and electronic resources which postgraduate students use. Using email alerts, journals, conducting regular or semi-regular searches in databases such as browsing e-resource collections, library displays are other methods that can be used for keeping up-to-date. The current study revealed that (47%) of the postgraduate students used the internet for keeping abreast with the development in their fields of study while only 1.0 % relied on the library display and Current Awareness Services (CAS). Although other information sources were identified, respondents of this study reported to rely mostly on the Internet for keeping up to date with trend in their fields.

5.9 Search techniques used by postgraduate students

Search techniques are ways of using search terms in finding required information from online sources. Search techniques play an important role in web information retrieval. To retrieve relevant information, the user should poses search skills that include being familiar with search strategies and apply relevant search techniques. The importance of search preparation and the application of search techniques helps the user to have successful and focused searches so as to save time and effort while undertaking online information searches. This study discovered that keywords were the most popular techniques used by postgraduate students at RU and UFH. Boolean operators; truncation and proximity operators were seldom used for retrieving relevant information by postgraduate students.

This demonstrates a low to medium level of information seeking skills. Postgraduate students in the study did not seem to be well acquainted with information retrieval activities or information source evaluation techniques. They probably may have not attended any of the information literacy programs delivered by their institutions libraries which aim at training the attendees in information retrieval techniques. A similar study by Korobili, Malliari & Zapounidou (2011) that focuses on postgraduate students' information seeking behaviour at the Aristotle University of Thessaloniki also found that the majority of respondents (66.4 %) used more than one keyword very often to retrieve relevant information. Boolean operators, truncation and proximity operators were seldom used for retrieving relevant information. This is consistent with the findings of Kerin, Malden & Fulton (2004) Makani & WooShue (2006) and Vezzosi (2009) (as cited in Korobili, Malliari & Zapounidou, 2011) whereby the students in this study did not invest time and effort in using "complex tools" in their research process. By complex tools this researcher is referring to search techniques such as truncation, wildcard, proximity among others that requires a person who is trained and is information literate to apply these tools or techniques.

5.10 Modifying search strategies and techniques

With rapid developments of internet technologies and Web explosion, searching for useful information from huge amounts of web pages can be an extremely difficult task. Information that is available and accessible online is massive. To make maximum use of this information and to avoid frustration while looking for relevant information, the user should possess search skills that include familiarity with search techniques and the ability to modify search strategies and techniques. When one

searches for an item, he/ she may have a lot of results to look at. One can modify or limit the search to narrow the list of results.

In this study, the researcher noted that more than half (51.5%) of the respondents sometimes modified their search strategies and only 18.5% of the respondents said they always modified their search strategies while 15 % reported that they rarely modified their search strategies. A similar study by Korobili, Malliari and Zapounidou (2011) also found that a significant percentage of respondents in their study (42.3%) had never or very seldom modified the initial statement if the results were not satisfactory. For modification of initial search more than half of the respondents in this study (51.5 %) chose different keywords. This researcher concludes that the postgraduate students who participated in this study did not attend any of the information literacy programs delivered by their institution libraries. The information literacy programmes mainly aim at training attendees in information retrieval techniques so as to find relevant information. The other reason may be that the time allocated was not adequate, in cases where they attended information literacy programs.

5.11 Evaluating the quality of an information source

Even though there is evidence that RU & UFH postgraduate students information literacy skills are of low to medium level, most respondents' criteria for evaluating the relevance of the records obtained were the title of the source the majority (40 %) always consider the title of the source, followed by an abstract and reference list to verify the authenticity of the information source.

5.12 The feeling when a search did not produce relevant results

Close to half of the respondents (49 %) strongly agreed that they felt frustrated when their search did not produce relevant results, while 44.5 % of respondents reported that they felt confused and 45% respondents said they felt disappointed. The researcher would like to point out that it is clear that, postgraduate student at RU and UFH need more information literacy trainings in order to be able to apply relevant search strategies and techniques to retrieve relevant information and avoid frustration. Frustration is one of the common feelings present when students do not know how to search. Adams (2009) opines that, this might result in submitting ghastly or incomplete assignments because students did not know how to search or how to differentiate between useful and not so useful information.

5.13 Chapter Summary

In this chapter, discussions of the findings of the study were presented. Findings from the study showed that postgraduate students in the selected institutions possess low to medium information literacy skills. While technology makes it easy to retrieve information and the two universities have got a massive amount of information in digital format, the researcher would like to point out that part-time postgraduate students who participated in the study were of the older generation and showed some signs of technophobia during interviews. They also referred to themselves as the “Born Before Technology” (BBT) generation. The findings illustrated that the two universities do not have enough subjects and research librarians to train postgraduate students in information literacy. During interview students from the University of Fort Hare mentioned that there was only one subject

librarian allocated for their faculties who could not attend to all their queries. As a result, the students reported that they did not consult the librarians for help when seeking information because they did not get much help. The findings of this present study were in overall consistent with previous studies.

CHAPTER 6 : CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter provides a summary, conclusions, recommendations and directions for further research. The study set out to investigate the information seeking behaviour of postgraduate students at two universities in Eastern Cape, namely; the University of Fort Hare and Rhodes University. A summary for each objective is provided, in each case highlighting various observations and important findings. The objectives of the study were:

- To find out information sources that postgraduate students value most and identify where they find such sources.
- To determine the kind of activities postgraduate students engage in when seeking information.
- To establish factors which influence postgraduate students' information seeking behaviour
- To determine methods that postgraduate students use to satisfy their information needs
-

6.2 Summary of the findings

This section summarises the findings with respect to the objectives of the study. The findings suggest the following answers to the four main objectives which were reformulated into four research questions which guided this study

6.2.1 Information sources that postgraduate students value most and where they find them

The study found out that postgraduate students mostly valued the internet as a reliable source of information. Google as a search engine was regarded by most postgraduate students as a reliable navigation tool. The study also revealed that older students especially those who were registered as part-time students still valued print sources of information because they were not technology savvy, though their institutions provide computers and computer laboratories for them. The reasons for this kind of information seeking behaviour may be that the older postgraduate students were not formally introduced to technologies at an early age. Another possible explanation for this information seeking behaviour is that currently there are no formal postgraduate information and computer literacy programmes in action for postgraduate students in these two universities.

The researcher had the impression that university libraries do not offer computer literacy programmes to postgraduate students because they assume that all postgraduate students have basic computer skills. It may also be assumed that all postgraduate students know where they may find information resources without necessarily being helped by library staff. The university library was the preferred place where postgraduate students accessed the Internet though the universities offer postgraduate students computer laboratories and there is wireless connectivity in some of the students' residences inside the universities.

6.2.2 Activities postgraduate students engage in when seeking information.

The researcher established that postgraduate students spent most of their time surfing the Internet on a daily and weekly basis to gather information for academic use even though their institutions libraries spent more money on subscribing to electronic sources of information and purchasing print sources. The reason for this information seeking behaviour may be that postgraduate students were not aware of those sources of information that their institution libraries has, or their libraries did not purchase or subscribe to the sources of information in their discipline. Postgraduate students in the department of Theology reported that the library did not subscribe to most databases in their field. As stated by Talja et al. (2007), the availability of different types of resources in the field of study can also have an impact on the information seeking behaviour of scholars in a field of study. Findings of this study concur with Talja et al. (2007) point of view. This implies that these libraries' needs analysis were not effective.

Needs Analysis is the process of identifying and evaluating needs in a community or other defined population of people. In this study the population of people is postgraduate students. The identification of need is a process of describing the "problems" of a target population and possible solutions to these problems. A need has been described as a gap "what is" and "what should be" (Witkin & Altschuld, 1995). The libraries should fill in those gaps by providing required sources of information for their users but for the libraries to do so, they must identify the needs first.

6.2.3 Factors that influence postgraduate students' information seeking behaviour

Findings from the study indicated that postgraduate students' choices of information source were determined by lecturer/ supervisor recommended reading lists, followed by previous experience. The researcher observed that postgraduate students' choice of information source was influenced by convenience. If they have been using a source of information during their undergraduate study they continued using the same source throughout their postgraduate studies. It is the observation of this researcher that postgraduate students did not consider the fact that at postgraduate level they had to locate and manage significantly more sources of information than undergraduate students have to.

Ironically as stated by Benson (1995); Simpson (1998) one of the main objectives of graduate education is to teach students to understand the scholarly body of knowledge in their respective disciplines on a deeper level and prepare them to be independent researchers. As a result research expectations should be much higher at postgraduate level than at the undergraduate level. Postgraduate students must be able to find information beyond their textbooks and course reserves, so they must have more understanding about publishing cycles and be knowledgeable in how information is generated and organized from a variety of sources. Postgraduate students in this study did not possess skills to find information independently and beyond their course outlines.

6.2.4 Methods that postgraduate students use to obtain relevant information

In this study, it was established that postgraduate students sometimes modified their search strategies to obtain relevant information or results and that after they modified their strategies; they chose different keywords to try and find relevant results. Other search techniques like truncation, proximity and Boolean search strategies were seldom used. The researcher concluded that the postgraduate students who participated in this study may not have attended any of the information literacy programs delivered by their institutions libraries. Such programmes aimed at training the attendees in information retrieval techniques and search strategies so as to find relevant information. The other reason may be that if they attended information literacy programs, the time allocated was not enough or they may have taught themselves information literacy through online tutorials as these two universities libraries offer information literacy through online tutorials.

6.3 Conceptual framework as allied to the findings

The researcher noted that not all participants in this study engaged in all the stages of ISP as identified by Kuhlthau (1991, 1993). However the respondents in the study felt frustrated when their searches did not return relevant results. The stages of ISP do not focus only on the information seeking tasks but also on how the person feels when busy conducting the searches. This includes emotions, thoughts, expressions and the mood the user is in when searching for information. Librarians should make postgraduate students aware when they approach them as the last resort, that

uncertainty is a common experience in the search process. This can help them to calm down when their searches do not produce relevant results.

6.4 Conclusions

The study aimed at investigating the information seeking behaviour of postgraduate students at the University of Fort Hare and Rhodes University. The purpose of the study was to establish how postgraduate students go about seeking information for academic purposes, the information sources they valued, the techniques they used to retrieve information and the factors that contributed to their information seeking behaviour. It was clear from the findings that although postgraduate students benefited from the ease of access to information offered by electronic sources, many of them demonstrated low to medium level information literacy or information searching skills. They depended mainly on internet search engines like Google rather than academic databases that libraries at their institutions offered. The fact that many postgraduate students used keywords to retrieve relevant information was evidence of information illiteracy.

Nonetheless many postgraduate students were confident that they could independently search information as they knew how to. Although information seeking behaviour and age were not investigated in this study, it was noted that the younger generation with age ranges from 21-30 years preferred internet or electronic sources rather than print sources of information. The older generation with ages ranges from 41-50 years in contrast were uncomfortable with computer and other technologies. They therefore opted for print sources of information, as they reported that they were comfortable with them and can utilise these sources without any help. The fact that many postgraduate students at random browsed library shelves when

looking for print sources of information rather than starting from the OPAC is evidence that library orientations in these universities libraries were not effective. OPAC is a navigator in any library to help users to locate physical library materials on the shelf.

Another finding is that there were no adequate numbers of subject or faculty librarians specifically designated to serve certain subject clusters or certain faculties. The respondents indicated that they did not consult librarians most of the times because as they did not get any help from them even when they consulted. Postgraduate students at Rhodes University indicated they were not interested in consulting librarians for help when seeking for information. However some students indicated that they consulted librarians only when they were looking for outdated sources of information for the purpose of historical research. They also occasionally consulted them as a last resort after failing to find any relevant information after long searches.

6.5. Recommendations

Based on the findings and conclusions of the study, the researcher makes the following recommendations

- ❖ Computer literacy programmes

The two universities should take into consideration that postgraduate students join the universities from diverse backgrounds some postgraduate students multitask as they carry out work and family responsibilities in addition to their education responsibilities and some have been away from academia from a long time. As a

result they need more support and training on how to use the library in order to successfully search for information. These universities should initiate optional computer literacy programmes for postgraduate students who are interested since the study also established that most mature students showed signs of technophobia and they also reported that they are the “Born Before Technology” generation. The universities should not assume that all postgraduate students are computer literate and even if they are computer literate, they still need advanced training as technology changes constantly. Postgraduate students should be encouraged to use blackboard and to learn through other teaching and learning technologies. Part time postgraduate students should be given extra attention according to their backgrounds.

❖ Orientations

Orientations for postgraduate students may be done throughout the year, especially at RU because postgraduate enrolment is done throughout the year. Orientation programmes are designed to help students adjust to university life and may ultimately improve retention rates, graduation rates and good grade points. Rhoades & Hartsell (2008) also opine that orientations may create students’ perceptions of academic libraries and librarians. Students’ orientation provides librarians with an ideal opportunity to be more innovative and proactive in creating first impressions of library resources and services. When librarians become more involved in orientation programs, positive interaction with students may improve. A number of studies have shown that the success of such programmes sharpens the students’ information skills as a result they perform well in their studies. For instance, Busby, Gammel & Jeffcoat (2002) reports, that “at Stephen F. Austin State University, students who

attended orientations were evidenced to be familiar with university resources like the library and how to utilise it. Effective orientation programmes are one way that students adjust to university life and the earlier students learn about the library, the sooner they begin to utilise it and its services to improve their research skills (Rhoades & Hartsell, 2008). Tenofsky (2007) is of the view that “librarians can make a difference in the students’ lives. This collaboration will benefit not only the library and the students, but also the institutions with its retention efforts”. This study also established that postgraduate students in this study reported that they browsed the library shelves before or without consulting the OPAC or University catalogue. Library orientations can help in this regard by showing the students the starting point when seeking for information in the library and also teach them that the call numbers on the spine of physical library materials may change due to reclassification, so users must always check the OPAC to locate the material in the library.

❖ Mentorship programmes

The study recommends mentorship programmes for postgraduate students. A mentor is a person who give others support and advice, usually the person who has successfully gone through what the mentees are going through. For example post doctoral students or lecturers can help to mentor postgraduate students and give them moral, academic support and courage to finish their postgraduate studies

❖ Extended information literacy programmes

The study also recommends the introduction of extended information literacy programmes that will reach to all postgraduate students. At the time of this study, the two universities offered information literacy tutorials online. Information literacy is more effective when it is taught face to face; even more effective in a classroom set

up. The librarians should first give instructions on information literacy before introducing the online version. This researcher recommends that universities in collaboration with their libraries should offer a compulsory and accredited information literacy module to all students and an advanced module at postgraduate level regardless of the structure of the postgraduate academic programme – by coursework or by research. Information literacy is more than teaching students how to use the library but also how to apply different search strategies and search techniques in order to retrieve relevant results. An information literate person is a lifelong learner who is able to find, evaluate and use information effectively to think critically and make informed decisions. (ALA, 1999, 2000)

❖ Research Librarians

The study established that students preferred or found the university library convenience to access electronic sources rather than computer laboratories and other places because they could ask for help from librarians if they were stuck when looking for information. The libraries for these universities should employ qualified research librarians. The libraries should spend time skilling up their staff in order for them to serve the present academic generation and support research in the institutions of higher learning. The librarian of the twenty first century must be a researcher. Choi & Rasmussen (2006) are on the view that the future of academic libraries will be digital one where the successful librarian will be flexible, adaptable and multi-skilled in order to survive in an environment of constant and rapid change. Research librarian's duties should be to make sure that users are aware of information resources that the library offers. These librarians should use and offer their technological skills and knowledge to meet the specific research needs of

individuals. They should also be quite adept at helping people to retrieve information from all sources of information and to keep up with the ever changing information technology as well as maintaining library databases.

❖ Consultation

Libraries as university community service providers should apply Batho pele principles of service delivery and one of Batho pele principles according to the South African bill of rights is consultation. Thus the researcher recommends that the academic libraries of RU and UFH should also apply Batho pele principles as indicated by the constitution of South Africa.

The librarians should consult and approach academics and ask for their research profiles as well as for those of their postgraduate students and course outlines so as to help gather relevant information from vendors and search the already available information to support research, by so doing they will purchase and subscribe to databases that are needed by the users. This will also serve dormant and unexpressed information needs.

❖ Library marketing

RU and UFH libraries should design library marketing programmes which include the dynamic marketing plans and active library marketing teams. These libraries should use all available communication channels including community radio stations like Forte fm and Fort Hare news among others to market their services with the aim of reaching the entire UFH community. Libraries should also use all the national events

like national library week, national book day, etc. to market their services. Proper library marketing improves planning, organizing, disseminating and controlling of information services on a proactive and user oriented way to ensure users satisfaction while achieving the objectives of the institution.

6.6 Areas for further study

❖ Further research

Further research could broaden the criteria of this study and explore how postgraduate students at all SEALS libraries behave in their activities to meet their information needs for academic purposes. The study population in later studies could also be widened to get clearer indications of information seeking behaviour of postgraduate students in all faculties.

❖ Case study research

Since this study used survey research design and the survey surface the situation and again with reference to the findings of the study, the researcher also recommends case study research at any of the SEALS libraries where information should be drawn in detail about how postgraduate students behave in their activities to meet their information needs so as to get a clear picture of postgraduate students' information seeking behaviour by direct observation and in-depth interviews.

6.7. Final Conclusion

The study established that postgraduate students in the faculties of HSS and Education at Rhodes University and University of Fort Hare had low information literacy skills. Academics and librarians should work together to ensure that postgraduate students are catered for and also consider their diverse backgrounds.

It was also demonstrated that age plays a major role in information seeking behaviour especially where technology is concerned. Older students should be given attention when comes to technologies, information seeking and information literacy skills. These university libraries should evaluate their information literacy programs in order to determine whether they achieve their objectives and visions. The study also recommended a case study research on information literacy programs of these universities.

The researcher also recommended that libraries should create research librarian positions and hire more subject or faculty librarians. Libraries should also evaluate their marketing strategies and ensure that they reach all students and all students should be aware of the services offered. Students should be made aware that libraries are institutions' core information centres and that librarians are there to help them to use the library and to retrieve information from all sources of information. Thus librarians must not be used as a last resort but as a starting point. By so doing the librarians will identify gaps in information seeking skills of students and train them to be independent researchers.

References

Abels, E. 2004. Information seekers perspectives of libraries and librarians. *Advances in Librarianship*, 28: 151-170.

Adams, L.E. 2009. Information seeking behaviour of Generation Y students at the Stellenbosch University Library and Information Services. Magister Bibliothecologiae Thesis, Department of Library and Information Science, Cape Town: University of Western Cape.

Agar, M.H., MacDonald, J., 1995. Focus groups and ethnography, *Hum. Organ.* 54: 78–86.

Agosto, D.E. 2002. A model of young people's decision- making using the web. *Library and Information Science Research*, 24 (4): 311-341

Ajiboye, J.O & Tella, A. (2006). University students' information seeking behaviour: implications for quality in higher education in Africa. *Turkish online journal of Educational technology*, 6 (1)

American Psychological Association. 1963-1969. *Reports of the project on specific information exchange in psychology*. Washington, DC: American Psychological Association.

American Library Association (ALA). 1989. Presidential Committee on Information Literacy: final report . [Online].

<http://www.ala.org/ala/mgrps/divs/acrl/publications/whitepapers/presidential.cfm>.

(Accessed 23/01/11).

American Library Association (ALA). 2000. Information literacy competency standard for higher education. [Online].

<http://www.ala.org/ala.org/ala/mgrps/divs/acril/standards/standards.pdf>. (Accessed 23/01/11).

Amiel, T. & Sargent, S. L. 2004. Individual differences in Internet usage motives. *Computers in Human Behaviour*, 20 (6):711-726

Appleton, M. & Orr, D. 2000. "Meeting the needs of distance education students" Chapter 2 in Bruce, C and Candy, P (Eds) *Information literacy around the world*, Centre for Information Studies, Wagga Wagga.

Arrow, K., Solow, R., Learner, E., Portney, P., Rader, R., Schuman, H., 1993. Report of the NOAA panel on contingent valuation. *Federal Register*, 58: 4601–4614.

Aula, A. & Nordhausen, K. 2006. Modelling successful performance in Web searching. *Journal of the American Society for Information Science and Technology*, 57: 1678-1693

Aula, A. 2005. Studying user strategies and characteristics for developing web search interfaces. *In Dissertation in Interactive Technology*, 3. Department of Computer Science. Tampere, Finland: University of Tampere. Retrieved 19/04/11 from <http://acta.uta.fi/pd/951-44-6488-5.pdf>

Aula, A., Jhaveri, N. & Kaki, M. 2005. Information search and re-access strategies of experienced web user. Paper presented at the 14th International World Wide Web Conference (WWW 2005), Chiba, Japan, May 10-14, 2005. Retrieved 1/02/2011, from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.76.7424&repZrep1&typeZpdf>

Avdic, A. & Eklund, A. 2010. Searching reference databases: What students experience and what teachers believe that students experience. *Journal of Librarianship and Information Science*, 42 (4): 224-235

Ayersman, D.J. 1996. Effects of computer instruction, learning style, gender and experience on computer anxiety. *Computer in the school*, 12 (4): 15-30

Barbie, E. 2007. *The practice of Social Research*, 11th ed., Belmont California: Thompson Wadsworth.

Barbie, E. 2010. *The Practice of Social Research*, Belmont California: Wadsworth, Cengage Learning

Banwell, L. & Coulson, L. 2004. Users and user steed methodology: The jubilee project. *Information Research*, 9 (2). Retrieved 20/01/11, from <http://InformationR.net/ir/9-2/paper167.html>

Banwell, L. & Gannon-Leary, P. 2000. Jubilee monitoring user information behaviour in the electronic age. *OCLC Systems and Services*, 16:189-193

Barrett, A. 2005. The information-seeking habits of graduate student research in the humanities. *Journal of Academic Librarianship*, 31: 324-331

Barry, C. 1997. Information Skills for an Electronic World: Training doctoral research students. *Journal of Information Science*, 23(3): 225-238.

Bates, M.J. 1996. Learning about the information seeking of interdisciplinary scholars and students. *Library Trends*, 45 (2): 155-164

Bath University. 1979. The structure of social science literature as shown by citations. Bath: Bath University. [Design of information systems in the social sciences. Research reports. Series A; 3]

Bath University. 1980. Towards the improvement of social science information systems: Overview of research carried out 1971-1975. Bath: Bath University. [Design of information systems in the social sciences. Research reports. Series A; 1]

Borgman, C.L. Smart, L.J. Millwood, K. A. Finley, J.R. Champeny, L. Gilliland, A.J. & Leazer, G.H. 2005. Comparing Faculty Information seeking in Teaching and Research: Implications for the Design of Digital Libraries. *Journal of the American Society for Information Science & Technology*, 56 (6), 636-656. Available at

http://www.sandia.gov/itg/newsletter/de00article_information_foragers.html

(Accessed 14/06/12)

Bellard, E.M. 2005. Information literacy needs of non-traditional graduate students in social work. *Research Strategies*, 20 (4):494-505

Belkin, N.J; Oddy, R. & Brooks, H. 1982. Information retrieval: background theory. *Journal of Documentation*, 38 (2): 61-71

Belkin, N.J. 2005. Anomalous state of knowledge. In K.E. Fisher, S. Erdelez & E. F. McKechnie (Eds.) *Theories of Information Behaviour: A Researchers' Guide*, pp. 44-48. Medford: Information Today

Benson, L.D. 1995a. Scholarly research and reference service in the automated environment. *Reference Librarian*, 48:57-69

Benson, L.D. 1995b. Scholarly research and reference service in the automated environment. *Reference Librarian*, 48: 57-69

Benshoff, J.M. 1993. *Educational opportunities, developmental challenges: understanding nontraditional college students*. North Carolina: Counseling and student services clearing house

Berghel, H. 2000. Wold Wide Web. In Ralston, E.D. Reily and Hemmendinger, D. (Eds). *Encyclopedia of Computer Science*. 4th ed. 1867.74. London: Nature Publishing Group. 3954.92940.834.271 100.0 879 Internet Databases Online library catalog Total Valid Missing Blank Total Frequency Valid Percent

Biglan, A. 1973a. The characteristics of subject matter in different academic areas. *Journal of Applied Psychology*, 57: 195-203

Biglan, A. 1973b. Relationships between subject matter characteristics and the structure and output of university departments. *Journal of Applied Psychology*, 57:204-213

Bilal, D. 2000. Children's use of the Yahoo!igans Web search engine: Cognitive, physical and affective behaviours on fact-based search tasks. *Journal of the American Society for Information Science*, 5 (7): 646-665

Blandin, J & Brown, W. Uncertainty and Management's search for information. *IEEE Transactions of Engineering Management*, 24:114-119

Blandy, S.G & Lubutti, P.O. 1995. As the cursor blinks: Electronic scholarship and undergraduates in the library. *Library Trends* 44: 279-305

Blaxter, L. H. & Tight, M. 1998. *How to research*. 3rd ed. Buckingham: Open University Press

Bless, C., Higson-Smith, C. & Kagee, A. 2006. *Fundamentals of Social Research Methods- An African Perspective*, 4th ed. Cape Town : Juta.

Blickle, G. 1996. Personality traits, learning strategies and performance. *European Journal of Personality*, 10 (5): 337-352

Blom, A. 1983. The task performance of the scientists and how it affects an information service. *Mousaion*. 3 (1):3-26.

Branch, J.L. 2003. Instructional intervention is the key: supporting adolescent Information seeking. *School Libraries Worldwide*, 9(2): 47-61.

Brewer, J & Hunter, A. 1989 *Multimethod research: A synthesis of styles*. Newbury Park, CA: Sage

Branch, J.L. 2003. Nontraditional undergraduates at home, work and school: an examination of information seeking behaviours and the impact of information literacy instruction. *Research Strategies*, 19: 3-15.

British Library & JISC. 2008. *Information behaviour of the researcher of the future*.

[Online]. Available: <http://www.bl.uk/news/pdf/googlegen.pdf>. Accessed on 1 July 2011.

Brockman, W. S., Neumann, L., Palmer, C. L., & Tidline, T. J. (2001). Scholarly work in the humanities and the evolving information environment. Washington, DC: Digital Library Federation, Council on Library and Information Resources.

Brophy, J & Bawden, D. 2005. Is Google enough: comparison of an internet search engine with academic library resources. *Aslib Proceedings*, 57(6): 498-512.

Brosnan, M.J. 1998a. The impact of psychological gender, gender-related perceptions, significant others and the introducer of technology upon computer anxiety in students. *Journal of Education Computing Research*, 18: 63-78.

Brown, C. M. 1999. Information literacy of physical science graduate students in the information age. *College and Research Libraries*, 60(5), 426–438.

Brown, S.P., Ganesan, S. & Challagalla, G. 2001. Self –efficacy as a moderator of information seeking effectiveness. *Journal of Applied Psychology*, 86 (5):1043-1051.

Brunton, C. 2007. The effects of library user-education programmes on the information-seeking behaviour of Brisbane College of Theology Students. *Journal of Religious & Theological information*, 7 (2): 55-74.

Bundy, A .2004. One essential direction: Information literacy, Information technology fluency. *Journal of e Literacy* 1 (1):330-370.

Burns, N. & Grove, S.K. 2003. *Understanding nursing research*. 3rd ed. Philadelphia: W.B Saunders

Busby, R.R., Gammel, H.L. & Jeffcoat, N.K. 2002. Grades, graduate and orientation: A longitudinal study of how new programs relate to grade point averages and graduation. *Journal of College Orientation and Transition*, 10 (1): 45-50

Busha, C.H. and Harter, S.P. 1980. *Research methods in librarianship: techniques and interpretation*, London: Academic Press

Bystrom, K. & Jarvelin, K. 1995. Task complexity affects information seeking and use. *Information Processing Management*, 31 (2):191-213

Bystrom, K. 1999. *Task complexity, information types and information sources. Examination of relationships*. Tampere, Finland: University of Tampere, PhD thesis, Department of Information Studies. Acta Universitatis Tampensis

Callinan, J. 2005. Information seeking behaviour of undergraduate biology students: a comparative analysis of first year and final year students in University College Dublin. *Library review* 54(2): 86-99.

Callinan, J.E. 2005. Information seeking behaviour of undergraduate biology students. *Library Review*, 54: 86-99

Carson, R. T., Hanemann, W. M., Kopp, R. J., Krosnick, A., Mitchell, R. C., Presser, S., Ruud, P. A. & Smith, V. K. 1994. *Prospective interim lost use value due to DDT and PCB contamination in the southern California Bight*. La Jolla, California: Natural Resource Damage Assessment, Inc

Case, D.O. 2002. *Looking for Information: a survey of research on information seeking needs and behaviour*. Amsterdam: Academic Press.

Case, D.O. 2007. *Looking for Information: a survey of research on information seeking, needs and behaviour*. 2nd ed. Amsterdam: Elsevier

Cassner, M. & Adams, K. 1998. Instructional support to rural graduate population: An assessment of library services in the eighth off campus library services. Conference proceedings compiled by Thomas, P. S and Jones, M. Mount Pleasant, MI: Central Michigan University, pp.117-131

Chair, R.F., Sheatsley, P. Turner, A. & Waksberg, J. nd. What is A Survey? Available at http://client.norc.org/whatisasurvey/downloads/pamphlet_1980.pdf (Accessed 22/02/2011)

Chakravarty, R. & Randhawa, S. 2006. Academic search engines: librarian's friend, researchers delight. In planner Digital Preservation, Management and Access to information in the twenty first century, Aizawl (India) 9-10 November 2006. *The Electronic Library*, 25(4):386-394 Conference paper. URI <http://hdi.handle.net/10760/12721> Accessed on 14/12/2012

Charnigo, L. & Barnett-Ellis, P. 2007. Checking out Facebook.com: the impact of digital trends on academic libraries. *Information Technology and Libraries*, 26 (1): 23-34

Chee- Wai, H. & Angela, G. 1999. Jamaica: A World Wide Web profiler. *Internet Research*, 9 (2): 129-139. Available a DOI 10.1108/10662249910264891

Chen, H.L. 2009. An analysis of undergraduate students search behaviours in an information literacy class. *Journal of Web Librarianship*, 3 (4): 333-347

Chilton, S.M., Hutchinson, W.G., 1999a. Do focus groups contribute anything to the contingent valuation process? *Journal of Economics. Psychology*. 20 : 465–483.

Choo, C.W. & Marton, C. 2003. Information seeking on the Web by women in IT professions. *Internet Research*, 13 (4): 267-280

Chowdhury, S. Gibb, F. & Landoni, M. 2011. Uncertainty in information seeking and retrieval: A study in an academic environment. *Information Processing & Management*, 47 (2): 157-175

Chu, S.K. & Law, N. 2007b. Development of information search expertise: Research students' knowledge of source types. *Journal of Librarianship and Information Science*, 39 (1): 27-40

Choi, Y. & Rasmussen, E. 2006. What is needed to educate future digital libraries. *D-LibMagazine*, 12(9). [Online] <http://www.dlib.org/dlib/september06/choi/09choi.html>

Chu, S.K. & Law, N. 2008. The development of information search expertise of research students. *Journal of Librarianship and Information Science*, 40 (3):165-177

CIBER. 2007. Case study I: An evaluation of BL learning: a website for younger scholars. London :CIBER.[Online]. Available at <http://www.bl.uk/news/pdf/googlegen.pdf>. Date visited 12/12/11

CIBER. 2007. Information Behaviour of the Research of the Future (“Google Generation” Project) , CIBER, University College London, available at www.ucl.ac.uk/slais/research/ciber/downloads(Accessed on 10/02/12)

Cleveland, A.M. 2001. Reducing library anxiety in first year students: Computer assisted instruction. Master’s Thesis, Chapel Hill, N.C : University of North Carolina

Cleveland, A. 2004. Library anxiety: A decade of empirical research. *Library Review*, 53 (3/4): 177

Clink, S., Crawford, J. & Vicente, A. de. 2004. Use of awareness of electronic information services by academic staff at Glasgow Caledonian University. *Library review*, 53 (8) : 401-407

Connaway. L.S. & Dickey. J. 2010. OCLC Research. February 2010 Digital Information Seeker, Findings from selected OCLC, RIN and JISC user-behaviour projects.[online]<http://www.jisc.ac.uk/media/documents/publications/reports/2010/digitalinformationseekerreport.pdf>

Connaway, L.S., Dickey, T.J. & Radford, M.L. 2011. "If it is too inconvenient I'm not going after it" Convenience as a critical factor in Information –seeking behaviours. *Library & Information Science Research*, 33 :179-190

Connor, E. 2007. Medical librarian 2.0. *Medical Reference Service Quarterly*, 26 (1)

Craig, A. & Corral, S. 2007. Making a difference? Measuring the impact of an information literacy programme for preregistration nursing students in the U.K. *Health Information and Libraries Journal*, 24 (2), 118-127

Crawford, J & Daye, A. 2000. A survey of the use of electronic services at Gragrow Caledonian University Library. *The electronic library* 18 (4): 255-265

Creswell, JW. Goodchild, L. & Turner, P. 1996 *Integrated qualitative and quantitative research: Epistemology, history and design higher education handbook of theory and research* 1: 90-136, New York: Agathon Press

Croft, W.B. & Parenty, T.J. 1985. A comparison of a network structure and a database system used for document retrieval information systems. *CODEN: INSYDO*, 10 (4): 377=390

Czaja, S., Chames, N., Fisk, A., Hertzog, C., Nair, S. & Rogers W. 2006. Factors predicting the use of technology: Findings from the Centre for Research and Education on Aging and Technology Enhancement. *Psychology and Aging*, 21 (2): 333-352

Dadzie, P.S. 2005. Electronic resources: access and usage at Ashesi University College. *Campus –wide information systems*, 22 (5):290-297.

David, M. & Sutton, C.D. 2004. *Social Research. The basics*, London : Sage Publication

Davis, P. & Solla, L. 2003. An IP-Level analysis of usage statics for electronic journals in chemistry: Making inferences about user behaviour. *Journal of the American Society for Information Science and Technology*, 54 (11):1062-1068

Davis, P.M. 2004a. Information seeking behaviour of chemists: A transaction log analysis of referral URLs. *Journal of the American Society for Information Science and Technology*, 55 (4): 326-332

Davies, K. 2007. The information –seeking behaviour of doctors: a review of the evidence. *Health Information & Libraries Journal*, 24 (2): 78-94

De jager, K. & Nassimbeni, M. 2002. Institutionalizing information literacy in tertiary education: lessons learned from South Africa programmes. *Library Trends*, 51 (2): 167-184

DeLoughry, T.J. 1993. Two researchers say technophobia may afflict millions of students. *The Chronicle of Higher Education*, 25 (04) : 28

Dervin, B. 1983. An overview of sense –making research concepts, methods and results of date. Paper presented at the annual meeting of the International Communication Association, Dallas, TX.

<http://communication.sbs.ohiostate.edu/sense-making/> Accessed 21/05/12

Dervin, B. 1999a. Chaos order and sense-making: a proposal theory for information design, In information design, edited by Jacobson, R.E. Cambridge, MA: MIT Press: 355-357

Dervin, B. 1997. Given a context by any other name: Methodological tools for taming the unruly beast. In: P.Vakkari, R. Savolainen & B. Dervin (Eds.) *Information Seeking in Context*, London :Taylor -Graham: 13-38

Dervin, B. & Nilan, M. 1986. Information needs and uses. In M. Williams (Ed.), *Annual Review of Information Science and Technology*, 21:3-33 White Plains, NY : Knowledge Industry Publications

Dervin, B. & Huber, J. 2007. Sense –making the information confluence: The whys and hows of College and University user satisficing of information needs. http://imlsproject.comm.ohio-state.edu/imls_reports/PERFORMANCE_REPORT/PERFORM_ONLINE.pdf (accessed 28/12/11)

De Vaus, D. 1991. *Surveys in social research*. 3rd ed. Sydney: Allen and Unwin

Dewald, N.H. 2005. What do they tell their students: Business faculty acceptance of the web and library databases for student research? *Journal of Academic Librarianship*, 31 (3): 209-215

Dolman, A.U. 1996. Predicting library anxiety, computer anxiety and library performance. Master's Thesis, Chapel Hill, N.C : University of North Carolina

Donald, C. 2007. *Looking for Information: A survey of research on information seeking, needs and behaviour*, New York: Academic Press

Dornhost, A.C. 2006. Information overload: why medical education need a shake up? *Lancet*, 2: 513-514

Dorsey, M. & Detlefsen, E. 2005. Investigating information seeking behaviours of primary care physicians who care for older depressed patients and their family caregivers: A pilot study. *Journal of the Canadian Health Library Association. (JCHLA)*, 26: 111-116

Dreifuss, R.A. 1981. Library instruction and graduate students: more work for George. *Research Quest.* 21 (2): 121 -123

Du, J.T. & Evans, N. 2011. Academic users' Information searching on research topic: characteristics of research tasks and search strategies. *Journal of Academic Librarianship*, 37 (4): 299-306

Dube, L. 2005. The management and diffusion of HIV/AIDS information in institutions of higher learning in South Africa. PhD. Thesis. Department of Library and Information Science, University of Zululand,

Du Preez, M. 2008. Information needs and information seeking behaviours of consulting engineers: A qualitative investigation. MSC thesis, Department of Information Science, University of South Africa

Durrheim, K. 2006. Research design. In T.M Blanche, K. Durrheim and D. Painter, (eds). *Research in practice : Applied methods for the social sciences*, Cape Town : University of Cape Town Press.

Dyck, J.L. & Smither, J.A.A. 1994. Age differences in computer anxiety: The role of computer experience, gender and education. *Journal of Educational Computing Research*, 10 (3):239-248

Earle, P. & Vickery, B.C. 1969. Social science literature use in the U.K. *Journal of Documentation*, 25 (2), 123-141

Edwards, A. & Talbot, R. 1994. *The hard pressed researcher: a research handbook for the caring profession*. New York: Longman.

Egan, P.J. 1992. Bridging the gap between the student and the library. *College Teaching*, 40:67-70

Eisenberg, M., Lowe, A. & Spitzer, K. 2004. Information: essential skills for the information age. Westport, Conn: Library Unlimited.

- Ellis, D. 1989. A behavioural approach to information retrieval design. *Journal of Documentation*, 45 (3): 171-212
- Ellis, D., Cox, D. & Hall, K. 1993. A comparison of the information-seeking patterns of researchers in the physical and social sciences. *Journal of Documentation*, 49 (4): 356-369
- Ellis, D. & Haugan, M. 1997. Modelling the information seeking patterns of engineers and research scientists in an industrial environment. *Journal of Documentation*, 53 (4): 384-403
- Eskola, E.L. 1998. University students: information seeking in a changing learning environment. How are students' information needs, seeking and use affected by new Teaching methods? *Information Research*, 4 (2). Available on <http://www.shef.ac.uk/is/publication/infres/isic/eeskolahtml> (Accessed on 18/05/2013)
- Eshet-Alkalai, Y. & Chajut, E. 2009. Changes over time in digital literacy. *Cyber Psychology & Behaviour*, 12 (6): 713-715
- Fairer-Wessels, F.1990. Basic community needs of urban black women in Mamelodi, Pretoria, South Africa. *South African journal of library and information science* 58(4): 359–69
- Fast, K.V. & Campbell, D. G. 2004. "I still like Google". University student's perceptions of searching Opacs and the Web. *Proceedings of the ASIST Annual Meeting*, 41:138-146
- Fidel, R. 1993. Qualitative methods in information retrieval research. *Library and Information Science Research*, 15 (3): 219-247
- Fisher, K.E., Naumer, C., Durrance, J., Stromski, L. & Christiansen, T. 2005. Something old, something new: preliminary findings from an exploratory study about people's information habits and information grounds. *Information Research*, 10 (2): 223. Retrieved 6/10/2012 from <http://informationr.net/ir/10-2/paper223.html>

Fisher, K.E., Landry, C.F. & Naumer, C. 2006. Social spaces, casual interactions, meaningful, exchanges: information ground characteristics based on the college student experience. *Information Research*, 12 (2): 291

Fidzani, B.T. 1998. Information needs and information-seeking behaviour of graduate students at the University of Botswana. *Library Review*, 47 (7) : 329-340

Finholt, T.A. & Brooks, J. 1999. Analysis of JSTOR: the impact on scholarly practice of access to on-line journal archives. In R. Ekman & R.E. Quandt (Eds). *Technology and scholarly communication*. Pp. 177-194. Berkely: University of California Press

Finn, B. & Johnston, P. 2004. Index use by engineering faculty and students. *Georgia Library Quarterly*, 41 (3): 5-15

Fraenkel, J.R. & Wallen, N.E. 2000. *How to design and evaluate research in education*. New York: McGrawiHill

Francis, H. 2005. The information seeking behaviour of social science faculty at the University of West Indies, St Augustine Campus. *Journal of Academic Librarianship*, 3 (15): 67-72

Francis, H. 2008. The information seeking behaviour of social science faculty at the Universities of West Indies. St Augustine Campus. *The Journal of Academic Librarianship*, 31(1)67-72.[Online]http://www.sciencedirect.com/science_ob=MLmg [Accessed on 12/11/12]

Frاند, J.L. 2000. The information –age mindset: Changes in students and implications for higher education. *Educause Review*, 35 (5): 14-24

Ford, N. ; Miller, D. & Moss, N. 2005. Web search strategies and human individual differences: cognitive and demographic factors, Internet attitudes and approaches.

Journal of the American Society for Information Science and Technology, 56 (7): 741-756

Gargiulo, P. 2003. Electronic journals and users: The CIBER experience in Italy. *Serials*, 16 (3): 293-298

Ge, X. 2010. Information –Seeking Behaviour in the Digital Age: A multidisciplinary study of Academic Researcher. *College & Research Libraries*, 71 (5): 435-455.

George, C.B.; Alice, H.T.; Linke Erika, C. St. Clair, G. & Stein, J. 2006. Scholarly use of information graduate students' information seeking behaviour. *Information Research*, 11(4). Retrieved 7/12/2011 from <http://informationr.net/ir/11-4/paper272.html>

Gifford, W.; Bobbit, H. & Slocum, S. 1979. Characteristics and perceptions of uncertainty by organisational decision makers. *Academy of Management Journal*, 22:458-481

Goldsborough, R. 2010. Overcoming fears of PCs. *Poptronics*, 3 (5): 51-53

Gralewska-Vickery, A. 1976. Communication and Information needs of earth science engineers. *Information Processing and Management*. 12:251-282

Grassian, E.S. & Kaplowitz, J.R. 2001. *Information literacy instruction: Theory and practice*. New York: Neal Schuman

Gray, K., Thompson, C., Sheard, J., Clerehan, R. & Hamilton, M. 2010. Students as Web 2.0 authors: Implications for assessment design and conduct. *Australasian Journal of Educational Technology*, 26 (1): 105-122.

Greene, J. C & Caracelli, V.J (Eds.) (1997) *Advances in mixed method evaluation: The challenges and benefits of intergrading diverse paradigms* (New Directions for Evaluation, No 74). San Francisco: Jossey- Bass

Griffiths, J.R. & Brophy, P. 2005. Students searching behaviour and the Web: use of academic resources and Google. *Library Trends*, 53 (4):539-554

Grimes, D.J & Boening, C. H 2001. Worries with the web: A look at student's use of web resources. *College Research Libraries*, 62: 11-23

Grinnel, R.M. 1994. *Social Work Research and Evaluation*. 3rd ed. Itasca. IL: Peacock

Hadebe, T. & Hoskins, R. 2010. Information seeking behaviour of Master's students utilizing Library electronic databases in the Faculties of Humanities, Development and Social Sciences of the University of KwaZulu Natal . *Innovation*, 40 (6) : 48-61

Hale,G. & Moss, N. 1999. So tell me about it : A qualitative investigation of Internet search strategies. Paper presented at the European conference on educational research.ECER'99,Lahti,Finland22-25September

[Online]<http://www.leeds.ac.uk/educol/documents/000001188.html> accessed on 12/03/13

Hargittai, E. 2002. Second –level digital divide: differences in people's online skills. *First Monday*, 7 (4). Retrieved 1/07/11 from

<http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/942/864>

Hargittai, E. & Shafer, S. 2006. Differences in actual and perceived online skills: the role of gender. *Social Science Quarterly*, 87 (2):432-448

Hargittai, E. 2010. Digital Na (T) Ives? Variation in Internet skills and uses among members of the "Net generation". *Sociological Inquiry*, 80 (1): 92-113

Hartmann, E. 2001. Understandings of information literacy: the perceptions of first year undergraduate students at the University of Ballarat. *Australian Academy and ResearchLibraries*,32(2).Availableat

<http://alia.org.au/publishing/aarl/32.2/full.text/hartmann.html> (accessed 12/11/11)

Harvard Family Research Project. 2004. Out of School Time Evaluation Snapshot: Destangling Data Collection : Methods for Gathering Data. Available at <http://www.gse.harvard.edu/~hfrp/content/projects/afterschool/resources/snapshot5.pdf> (Accessed on 18/01/2011)

Hauglund, L. & Olsson, P. 2008. The impact on university libraries of changes in information behaviour among academic researchers: A multiple case study. *Journal of Academic Librarianship*, 34 (1):52-59

Hawk, W.B. & Wang, P. 1999. Users 'interaction with the World Wide Web: Problems and problem –solving. In L. Woods (Ed.), Proceedings of the 62nd annual meeting of the American Society of Information Science (ASAI). Knowledge, creation, organisation and use. Washington, DC, Medford: Information Today

Head, A.J. & Eisenberg, M. 2009. Lesson Learned: How college students seek information in the digital age. http://projectinfolit.org/pdfs/PIL_Fall2009_finalv_YRI_12_2009v2.pdf. accessed 29/12/11

Heinstrom, J. 2000. The impact of personality and approaches to learning on information behaviour, *Information Research*, 5 (3) Retrieved 4/12/11 from <http://information.net/ir/5-3/paper78.html>

Heinstrom. J. 2003. Five personality dimensions and their influence on information behaviour. *Information Research*, 9 (1) Retrieved 4/12/11 from <http://informationr.net/ir/9-1/paper165.html>

Heinstrom, J. 2005. Fast surfing, board scanning and deep diving: the influence of personality and study approach on students' information –seeking behaviour. *Journal of Documentation*, 61 (2): 228-247

Heinssen, R.K., Glass, C.R & Knight, L.A. 1987. Accessing computer anxiety: Development and validation of the computer anxiety rating scale. *Computers in Human Behaviour*, 3: 49-59

Hembrooke, H.A., Granka, L.A., Gay, G.K. & Liddy, E.D. 2005. The effects of expertise and feedback on search term selection and subsequent learning. *Journal of the American Society for Information Science and Technology*, 56 (8): 861-871

Hemminger, B.M. , Lu, D., Vaughan, K.T.L & Adams, S.J. 2007. Information seeking behaviour of academic scientists. *Journal of American Society for Information Science and Technology*, 58 (14): 2205 -2225

Hiller, S. 2002. How different are they? A comparison by academic area of library use, priorities and information needs at the University of Washington. *Issues in Science and Technology Librarianship*, 33 .Available at: www.istl.org/02-winter/article1.html (accessed on 12/05/11)

Hlatywayo, M.A. 2006. The principal's role in implementing the EAZ as an intervention strategy. PhD Thesis. A available at <http://hdl.handle.net/10210/899>
Accessed 06/01/2012

Holliday, W. and Quin, L.I. 2004. Understanding the millennial: updating our knowledge about students. *Reference Services Review*, 32(4): 356-366

Holmberg, K., Huvila, I., Kronqvist-Berg, M. & Widen- Wulff, G. 2009. What is Library 2.0? *Journal of Documentation*, 65 (4): 668-681. Available @ DOI 10.1108/00220410910970294. Accessed on 20/06/2013

Holmes, J.W. 2000. Just in case just in time, just for you : User education for the re-entry student. In T.E. Jacobsen & H.C Williams (Eds.), *Teaching the new libraries to today's users: Reaching international, minority, senior citizens, gay/lesbian, first generation, at –risk, graduate and returning students and distance learners*. New York: Neal-Schuman Publishers, Inc.

Holloway, I. 1997. *Basic concepts for qualitative research*. London: Blackwell Science

Holscher, C. & Strube, G. 2000. Web search behaviour of internet experts and newbies. *Computer Networks*, 33 (1-6) :337-346. Retrieved 10/11/11 from http://www.iicm.edu:8000/thesis/cgueti_diss/literatur/kapitel102/References/Hoelscher_et_al.2008/81.html

Home, A.M. 1993. The juggling act: The multiple role women in Social Work education. *Canadian Social Work. Review*, 10 (2):141-156

Hsieh-Yee, I. 1993. Effects of search experience and subject knowledge on the search tactics of novice and experienced searchers. *Journal of the American Society for Information Science*, 44 (3): 161-174

Hsieh-Yee, I. 2001. Research on the web search behaviour. *Library and Information Science Research*, 23 (2): 167-185

Huysamen, G.K. 1994. *Methodology for social and behavioural sciences*. Cape Town: Southern Book Publishers.

Ingwersen, P. 1995. Information and information science. In: Allen Kent (ed.) *Encyclopaedia of Library and Information Science*. 56. 19. New York: Marcel Dekker. 137-174.

Ingwersen, P. 1992. *Information retrieval interaction*, London: Taylor Graham

Ingwersen, P & Jarvelin, K. 2005. *The turn: integration of information seeking and retrieval in context*. Dordrecht: Springer

Ismail, L. 2010. What net generation students really want: Determining the help-seeking preferences of undergraduates. *Reference Services Review*, 38 (1): 10-27

Jagarnath, O. 2004. End –user instruction and access to electronic and full-text bibliographic information resources to postgraduate management studies students at the University of KwaZulu-Natal. MIS theses, Pietermaritzburg, University of KwaZulu Natal.

Jagers, K.E., Tallman, E.M. & Waddell, W.D. 1991. Library services to off campus sites: An assessment survey. In the fifth off campus library services Conference Proceedings, compiled by Carol, J Jacob (Mount Pleasant, MI: Central Michigan University, 1991) pp. 131-135

Jarvelin, K. & Ingwersen, P. 2004. Information seeking research needs extension towards tasks and technology. *Information Research*, 10 (1), paper 212. Available at <http://InformationR.net/ir/10-1/paper212.html> (Accessed 16/06/12)

Jamali & Nicholas 2010 "Interdisciplinary and the information seeking behaviour of scientists". *Information Processing and Management* 46: 233-243

Jamali, H.R. & Asadi, S. 2010. Google and the scholar: the role of Google in scientists's information- seeking behaviour. *Online Information Review*, 34 (2):282-294

Janis, I. L. 1982. *Groupthink: Psychological studies of policy decisions and fiascos* (2nd ed.). Boston, MA: Houghton Mifflin

Jansen, B. J. & Spink, A. 2004. *Web Search: Public Searching of the Web*. Dodrecht :Kluwer Academic Publishers

Jenkins, C., Corritore, C. L. & Wiedenbeck, S. 2003. Patterns of information seeking on the web: a qualitative study of domain expertise and web expertise. *IT & Society*, 1 (3): 64-89

Jiyane, G.V. & Onyancha, O.B. 2010. 'Information literacy education and instruction in academic libraries and LIS schools in institutions of higher education in South Africa'. *South African Journal of Library & Information Science*, 76 (1):12.

Johnson, R. B. & Turner, L.A. 2000 *Educational research: qualitative and quantitative approaches*, Boston: Allyn & Bacon.

Johnson, F.C. ; Griffiths, J.G. & Hartley, R.J. 2001. DEVISE: a framework for the Evaluation of Internet search engines. *Research Report*, no. 100. [Online]. Available: <http://www.cerlim.ac.uk/projects/devise/devise-report.pdf>. Accessed on 9/ 08/ 2012

Johnston, R.J., Weaver, T.F., Smith, L.A. & Swallow, S.K., 1995. Contingent valuation focus groups: Insights from ethnographic interview techniques. *Agricultural Resource and Economics*, 24:56–69.

Johnson, A. M. & Jent, S. 2004. Library instruction and information literacy *Reference Services Review*, 32(4): 413–442

Johnson, J.; David, E. ; Case, D.O.; Andrews, J.; Allard, S.L & Johnson, N.E. 2006. Fields and pathways: contrasting or complementary views of information seeking. *Information Processing and Management*, 4 (2):569-582

Johnston, B. & Webber, S. 2003. Information literacy in higher education: A review and case study, *Studies in Higher Education*, 28 (3): 335-351

Julien, H. & Michels, D. 2004. Intra-individual information behaviour in daily life. *Information Processing & Management*, 40 (3): 547-562

Junni, P. 2007. Students seeking information for their master's thesis: the effect of the Internet. *Information research*,12 (2): 1-7.

Kakai,M. ; Ikoja-Odongo, R & Kigongo-Bukenya, IMN. 2004. A study of the information seeking of undergraduate students of Makerere University, *Uganda. World Libraries*, 14 (1): 14-26.

Kai- Wah Chu, S. & Law, N. 2008. The development of information search expertise of research students. *Journal of Librarianship and Information Science*, 40 (3) : 165-177

Kardash, C.A. 2000. Evaluation of an under graduated research experience: Perceptions of undergraduate interns and their faculty mentors. *Journal of Educational Psychology*, 92(1), 191 – 201.

Kari, J. & Savolainen, R. 2001. Web searching in the context of information seeking in everyday life: The cases of civic and spiritual action. A research proposal 11. Available at <http://www.uta.fi/~csjakar/kari-savolainen.pdf>

Kari, J & Savolainen, R. 2003. Towards a contextual model of Information seeking on the web. *The New Review of Information Behaviour Research*, 4 (1), 155-175

Kelly, K. 2006. From encounter to text: collecting data in qualitative research. In: Blanche, T.M, Durrheim, K and Painter, D. (eds.) 2006. *Research in practice: Applied methods for social sciences*, Cape Town: University of Cape Town Press

Kemoni, H.N. & Ngulube, P. 2007. National archives and the effective management of public sector records in Kenya, *MOUSAION*, 25 (2):120-140

Kerins, G., Madden, R. & Fulton, C. 2004. Information seeking and students study for professional careers: the cases of engineering and law students in Ireland. *Information Research*, 10(1) paper 208 [Available at <http://InformationR.net/ir/10-1/paper208.html>]. Accessed 15 /01/ 2013

Khati, P. 2009. Information seeking behaviour of undergraduate students at the University of Western Cape. Master's thesis, Department of Library and Information Science, Cape Town: University of Western Cape

Kim, K.S. 2000. Individual differences and information retrieval: Impact on Web design. In J. Mariani & D. Harman (Eds.) *Proceedings of the 6th conference on content-based multimedia information access*. pp. 885-893. Paris: CID

Kim, K.S. 2001. Information seeking on the web: Effects of users and task variables. *Library & Information Science Research*, 23 (3), 233-255. Available at [http://dx.doi.org/10.1016/S0740-8188\(01\)00081-0](http://dx.doi.org/10.1016/S0740-8188(01)00081-0) (Accessed 25/02/13)

Kim, J. 2009. Predictors of behavioural intentions in web searching. Posters presented at the 2009 American Society for Information Science and Technology Annual Meeting. Thriving on Diversity-Information Opportunities in a Pluralistic World, Vancouver, British Columbia, Canada, November 6-11, 2009. Accessed 02/08/2011. From <http://www.asis.org/Conferences/AM09/openproceedings/posters/82.xml>

Kim, K.S. & Allen, B. 2002. Cognitive and task influences on the web searching behaviour. *Journal of the American Society for Information Science*, 53 (2): 109-119

Kimberly, B., Kelly, K. & Orr, J. 2003. Trends in distance students' use of electronic resources: A survey. *College and Research Libraries*, 64 (5):176-191

Kingrey, K.P. 2002. Concepts of Information Seeking and Their Presence in the Practical Library Literature. *Library Philosophy and Practice*, 4 (2), 1-14.

Kohrman, R. 2003. Computer anxiety in the 21st century: When you are not in Kansas anymore. ACRL Eleventh National Conference. Available at <http://www.ala.org/acrl/sites/ala.org.acrl/files/content/pdf/Kohrman.pdf> Accessed on [12/02/12](#)

Korobili, S., Tilikidou, I. & Delistavrou, A. 2006. Factors that influence the use of library resources by faculty members. *Library Review*, 55 (2): 91-105

Korobili, S. Malliari, A. & Zapounidou, S. 2011. Factors that influence information seeking behaviour: The case of Greek graduate students. *The Journal of Academic Librarianship*, 37 (2): 155-165

Kraaijenbrink, J. 2007. Engineers and the web: an analysis of real life gaps in information use. *Information Processing & Management*, 43 (5) :1021

Krathwohl, D.R. 1998. Methods of educational and social science research: an intergrated approach, 2nd ed. New York: Longman Inc

Kowalski, G.J & Maybury, M.T. 2000. Information and storage retrieval systems: theory and implementation, 2nd ed. Boston: Kluwer Academic Publishers

Krueger, R.A., 1994. *Focus Groups: A Practical Guide for Applied Research*. Thousand Oaks, CA: Sage Publications.

Kuhlthau, C.C. 1991. Inside the search process: information seeking from the user's perspective. *Journal of American Society for Information Science*, 42(5): 361-371

Kuhlthau, C. 1993. A principle of uncertainty for information seeking. *Journal of Documentation*, 49 (4):339-355.

Kuhlthau, C.C. 1993. Seeeking meaning: a process approach to library and information services. Norwood: Ablex

Kuhlthau, C.C. 1994. *Seeking meaning: a process approach to library and information services*. Nowood, N.J.: Abex.

Kuhlthau, C.C. 2004. *Seeking meaning: a process approach to library and information services*. 2nd ed. Westport, CN. : Libraries Unlimited

Kuhlthau, C.C. 2005. Kuhlthau's Information Search Process, In Theories of information behaviour, edired by Fisher, K.E ; Erdelez, S and Mckechnie, Medford : Published for the American Society for Information Science and Technology by Information Today :230-234

Kuhlthau, C.C. & Ledet, N. 1996. The relationship of information and uncertainty in information seeking. In P. Ingwersen & N.O Pors (Eds.) *Proceedings of the 2nd international conference on library and information science. Integration in perspectives*, pp. 367-376. Royal School of Librarianship.

Kuhlthau, C.C., Heinström, J. and Todd, R.J. 2008. "The 'information search process' revisited: is the model still useful?" *Information Research*, 13(4) paper 355. [Online]

Available: <http://informationr.net/ir/13-4/paper355.html>. Accessed on 07 /06/ 2012.

Kvale, S. 1996. *Interviews: An Introduction to quality research interviewing*. Thousand Oaks, CA: SAGE

Lacefield, W.E. & Mahan, J.M. 1988. Factors influencing satisfaction of non traditional students in mainstream graduate programs. *Educational Research Quarterly*, 12 (2): 36-49

Lallimo, J. Lakkala, M. & Paavola, S. (2004). How to Promote Students' Information Seeking. Available at: <http://www.eun.org/insightpdf/>

Landers,R.N. & Lounsbury, J.W. 2006. An investigation of big five and narrow personality traits in relation to Internet usage. *Computers in Human Behaviour*, 22 (2): 283-293

Landry, C. & Fay, C. 2006. Work roles, tasks and the information behaviour of dentists. *Journal of the American Society for Information Science and Technology*, 57 (14): 1896-1908

Lawlor, S. H. 2003. Information literacy competencies in Social Work. *Academic Exchange Quarterly*, 7(3):125–131.

Lawrence, S & Giles, C.L. 1999. Accessibility of information on the web. *Nature* 400 (6740): 107.9

Lawrence, H & Miller, W. 2000.*Academic research on the Internet: options for scholars and libraries*. New York: Haworth Press

Leckie, G.J. 1996. Desperately seeking citations: Uncovering faculty assumptions about the undergraduate research process. *Journal of Academic Librarianship*, 5: 201-208

Leckie, G.J.; Pettigrew, K.E. & Sylvain, C. 1996. Modelling the information seeking of professionals: a general model derived from researchers on engineers, health care professionals and lawyers. *The Library Quarterly*, 66 (2):161-193

Lee, S. Groves, P. Stephens, C. & Armitage, S. 1999. Internet Teaching: The World Wide Web: It's Users as a Teaching Tool. JISC Technology Applications Programme. <http://www.oucs.ox.ac.uk/ltg/projects/jtap/reports/teaching/web.html>
(Accessed on 22/01/13)

Leedy, P.D. & Omrod, J.E. 2005. *Practical Research: Planning and Design*. 8th ed. New Jersey: Pearson Education Inc.

Lehnert, W.G. 2001. *Web ing 101: Making the Net Work for You*. Boston: Addison Wesley

Levine, J.M. & Moreland, R.L. 1995. *Group Processes*. In A. Tesser (Ed.) *Advanced Social Psychology*. New York: Mc Graw- Hill

Liao, Y., Finn, M. & Lu, J. 2007. Information seeking behaviour of international graduate students vs. American graduate students: a user study at Virginia Tech 2005. *College and Research Libraries*, 68 (1): 5-25

Limberg, L. 1999. Experiencing information seeking and learning: A study of the interaction between two phenomena. *Information Research*, 5(1).
<http://informationr.net/ir/5-1/paper68.html>

Lines, A.D. 2003. *Communicating Information across Cultures: Understanding How Others Work*. *The Pantaneto Forum* Litwin, M. 1995. *How to measure survey reliability and validity*. London: Sage publication.

Loose, R.M. & Worley, K.A. 1994. *Research and Evaluation for Information professionals*. London: Academic Press Inc.

Lowry, A.K. 1990. Beyond BI: Information literacy in the electronic age. *Research Strategies*, 81 (1):22-27

Lupton, M. 2004. *The learning Connection: Information Literacy and the Student Experience*, Auslib Press, Adelaide

McCaskie, L. 2004. What are the implications for information literacy training in higher education with the introduction of federated search tools? Masters Dissertation. From http://dagda.shef.ac.uk/dissertations/2003-04/External/McCaskie_Lucy_MAlib.pdf. Accessed 10/12/11

Machill, M., Neuberger, C. & Schindler, F. 2003. *Transparency on the Net: functions and deficiencies of Internet search engines*. *Info*, 5 (1): 52-74. Available at DOI 10.1108/146366903/0473890

Makani, J. & WooShue, K. 2006. Information Seeking Behaviours of Business Students and the Development of Academic Digital Libraries. *Evidence Based Library and Information Practice*, 1 (4):30-45. Online. Available: <http://ejournals.library.ualberta.ca/index.php/EBLIP/article/review/70/184>. Accessed on 07/11/11

Majid, S. & Tan, A.T. 2002. 'Usage of Information Resources by Computer Engineering Students: A Case Study of Nanyang Technological University, Singapore'. *Online Information Review*, 26 (5): 318–25.

Marchionini, G. & Komlodi, A. (n.d). Design of Interfaces for Information Seeking. Available at: <http://ils.unc.edu/~march/arist/DRAFT.htm>

Marchionini, G. 1995. *Information seeking in electronic environment*. UK: Cambridge University Press

Marchionini, G, 1997. *Information seeking in electronic environments*. Cambridge: Cambridge University Press

Martzoukou, K. 2004. A review of web information seeking research: Considerations of methods and foci of interest. *Information Research*, 10(2) <http://informationR.net/ir/10-2/paper215.html>

Maurer, T.J. 2001. Career-relevant learning and development, worker age and belief about Self efficacy for development. *Journal of Management*, 27 (2):123-140

Mawido, D. 2005. Evaluation of student's use of print and electronic resources at the University Of Malawi College Of Medicine. MIS thesis. Pietermaritzburg: University of KwaZulu Natal.

Maxwell, D. 1998. Can Qualitative and Quantitative Methods Serve Complementary Purposes for Policy Research? Evidence from Accra. Available at <http://www.ifpri.org/divs/fncd/dp/papers/dp40.pdf> Accessed 12/November/ 2011

McGuinness, C. 2006. What faculty thinks: Exploring the barriers to information literacy development in undergraduate education. *The Journal of Academic Librarianship*, 32 (6):573-582

McMillan, J.H. & Schumacher, S. 1993. *Research in Education: A conceptual introduction*. New York: Collins Publishers.

McMurtry, S.L. & McClelland, R. W. 1997. Class size, faculty workloads, and program structures: How MSW programs have responded to changes in their environments. *Journal of Social Work Education*, 33(2):307

Meho, L.L. & Haas, S.W. 2001. Information seeking behaviour and use of social science faculty studying stateless nations: a case study. *Library and Information Science Research*, 23, 5-25. Available at doi: 10.1016/S0740-8188 (00)00065-7 (Accessed 12/01/2012)

Meho, L.I. & Tibbo, H.R. 2003. Modelling the information-seeking behaviour of social scientists: Ellis's study revisited. *Journal of the American Society for Information Science and Technology*, 54 (6): 570-587

Mellon, C. 1986. Library anxiety: a grounded theory and its development. *College & Research Libraries*, 47:160-165

Mi, J. & Nesta, F. 2006. Marketing Library Services to the Net Generation. *Library Management*, 27 (6/7): 411-422

Miller, P. 2005. Web 2.0: building the new library. *Ariadne*, 45. Available at www.ariadne.ac.uk/issue45/miller/ accessed 01/03/2013

Minichiello, V., Aroni, R., Timewell, E. & Alexander, L. 1995. *In-depth Interviewing: Principles, Techniques, Analysis*. South Melbourne: Longman

Mittermeyer, D. 2003. "Information literacy: study of incoming first year undergraduates in Quebec", paper presented at the Conference of Rectors and Principals of Quebe´c Universities, Montre´al, available at www.crepuq.qc.ca/documents/bibl/formation/studies-Ang.pdf(accessed25/02/12

Morgan, D.L., 1996. Focus groups. In: Hagan, J., Cook, K.S. (Eds.), *Annual Review of Sociology*. Annual Reviews, Palo Alto.

Morgan, D. 1997. *Focus groups as qualitative research*, 2nd ed. London: Sage

Morner, C.J. 1995. Measuring the library research skills of education doctoral students. In AmRhein, R, ed. *Continuity and transformation: The promise of confluence*. *Chicago Association of College and Research*, 173:79

Morris, L. 2007. Faculty motivations: An exploratory study of motivational factors of faculty to assist with students' research skills development, Partnership. *The Canadian Journal Library and Information Practice and Research*, 2 (2): 340-522

Mugwisi, T. & Ocholla, D.N. 2002. Internet use, trends and attitudes among academic librarians: a comparative study between the University of Zimbabwe and the University of Zululand In Bothma, T & Kaniki, A. (Eds) *Progress in Library and Information Science in Southern Africa*, Proceedings of the second biennial DISSAnet Conference. Pretoria; Infuse, 143-166

Murtonen, K. 1994. Professional information needs and information seeking as study objects: A study on the effects of task complexity on information needs and information seeking. Lic. Soc. Sci. Thesis. Department of Library and Information Science. Tampere, Finland: University of Tampere

Murtonen, M. 2005. University students' research orientations: Do negative attitudes exist toward quantitative methods? *Scandinavian Journal of Educational Research*, 49(3): 263 – 280

Nachmias, D. & Nachmias, F.C. 1996. *Research Methods in the Social Sciences*, 5th ed. London: Arnold

Nahl, D. 2001. A conceptual framework for explaining information behaviour. *Studies in Media and Information Literacy Education*. 1 (2) <http://www.utpjournals.com/jour.ihtml?lp=simile/issue2nahlfulltext.html>

National Research Council Staff Committee on the Internet in the Evolving National Infrastructure. 2001. *Internet's coming age*. Washington: National academic press

Navarro-Prieto, R., Scaife, M. & Rogers, Y. 1999. Cognitive strategies in Web searching. *In Proceedings of the 5th conference on human factors and web*. pp. 43-56. Gaithersburg, MD: National Institute of Standards and Technology. <http://zing.ncsl.nist.gov/hfweb/proceedingsds/navarro-prieto/index.html>

Nel, J.G. n.d. The information seeking process: is there a sixth sense? *Mousaion*, 19 (2), 23-32. Available at sabinet.co.za

Nelson, D. 2001. The uptake of electronic journals by academics in the UK, their attitudes towards them and their potential impact on scholarly Communication. *Information Services & Use*, 21(3–4), 205–214.

Neuman, L. W. 2006. *Social Research Methods: Qualitative and Quantitative Approaches* (6th Ed.). Boston: Pearson.

Nkomo, N. 2009. A comparative analysis of the web information seeking behaviour of students and staff at the University of Zululand and the Durban University of Technology. Masters thesis, Department of Library and Information Science. Available at <http://hdl.handle.net/10530/389>

Nicholas, D., Huntington, P. & Jamali, H. R. 2007. Diversity in the information seeking behaviour of the virtual scholar: Institutional comparisons: *The Journal of Academic Librarianship*, 33 (6): 629-638

Nicholas, D., Clark, D., Rowlands, I. & Jamali, H.R. 2009. Online use and Information seeking behaviour: Institutional and Subject Comparisons of U.K researchers. *Journal of Information Science*, 35 (6): 660-676

Niederlander, M. nd. Library support staff.com resources for on the job libraries: Information Seeking Behaviour

Niemand, C.J.P. 2010. Information seeking habits of information and knowledge management students: a University of Johannesburg case study. *S.A Journal of information management*, 12 (1) Art. # 417, 6 pages DOI:10.4102/sajim.v12i1.47.

Niemela- Nyrhinen, J. 2007. Factors affecting acceptance of mobile content services among mature consumers. Doctoral Dissertation. School of Business and Economics. University of Jyväskylä: University of Jyväskylä Library Publishing Unit

Newman, W.L. 2006. *Social research methods: quantitative and qualitative approaches*, 6th ed, Toronto: Dorling Kindersley

Ngulube, P. 2009. *Research methods in information science*, Pretoria: University of South Africa.

O'Connor L & Lundstrom, K. 2010. The impact of social marketing strategies on the information seeking behaviours of College students. *Reference & User Service Quarterly*, 50 (4) : 351-365

Okello-Obura, C. & Ikoja-Odongo, J. R., "Electronic Information Seeking Among LIS Postgraduate Students at Makerere University, Uganda" (2010). *Library Philosophy and Practice (e-journal)*. Paper 499. <http://digitalcommons.unl.edu/libphilprac/499>

OneStat. Com: Google is the most popular search engine on the web according to OneStat.com. 2011, April 15. Coventry. Retrieved 26/05/2011 from proQuest database.

Onwuegbuze, A.J. 2002. Modeling statistics achievement among graduate students, *Education and Psychological Measurement*, 63 (6):1020

Onwuegbuzie, A. J. & Jiao, O.G. 2000. I'll go to the library later: The relationship between academic procrastination and library anxiety. *College and Research Libraries*, 61:45

O'Reilly, C.A. 1982. Variations in Decision Makers 'Use of Information Sources: The impact of Quality and Accessibility of Information. *The Academy of Management Journal*, 25 (4):756-771. Accessed on 07/05/2013 from <http://www.jstor.org/stable/256097>

Owusu-Ansah, E.K. 2003. Information literacy and the academic library: A critical look at a concept and the controversies surrounding it. *Journal of Academic Librarianship*, 29 (4):219-230

Palmer, J. 1991. Scientific and information: Personal factors in information behaviour. *Journal of Documentation*, 47 (3):254-275

Palmer, C.L., Tefteau, L.C. & Pirmann, C.M. 2009. Scholarly information practices in the online environment. Dublin, OH. : OCLC

Palmquist, R.A. & Kim, K.S. 2000. Cognitive style and online database search experience as predictor of web search performance. *Journal of the American Society for Information Science*, 51 (6): 558-556

Parrish, M.M. 1989. Academic community analysis: Discovering research need of graduate students at Bowling Green State University. *College and Research Libraries News*. 8:644-646

Patitungkho, K. & Deshpande, N.J. 2005. Information seeking behaviour of faculty members of Rajabhat University in Bangkok. *Webology* 2 (4): 230-255. Retrieved 9/10/11, from <http://www.webology.ir/2005/v2n4/a20.html>

Pejtersen, A.M., & Fidel, R. (1998). A framework for work-centred evaluation and design: A case study of IR on the Web. Working paper for multimedia Information retrieval applications (MIRA) workshop, Grenoble, France.

Pelzer, N., Wiese, W. and Leysen, J. (1998), "Library use and information-seeking behaviour of veterinary medical students revisited in the electronic environment", *Bulletin of the Medical Library Association*, Vol. 86 No. 3, pp. 346-53.

Pettigrew, K.E. and McKechnie, L. 2001. The use of theory in Library and Information Science research. *Journal of the American Society for Information Science and Technology*, 52(1): 62-73.

Pew Internet and American Life Project. 2006. Teens, privacy and online social networks. [Online]. Available: <http://www.pewInternet.org/Reports/2007/Teens-Privacy> . Accessed on 2/02/2011

Pharo, N & Jarvelin, K. 2004. The SST method: A tool for analysis web information search process. *Information Processing and Management*, 40 (4): 633-654

Powell, R. 1997. *Basic research methods for librarians*. 3rd ed. London: Ablex Publishing Corporation.

Powney, J. & Watts, M. 1987. *Interviewing in educational research*. London: Routledge.

Pullinger, D. & Baldwin, C. 2002. *Electronic journals and user behavior: Learning for the future from the Super Journal Project*. Cambridge: Deedot Press

Punch, K. F. 1998 *Introduction to social research: Qualitative and quantitative approaches*. Thousand Oaks, CA: Sage

Punch, F.K. 2005. *Introduction to social research: Quantitative and Qualitative approaches*, 2nd ed, Thousand Oaks, California: Sage Publication

Quercia, V. 1997. *Internet in a nutshell: a desktop quick reference*. 1st ed. Beijing: O'Reilly & Associated

Randolph, W. & Finch, F. 1977. The relationship between organisation technology and the direction and frequency dimensions of task communication. *Human Relations*, 30:1131-1145

Randolph, W. 1978. Organization technology and the media and purpose dimensions of organization communications. *Journal of Business Research*, 6: 237-259

Ren, W.H. 2000. Library instruction and college student self efficacy in electronic information searching. *Journal of Academic Librarianship*, 26 (5): 323-328

Renda, M.E. & Straccia, U. 2002. A recommendation system in a collaborative digital library environment. Technical Report – TR-06 Istituto di Elaborazione dell'informazione- CNR, Pisa, Italy

Rhoades, J.G. & Hartsell, A. 2008. Marketing First Impressions: Academic Libraries Creating Partnerships and Connections at New Student Orientations. *Library Philosophy and Practice* (e-journal). Paper 202.
<http://digitalcommons.unl.edu/libphi/prac/202>

Riahinia, N. & Zandian, F. 2008. Evaluation of information providers and popular search engines on the base of postgraduate student's perspective. *The electronic library*, 26 (4): 594-604

Rieh, S.Y. 2002. Judgement of information quality and cognitive authority in the web. *Journal of the American Society for Information Science and Technology*, 53 (2):145-161

Rieh, S.Y. 2003. Investigating Web searching behaviour in home environments. In R.J. Todd (Ed.). *Proceedings of the 66th ASIST annual meeting*. Medford, N.J: Information Today

Rieh, S.Y. 2004. SI 552: Information Seeking Behaviour School of Information University of Michigan, Ann Arbor

Rieger, O. Y. 2009. Search engine use behaviour of students and faculty: use perceptions and implications for future research. *First Monday*, 14 (12). Retrieved 9/12/ 11.

<http://firstmonday.org/htbin/cgiwrap/bin/osj/index.php/fm/article/viewArticle/2716/2385>

Riet, M. & Durrheim, K. 2006. *Putting design into practice: writing and evaluating research proposals*. In T.M. Blanche, K. Durrheim and D. Painter (eds). 2006.

Rosen, L.D., Sears, C. & Wei, MM. 1987. Computer phobia. *Behaviour Research Methods, Instruments and Computers*, 19: 167-179

Rosendal, M. & Spiegelman, M. 1996. Evaluating use of the Internet among Academic Reference Librarians. *Internet Reference Service Quarterly*, 1 (1): 53-67

Rosli, I. 2010. Penilaian model intelektual hasil program hadiah kedoktoran. Thesis PhD. Fakulti Pendidikan. Universiti Kebangsaan Malaysia

Rowlands, I. & Nicholas, D. 2008. Understanding information behaviour: how do students and faculty find books? *The Journal of Academic Librarianship*, 34(1):3-15.

Rusch-Feja, D., & Siebeky, U. (1999). Evaluation of usage and acceptance of electronic journals. *D-Lib Magazine*, 5(10). <<http://www.dlib.org/dlib/october99/rusch-feja/10rusch-feja-full-report.html>> Visited 25.11.12.

Sadler, E. & Given, L.M. 2007. Affordable theory: a framework for graduate student's information behaviour. *Journal of Documentation*, 63 (1):115-141

Samson, S. 2010. Information literacy learning outcomes and students success. *The Journal of Academic Librarianship*, 36 (3): 202-210

Sarantakos, S. 1997. *Social Research*. 2nd ed. New York: Palgrave

Saunders, L.M. 1999. The human element in the virtual library. *Library Trends*, 46: 771-781

Savolainen, R. & Kari, J. 2006. User defined relevance criteria in web searching. *Journal of Documentation*, 62 (6): 685-707

Schaffner, B.L 2001. Electronic resources: A wolf in sheep's clothing? *College and Research Libraries*. 62: 239-249

Schroeder, R & Benbassat, I. 1975. An experimental evaluation of the relationship of uncertainty in the environment to information used by decision makers. *Decision Sciences*, 6:556-567

Seamans, N.H. 2001. Information literacy: a study of freshman student's perceptions with recommendations, PhD thesis, Virginia Polytechnic Institute and State University, available at <http://scholar.lib.vt.edu/theses/available/etd-05142001-104550/unrestricted/Seamans.pdf> (accessed 10/12/12)

Seiden, P., Szymmborski, K. & Barbara, N. (n.d) Undergraduate students in the digital library: information seeking behaviour in a heterogeneous environment. Available at www.ala.org/ala/acrlbucket/nashville1997pap/seidenszymborski.html (Accessed 10/16/111)

Sharifabadi, S. E .1996. *Information seeking and communication among researchers and the impact of electronic networks: a literature review*. In Effects of the Internet on research activities, information seeking and communication behaviour of Australian academic psychologists (Chapter 3, pp. 45-86). PhD thesis, Department of Library & Information Science. Sydney: University of New South Wales. Retrieved 19/4/11 from <http://staff.alzahra.ac.ir/rezaei/PDF/CHAP3.pdf>

Shenton, A.K. & Dixon, P. 2003. Debates and paradoxes surrounding the use of qualitative methods. *Education for Information*, 22 (1): 1-12

Simpson, A.E. 1998. Information finding and the education of scholars: teaching electronic access in disciplinary context. *Behaviour and social science librarian*, 16 (2): 1-18

Slone, D.J. 2002. The influence of mental models and goals on search patterns during web interaction. *Journal of the American Society for Information Science and Technology*, 53 (13): 1152-1169

Smith, E.T. 2003. Changes in faculty readings behaviours: The impact of electronic journals on the University of Georgia. *Journal of Academic Librarianship*, 29 (3): 162-168

Snavey, L. and Cooper, N. 1997. Competing agendas in higher education: Finding a place for information literacy. *Reference and User Services Quarterly*, 37 (1):53-62

Soyizwapi, L. 2005. Use of electronic databases by postgraduate students in the Faculty of Science and Agriculture and at the University of KwaZulu – Natal, Pietermaritzburg, MIS thesis, Pietermaritzburg: University of KwaZulu-Natal.

Spacey, R., Goulding, A. & Murray, I. 2003. ICT and change in UK public libraries: Does training matter? *Library Management*, 24 (1-2), 61-69

Sparks, S. 2005. *JISC disciplinary differences report*. London: Rightscom Ltd.

Spink, A., Griesdorf, H. & Bateman, J. 1999. A study of mediated successive searching during information seeking. *Journal of Information Science*, 25: 477-487

Spink, A. Bateman, J. & Jansen, B.J. 1999. Searching the Web: A survey of EXCITE users. *Internet Research Electronic Networking Application and Policy*, 9 (2):117-128

Spink, A. H., Ozmutlu, C. & Ozmutlu, S. 2002. Multitasking information seeking and searching process. *Journal of the American Society for Information Science and Technology*, 53: 639-652

Spink, A. & Jansen, M. 2004. *Web search: public searching of the web*. Dordrecht: Kluwer Academic Publishers.

Spink, A. & Cole, C., 2006, 'Human Information Behavior: Integrating Diverse Approaches and Information Use', *Journal of the American Society for Information Science and Technology* 57(1): 25–35

Spyridakis, J.H., Wei, C.Y. & Kolko, B.E. 2003. The relationship of culture and information seeking behaviour: A case study in Central Asia, In Adjunct Proceedings of HCI International 2003 at Crete, Greece, *Crete University Press, 2003*, : 167-168

Stangor, C. 2011. *Research Methods for Behavioral Sciences*. 4th ed. Belmont: Wadsworth, Cengage Learning

Swann, D. 2003. ECDL for educators: ICT skills training in context. *Computer Education*, 103:16-17

Syndenstricker-Neto, J. 1997. Research design and Mixed –Method approach. From <http://www.socialresearchmethods.net/tutorials/Syndenstricker/bolsa.html>
Accessed on 16/01/2011

Talja, S. & Maula, H. 2003. Reasons for the use and non use of electronic journals and databases: A domain analytical study in four scholarly disciplines. *Journal of Documentation*, 59 (6): 657-691

Talja, S., Vakkari, P., Fry, J. & Wouters, P. 2007. Impact of research cultures on the use of digital library resources. *Journal of the American Society for Information Science and Technology*, 58 (11): 1674-1685

Taylor, R. 2000. Undergraduates' use of periodicals: implication for libraries reference work. *Reference Librarian*, 27 (4): 51-65

Taylor, D. & Proctor, M. 2005. The Literature Review: A few tips on conducting it. Available at: <http://www.utoronto.ca/writing/pdf/litrev.pdf> (Accessed 13/04/2012).

Tenner, E. & Ye, Z. 1999. End –user acceptance of electronic journals: A case study from a major academic research library. *Technical Service Quarterly*, 17 (2): 1-14

Teo, T. 2008. Pre-service teacher's attitudes towards computer use: A Singapore survey. *Australian Journal of Educational Technology*, 24 (4):413-424

Tenofsky, D. 2007. Teaching to the whole student: Building best practices for collaboration between libraries and student services. *Research Strategies*, 20: 284-299

Tenopir, C. 2002. Online Serials heat up. *Library Journal*, 127 (10): 37-38

Tenopir, C. & King, D. W. 2002. Reading behaviour and electronic journals. *Learned Publishing*, 15 (4): 259-265

Tenopir, C. 2003. Use and users of electronic library resources: An overview and analysis of recent research studies. Report for the council on library and information resources. <www.clir.org/pubs/reports/pub120/pub120.pdf> Visited 25.11.2012.

Tenopir, C. 2008. Digging deeper into e-journal use: Outcomes, value and interdisciplinary reading, the 2008 annual CONCERT meeting, November 14-15, 2008

Tenopir, C. & King, D. 2001. Electronic journals: How user behaviour is changing. In Online information 2001. *Proceedings of the international online information meeting*, London, 4-6 December 2001 pp. 175-181. Oxford: Learned Information Europe. Ltd

Tenopir, C. & King, D. W. 2002. Reading behaviour and electronic journals. *Learned Publishing*, 15(4): 259–265.

Tenopir, C. 2008. Digging deeper into e-journal use: Outcomes, value, and interdisciplinary reading, the 2008 annual CONCERT meeting, November 14–15, 2008.

Teskey, P. & Urquhart, E. 2001. The acceptance of electronic journal in UK higher education. *Information Service & Use*, 21 (3/4): 243-248

Thatcher, A. 2008. Web search strategies: the influence of web experience and task type. *Information Processing & Management*, 44 (3):1308-1329

Thaxton, L. 2000. Information dissemination and library instruction in psychology. *Behavioural and Social Science Librarians*, 21 (1):1-14

Thomas, N.P. (1993), "Information seeking and the nature of relevance: PhD student orientation as an exercise of information retrieval", *Proceedings of ASIS Annual Meeting*, 30:126-30.

Tibbo, H.R. n.d. Information seeking behaviours. [PowerPoint Presentation] Available at http://www.delois.info/files/pdf/events/2004_Sett_6_10/Tibbo-Information-Seeking-Behaviour.Pdf

Tipton, C.J. 2000. 'Graduate students perceptions of library support services for distance learners: A university system –wide study', in *the ninth off campus library services conference proceedings*, P. Steven Thomas. Mount Pleasant, MI: Central Michigan University, 2002. Pp. 261-271

Tomney, H. & Burton, P.F. 1998. Electronic journals: A study of usage and attitudes among academics. *Journal of Information Science*, 24 (6): 419-429

Tombros, A. Ruthven, I. & Jose, J.M. (2003). How Users Assess Web Pages for information seeking. *Journal of American Society for Information Science and Technology*, 56 : 327-344.

Tramullas, J. & Casabon, A.S. 2010. Scientific information retrieval behaviour: A case study in students of philosophy. Paper presented at the I Congreso Espan~ol de Recuperacio n de Informacio n (CERI 2010) Madrid, Spain, 15-16 June 2010 Retrieved 1/10/12 from <http://ir.ii.uam.es/ceri2010/papers/ceri2010-tramullas.pdf>

Trochim, W.M.K. 2001. *The research methods Knowledge base*. 2nd ed. Cornell: Cornell University Press

Tsai, M. 2009. Online information Searching Strategy Inventory (OISSI): a quick version and a complete version and a complete version. *Computers & Education*, 53 (2): 473-483

Tuckman, B. C. 1978. *Conducting Educational Research*. Brace Jovanovick: Harcourt

Tushman, M. 1978. Technical communication in research and development laboratories: The impact of project work characteristics. *Academy of Management Journal*, 21: 624-645

Tushman, M & Nadler, N. 1978. Information processing as an integrating concept in organizational design. *Academy of Management Review*, 8:613-624

Unwin, L., Stephens, K. & Bolton, N. 1998. *The role of the library in distance learning: A study of postgraduate students, course providers and librarians in the U.K.* London: Bowker Saur, pp. 99-103

Urquhart, C., Thomas, R., Spink, S., Fenton, R. Yeoman, A. & Lonsdale, R. 2005. Student use of electronic information services in further education. *International Journal of Information Management*, 25 (4):347-362

Urquhart, C. & Crane, S. 1994. Nurses' information-seeking skills and perceptions of information sources: assessment using vignettes. *Journal of Information Science*, 20 (4): 237-246.

Urquhart, C. & Rowley, J. 2007. Understanding student information behaviour in relation to electronic information services: Lessons from longitudinal monitoring and evaluation. *Journal of the American Society for Information Science and Technology*, 58 (8): 1188-1197.

UNESCO. 2008. *Towards information literacy indicators*. Paris: UNESCO

Utto, J. 1999. The role of law libraries in a democratic culture. A paper presented at the 1999 NLA National Conference and AGM Aug. 15 -20th.

Vakkari, P. 1998. Growth of theories a information seeking: an analysis of growth of theoretical research program on the relation between task complexity and information seeking. *Information Processing & Management*, 34 (2/3): 361-382

Vakkari, P. 1999. Task complexity, problem structure and information actions integrating studies on information seeking and retrieval. *Information Processing and Management*, 35: 819-837

Vakkari, P. & Kuokkanen, M. 1997. Theory growth in information science: applications of the theory of science to a theory of information seeking. *Journal of Documentation*, 53 (5): 497-519

Vakkari, P. & Talja, and S. 2005 The influence of the scatter of literature on the use of electronic resources across disciplines: A case study of FinELib. In *Proceedings of the 9th European Conference on Digital Libraries*, 207-217. Berlin & Heidelberg: Springer.

Vezzosi, M. 2009. Doctoral students' information behavioural exploratory study at the University of Parma (Italy). *New Library World*, 110 (1/2): 65-80

Wagner, D. & Berger, J. 1985. Do sociological theories grow? *American Journal of Sociology*, 90: 697-728

Wales, T. 2000. Practice makes perfect? Vets. Information Seeking Behaviour and Information Use Explored. *Aslib Proceedings*, 52: 235-246

Wang, P., Hawk, W.B. & Tenopir, C. 2000. User's interaction with World Wide Web resource: An explanatory study using a holistic approach. *Information Processing and Management*, 36 (2): 229-251

Wang, P. 2006. Information Behaviours of Academic Researchers in the Internet Era: An interdisciplinary & cross –cultural study. In *Proceedings of the 1st International Scientific Conference era: The Information Technology to Science, Economy, Society & Education* (Cultural Centre of Tripoli, Greece, 16-17 September 2006.)

Ward, M. 2001. A survey of engineers in their information world. *Journal of librarianship and Information Science*, 33 (4): 168-176

- Washington-Hoagland, C. & Clougherty, and L. 2002. Identifying the resources and service needs of graduate and professional students: The University of Iowa users needs of graduate professional series portal. *Libraries and the Academy*, 2 (1):125-143
- Wei, W. 1995. Rethinking science library services: a user study at the University of California. *Santa Cruz, Science and Technology Libraries*, 15 (3): 17-33
- Weiler, A. 2005. Information –seeking behaviour in Generation Y students: motivation, critical thinking and learning theory. *The Journal of Academic Librarianship*, 31 (1): 46-53
- Weingand, D.E. 1993. *Grounded theory and qualitative methodology*. IFLA journal, 9 (1): 17-26
- Weiss, R.S., 1994. *Learning from Strangers: the Art and Method of Qualitative Interview Studies*. New York: The Free Press.
- Wells, D. 2007. What is a Library OPAC? *Electronic Library*, 25 (4): 386-39
- White, R.W., Dumais, S.T. & Teevan, J. 2009. Characterising the influence of domain expertise on web search behaviour. Paper presented at the 2nd ACM international Conference on the web Search and data mining (WSDM'09), Barcelona, Spain, and February 9-12, 2009. Retrieved 19/04/11. From www.wsdm2009.org/papers/p132-white.pdf
- Whitemire, E. 2002. Discipline differences and undergraduate information-seeking behaviour. *Journal of the American Society for Information Science and Technology*, 53(8): 631-638
- Whitmire, E. 2003. Epistemological beliefs and the information –seeking behaviour of undergraduates. *Library & Information Science Research*, 25 (2): 127-142
- Whitworth, D. 2003. IT education and democratic practice. *Tangentium*, 1 (1):218-222

Wiberley, S.E & Jones, W.G. 1995. Patterns of Information seeking in the humanities. *College & Research Libraries*, 50 (6): 638-645

Wildemuth, B.M. 2004. The effects of domain knowledge on search tactic formulation. *Journal of American Society for Information Science and Technology*, 55 (3): 246-258

Williams, H.C. 2000. User education for graduate students: Never a given and not always received. In T.E.J.A.H.C Williams (Ed.) *Teaching the new library to today's users : Reaching international minority, senior citizens, gay/lesbian, first generation at risk, graduate and returning students and distance learners*. New York: Neal-Shuman Publishers, Inc

Williamson, K. , Bernath, V., Wright, S. & Sullivan, J. 2008. Research students in the electronic age: Impacts of changing information behaviour on information literacy needs. *Communication in Information Literacy*, 1 (2) Retrieved 1/07/11 from <http://www.comminfolot.org/index.php/cil/article/view/Fall2007ARI/48>

Wilson, T.D. 1997b. Information behaviour: an inter-disciplinary perspective, *Information Processing & Management*, 33 (40): 551-572

Wilson, T.D. 1999. Models of information searching behaviour research. *Journal of Documentation*, 55 (3): 249-270. Viewed 2/3/11. <http://informationr.net/tdw/publ/papers/1999JDoc.html>. Viewed 2 March 2011

Wilson, T.D. , Ellis, D. Ford, N. & Foster, A. 1999. Uncertainty in information seeking : Finland report to the British library research and innovation centre/ library and information commission on a research project, the Department of Information Studies, University of Sheffield. Grant Number LIC/RE/019. Library and Information Commission Research Report59. <http://informationr.net/tdw/publ/unis/app3.html#upro>

Wilson, T.D. 2000. Human Information Behaviour. *Special Issue on information Science Research*, 13 (2):49-55

Wilson, T.D. 2004. Information seeking behaviour and the digital information world. *European Science Editing*, 30 (3): 43-56

Wilson, T.D. 2006. Revisiting user studies and information needs. *Journal of Documentation*, 62 (6): 680-684

Wilson, T.D. 2009. Talking about the problem: a content analysis of pre-search interviews. *Information Research*, 10 (1). Available online [http://informationr.net/ir.10-1/paper206.html](http://informationr.net/ir/10-1/paper206.html) .Accessed 8/12/11.

Witkin, R. & Altschuld, J. 1995. *Planning and conducting needs assessments*. Thousand Oaks, CA: Sage

Worthington, V.L & Zhao, Y. 1999. Existential computer anxiety and changes in computer technology: What past research on computer anxiety has missed? *Journal of Education Computing Research*, 20 (4): 299-315

WWW.ru.ac.za/rhodes

WWW.seals.ac.za/index

WWW.ufh.ac.za/history

Xie, H. 2000. Shift of interactive intentions and information –seeking strategies in interactive information retrieval. *Journal of American Society for Information Science*, 51: 841-857

Xie, H. 2007. Shifts in information-seeking strategies in information retrieval in the digital age: planned –situational model. *Information Research*, 12 (4) paper colis 22 [Available at <http://informationR.net/ir/12-4/colis/colis22.html>]

Young, N.J. & Von Seggern. 2001. General information seeking in changing times: a focus group study. *Reference and User Service Quarterly*, 41 (2): 159-169

Yu, L. & Apps, A. 2000. Studying e- journal user behaviour using log files: The experience of Super Journal. *Library and Information Science Research*, 22 (3): 311-338

Zabel, D. Benzak, L. & Benzak, V. 2004. A reaction to information literacy and higher education. *Journal of Academic Librarianship*, 16 (1): 17-21

Zainuriyah, A. K. 2009. Reconceptualisation of the construct ability to conduct a research and developing a model of an alternative assessment instrument for geography. Thesis PhD. Fakulti Pendidikan. Universiti Kebangsaan Malaysia

Zhang, Z. 1999. Evaluating electronic journals services and monitoring their usage by means of WWW server log file analysis. *Vine*, 111:37-42

Zhang, X., Anghelescu, H. G.B. & Yuan, X. 2005. Domain knowledge, search behaviour and search effectiveness of engineering and science students: an exploratory study. *Information Research*, 10 (2). Retrieved 1, 02, 11, from <http://informationR.net/ir/10-2/paper217.html>

APPENDICES

Appendix 1: Cover letter

Dear Participant,

My name is Madireng Monyela, a postgraduate student in the Department of Library and Information Science, under the direction and supervision of Prof. Ondari-Okemwa at the University of Fort Hare, Alice Campus.

I am conducting a research study in fulfilment of the requirement of a Masters degree. **My study title is “Information seeking behaviour of postgraduate students: A study of two universities in Eastern Cape, South Africa”**

I am asking you to participate by answering the questions in the attached questionnaire. It will take about 20 minutes to answer the questionnaire that is attached. Please understand that you are not being forced to take part in this study and the choice of whether you participate or not, is yours alone. However, I would really appreciate it if you do share your thoughts with me. If you choose not to take part in answering these questions, you will not be affected in anyway. If you agree to participate, you can stop at any time should you not feel like continuing, as a result there will be no penalties and you will **NOT** be prejudiced in ANY way. Confidentiality will be observed always.

I will not be recording your name anywhere on the questionnaire and no one will be able to link you to the answers you give. The information will remain confidential and there will be no follow ups on the answers you give. The main objectives of the study

are to find out information sources that postgraduate students value most and where they find such sources, to find out the activities postgraduate students engage in when seeking for information, to establish the factors which influence postgraduate students' information seeking behaviour and to determine methods that postgraduate students use to obtain relevant information. Based on the findings, ways will be suggested on how to support postgraduate students from diverse backgrounds with academic information seeking. The study will be confined to UFH and RU and hopefully the findings will be applicable to other SEALS libraries as and even other institutions and help the institutions to revise their academic support programmes

Yours Sincerely,

Principal Researcher: Madireng Monyela

Contacts : 040 602 2212 / 0795543583 /0835345316

Email : mmonyela@ufh.ac.za

Supervisor : Prof E.M Ondari-Okemwa

Contacts : 040 602 2437

Email :eondari@ufh.ac.za

INFORMED CONSENT

I hereby agree to participate in research regarding Information seeking behaviour of postgraduate students: A study of two universities in Eastern Cape, South Africa. I understand that I am participating freely and without being forced in any way to do so. I also understand that I can pull out from participating in this interview or the questionnaire at any point should I not want to continue and that this decision will not in any way affect me negatively.

I understand that this is a research project whose purpose is not necessarily to benefit me personally.

I have received the telephone number of a person to contact should I need to speak about any issues which may arise in this questionnaire / interview.

I understand that this consent form will not be linked to the questionnaire, and that my answers will remain confidential.

I understand that if at all possible, feedback will be given to my University on the results of the completed research.

.....

Signature of participant

Date:.....

I hereby agree to the tape recording of my participation in the study

.....

Signature of participant

Date:.....

Appendix 2 : Questionnaire

**INFORMATION SEEKING BEHAVIOUR OF POSTGRADUATE STUDENTS: A
STUDY OF TWO UNIVERSITIES IN EASTERN CAPE, SOUTH AFRICA.**

Section A

1. DEMOGRAPHIC BACKGROUND

Please tick on the appropriate answer

1.1 What is your gender?

Male Female

1.2 What is your age bracket?

21-30 31-40 41-50 51+

1.3 Level of Study
PhD Post Doc P/G Diploma Honours Masters

Other – (please Specify)-----

1.4 University Fort Hare Rhodes University

1.5 Campus, please specify-----

1.6 Faculty-----

1.7 Department-----

1.8 Type of study Full time Part time

1.9 For how long have you been in the current programme?

Less than a year 1 year 2 years 3 years More than
three years

SECTION B

INFORMATION SOURCES THAT POSTGRADUATE STUDENTS VALUE MOST AND WHERE THEY FIND THEM

2. Which information sources do you value the most? (Please choose one answer that is most appropriate)

Internet search engines e.g Google, yahoo,	
Academic and Scholar search engines e.g DiVA, Google scholar	
Scientific Databases and or electronic journals, electronic books	
Printed books, Journals, Newspapers, etc.	

Other (please specify)	
------------------------	--

3. Where do you conveniently access print sources of information? (Books, Journals, Newspapers, Magazine, e.t.c) (Please select as many answers as may apply)

University Library	
Departmental Library	
Public Library	
Home	
Any other place (please specify)	

4. Where do you conveniently access electronic sources of information? (Scientific databases, electronic books, electronic journals, e.t.c) (Please select as many answers as may apply)

University Library	
Computer lab	
Internet café	
Home	
Mobile phones	
Public Library	
Any other place (Please specify)	

5. In your opinion, do electronic sources of information make it easy or more difficult to access and use information? Please respond by circling your answer following statements using the 5–point Lickert scale below, where 1 = Strongly Disagree (SD), 2 =Disagree (D), 3=Neither Disagree nor Agree (N), 4= Agree (A), and 5= Strongly Agree (SA)

	Strongly disagree (SD)	Disagree (D)	Neither Disagree / Nor Agree (N)	Agree (A)	Strongly agree (SA)
Easy	1	2	3	4	5
I spend about the same amount of time on accessing and using information with or without electronic sources	1	2	3	4	5
It takes more time to gather and sort through information	1	2	3	4	5

SECTION C

INFORMATION SEEKING ACTIVITIES POSTGRADUATE STUDENTS ENGAGE IN

6. How frequently are you involved in each of the following information seeking activities?

	Daily	weekly	monthly	Quarterly	Never
Search Internet search engines, e.g. Google, Yahoo					
Search Academic and Scholar search engines e.g. DiVA, Google scholar					
Search Online Public Access Catalogue (OPAC)					
Search databases e.g. Science Direct, EBSCO host, ERIC (EBSCO)					
Library shelf browsing (e.g. printed books, journals, newspapers, etc.)					

Consult a colleague					
Consult a librarian					
Consult lecturer's recommended reading list/bibliography					
Consult the references' list at the end of articles and/or books					
Alerting services (Email alerts, saved searches alerts, etc) offered by scientific databases					
Other (please specify)					

7. Indicate the approximate amount of time you spend per week in the following information gathering activities

	0-3 hrs	4-6 hrs	7-9 hrs	More than 10 hrs
Reading e-mails				
Photocopying				
Conferring with fellow students				

or other experts				
Reading books, articles				
Searching electronic databases				
Searching the Internet				
Searching the OPAC				
Consulting with supervisors				
Attending lectures				
Other (please specify)				

SECTION D

FACTORS WHICH INFLUENCE POSTGRADUATE INFORMATION SEEKING

8. What determines your choice of Information sources? (Please select as many answers as may apply)

Lectures /Supervisors recommended reading	
Librarians recommendations	
Fellow students suggestions	
Previous experience	
Other (Please specify)	

9. How do you keep abreast of current developments in your field of study? (Please select one answer that you consider most applicable)

Scanning of current ,print or online journals		E-mail alerts	
Scanning recent issues of abstracting tools		Services from library e.g. CAS	
Internet		Databases	
Library display		Other (please specify)	

SECTION E

METHODS THAT POSTGRADUATE STUDENTS APPLY IN OBTAINING RELEVANT INFORMATION

10. Which of the following search techniques do you use for retrieving relevant information? (Please select as many techniques as may apply)

One keyword	
More than one keywords	
A phrase (using quotation marks)	
Boolean operators (AND – OR – NOT)	
Proximity operators	
Truncation (e.g. librar*)	
Search within results	
Find similar results	
Search within a specific date range	
Other (please specify)	

11. (a) Do you ever modify your search strategies?

Always

Sometimes

Rarely

Never

11. (b) In case your initial search does not return satisfactory results, how do you modify your search strategy? Please select as many answers as may apply

I choose different keyword/keywords	
I choose different information sources (e.g. search engine, database, journal provider)	
I change search technique (e.g. I use Boolean operators, truncation, search of phrase instead of keywords, etc.)	
I presume there are no satisfactory results and stop the search process	
Other (please specify)	

12. How frequent do the following factors affect you in evaluating the quality of an information source?

	All the time	Frequently	Fairly frequently	Seldom	Never
Article title					
Journal's title					
Thematic descriptors					
Abstract					
Other authors' views about the source/article, etc.					
References lists					
Other (please specify)					

13. How frequent do you use the following sources to find relevant information?

	All the time	Frequently	Fairly frequently	Seldom	Never
Internet search engines e.g. Google, Yahoo					
Academic and Scholar search engines e.g. DiVA, Google scholar.					
Electronic journals/databases, electronic books					
Print Books					
Print Journals					

14. (a) In case you do not find relevant information from your searches, how do you feel? Please respond by circling your answer following statements using the 5-point Likert scale below where 1 = Strongly Disagree (SD), 2 =Disagree (D), 3=Neither disagree nor Agree (N), 4= Agree (A), and 5= Strongly Agree (SA)

	Strongly disagree (SD)	Disagree (D)	Neither Disagree / Nor Agree (N)	Agree (A)	Strongly agree (SA)
Frustrated	1	2	3	4	5
Confused	1	2	3	4	5
Disappointed	1	2	3	4	5
Pessimistic	1	2	3	4	5
Demotivated	1	2	3	4	5

14 (b) When you find relevant information from your searches, how do you feel? Please respond by circling your answer following statements using the 5–point Likert scale below where 1 = Strongly Disagree (SD), 2 =Disagree (D), 3=Neither disagree nor Agree (N), 4= Agree (A), and 5= Strongly Agree

	Strongly disagree (SD)	Disagree (D)	Neither Disagree / Nor Agree (N)	Agree (A)	Strongly agree (SA)
Confident	1	2	3	4	5
Satisfied	1	2	3	4	5
Optimistic	1	2	3	4	5
Motivated	1	2	3	4	5

THANK

YOU

Appendix 3 : RU Ethical Clearance Certificate

Rhodes University Ethical Standards Committee, Rhodes University, P O Box 94,
Grahamstown, 6140
Tel: +27 46 603 7366 □ Fax: +27 46 603 8934 □ email: M.Goebel@ru.ac.za

21 Sep 2012

Dear Miss Monyela,

Ethics Clearance: 2012Q2-9

Principal Investigators: Madireng Monyela

This letter confirms that the research proposal with tracking numbers 2012Q2-9 “Information seeking behaviour of postgraduate Students” was given ethics clearance by the chair of the Rhodes University Ethical Standards Committee.

Please ensure that the ethical standards committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on completion of the research. The purpose of this report is to indicate whether or not the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the ethical standards committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library’s electronic theses and dissertations (ETD) repository, please notify the committee of the date of submission and/or any reference or cataloguing number allocated.

Yours sincerely

Rhodes University Ethical Standards Committee, Rhodes University, P O Box 94,
Grahamstown, 6140

Tel: +27 46 603 7366 □ Fax: +27 46 603 8934 □ email: M.Goebel@ru.ac.

Yours sincerely

Professor M. Göbel: Chairperson RUEESC.

Note:

1. This clearance is valid from the date on this letter to the time of completion of data collection.
2. The ethics committee cannot grant retrospective ethics clearance.
3. Progress reports should be submitted annually unless otherwise specified in the clearance letter.

Appendix 4 : UFH Ethical Clearance Certificate



University of Fort Hare

OFFICE OF UNIVERSITY REGISTRAR

Alice (main) Campus:

Private Bag X1314, King William's Town Road, Alice, 5700, RSA
Tel: +27 (0) 40 602 - 2501 • Fax: +27 (0) 40 602 - 2577
Email: nmabindisa@ufh.ac.za



University of Fort Hare
Together in Excellence

August 21, 2012

Ms. Madireng Jane Monyela
Department of Library and Information Systems

Dear Ms. Monyela

Approval from the Registrar's Office to conduct research

Having consulted the Chairperson of the Research Ethics Committee, I hereby grant permission to conduct the research.

Kind regards

N Mrwetyana (PhD)
REGISTRAR



Bhisho Campus: P. O Box 1153, KWT 5600, Independence Avenue , Bhisho, 5600, RSA
Tel: +27 (0) 40 608 - 3407 • Fax: +27 (0) 40 608 - 3408

East London Campus: Private Bag X9083, EL 5200, 50 Church Street, East London, 5201, RSA
Tel: +27 (0) 43 704 - 7000 • Fax: +27 (0) 43 704 - 7095
V/C Dial Up: +27 (0) 43 704 - 7143/ 7144

together in excellence



www.ufh.ac.za

