Distance students' readiness for an online information literacy programme: Unisa School of Accountancy as a case study

by

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Declaration

I, Legobole Boquin Rantla, declare that *Distance students' readiness for an online information literacy programme: Unisa School of Accountancy as a case study* is my own work and that all the sources used and quoted herein have been acknowledged by a complete reference.

The author, whose name appears on the title page of this dissertation, obtained the applicable research ethics approval to conduct the research described in this work. The author declares that she has observed the ethical standards prescribed by the University of Pretoria's code of ethics for researchers and the policy guidelines for responsible research.

26 December 2016

Signature

Date

(Ms Legobole Boquin Rantlha)

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LIST OF ACRONYMS AND ABBREVIATIONS

ALA	American Library Association
ACRL	Association of College and Research Libraries
CD-ROM	Compact disk read-only memory
CHELSA	Committee of Higher Education Libraries in South Africa
EBIT	Faculty of Engineering, Built Environment and Information Technology
E-LIS	E-prints in Library and Information Science
ICT	Information and communication technology
JSTOR	Journal Storage
IL	Information literacy
LISA	Library and Information Science Abstracts
NRF	National Research Foundation
OASIS	Unisa library catalogue
ODL	Open distance learning
SABINET	South African Bibliographic and Information Network
SAQA	South African Qualification Authority
SRIHDC	Senate Research and Innovation and Higher Degrees Committee
UNISA	University of South Africa
UREC	Unisa Research Ethical Committee

ABSTRACT

This dissertation reports on a study of the self-reported readiness of undergraduate first-year students at a very large distance teaching institution, the University of South Africa (Unisa). The Unisa library does not offer an online information literacy programme for distance students and has not conducted surveys on students' needs and their readiness for using online information resources and an online learning management system. The main research question thus was:

> *What are the information seeking behaviour and the readiness of Unisa distance students in using and accessing the library online resources?*

Sub-questions were:

- What has been reported on information literacy and information literacy programmes for distance students, with special reference to online programmes?
- What has been reported on virtual learning environments with specific reference to distance education?
- What are the students' self-rated perceptions of their information literacy skills?
- What are the students' information seeking behaviour and preferences in using online information resources?
- What are the students' self-rated perceptions in using an online learning management system in a virtual learning environment?

The Unisa School of Accountancy served as case study. All students enrolled for first-year modules in the School of Accountancy (including the Departments of Auditing, Financial Accounting, Management Accounting and Taxation) were invited to participate in the survey. Data collection occurred in July and August 2015 by means of a self-administered, semi-structured online questionnaire survey. In total 587 students responded, resulting in 525 usefully completed questionnaires. Most of the students were geographically remote from the institution and the library and its branches. The study

collected mostly descriptive quantitative data, with limited qualitative data. The quantitative data were analysed by means of a statistical package (SAS JMP version 12), and the qualitative data by means of thematic analysis.

The questionnaire covered self-reported information seeking behaviour when using the library's online resources, whether students had received training on information literacy skills, and if these skills were effective enough to assist them to locate and access the library's diverse online information resources relevant to their studies. It also collected data on their readiness to use an online learning management system. The limitations of self-reporting are acknowledged; in this case it was considered appropriate to determine lack of skills.

Although the findings cannot be generalised to all Unisa or all distance students, they can inform recommendations on the need for an online information literacy skills programme for distance students and methods to conduct similar studies of students' readiness to use such a programme.

Respondents lacked information literacy skills that could enable them to access or use the online library resources from a distance. They lacked skills in using the virtual learning environment system, experienced problems in accessing the library from a distance, could not use databases to access online full-text articles and were often not aware of the library website and how it could be used.

It is recommended that the Unisa library consider developing an online information literacy programme that adheres to international standards and guidelines for information literacy, and that this be informed by the needs expressed by students from diverse disciplines and study years and their self-reported information-seeking behaviour. For distance students a programme must be available through a virtual learning environment and this must be linked to the library's website and marketing efforts.

KEYWORDS

- Case study
- Distance education
- Distance libraries
- Distance students
- Information literacy skills
- Information seeking behaviour
- Online information literacy programmes
- Online information seeking behaviour

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION TO THE STUDY

1.1	INTRODUCTION	1
1.1.1	Background of the study	2
1.1.2	Background to the problems faced by distance libraries	4
1.2	CHARACTERISTICS OF THE UNISA STUDENT CORPS, WITH SPECIFIC REFERENCE TO THE DIGITAL DIVIDE	6
1.3	UNISA LIBRARY	8
1.4	STATEMENT OF THE PROBLEM, RESEARCH QUESTION AND SUB-QUESTIONS	9
1.4.1	Main research problem and research question	10
1.4.2	Sub-problems and sub-questions	10
1.5	AIMS AND OBJECTIVES OF THE STUDY	11
1.6	LITERATURE REVIEW	12
1.6.1	Information literacy and standards of information literacy	13
1.6.2	Information-seeking behaviour of distance students	14
1.6.3	Use of technology for teaching information literacy in academic contexts	14
1.6.4	Information literacy and remote library users	15
1.6.5	Online training programmes for distance library users	15
1.7	SIGNIFICANCE OF THE STUDY	16
1.8	SCOPE AND LIMITATIONS OF THE STUDY	16
1.9	DEFINITION OF KEY CONCEPTS	16
1.9.1	Information behaviour	16
1.9.2	Information needs	17
1.9.3	Information seeking	17
1.9.4	Information seeking behaviour	17
1.9.5	Information literacy	18
1.9.6	Information literacy programme	19
1.9.7	Distance education	19
1.9.8	Distance student	19
1.9.9	Virtual learning environment	20
1.10	RESEARCH DESIGN AND METHODOLOGY	20
1.10.1	Research method and approach: Case study survey	20
1.10.2	Population and sampling	20

1.10.2.1 *Population* 20
1.10.2.2 *Sampling* 21
1.10.2.3 *Inclusion and exclusion applied in the study* 21
1.10.3 Research instruments: Questionnaire 21
1.11 ETHICAL CONSIDERATIONS IN DATA COLLECTION 22
1.12 VALIDITY AND RELIABILITY OF THE DATA-GATHERING INSTRUMENT 22
1.13 ORGANISATION OF THE CHAPTERS 23
1.14 CONCLUSION 26

CHAPTER 2: DISTANCE EDUCATION, INFORMATION-SEEKING BEHAVIOUR AND INFORMATION LITERACY OF DISTANCE STUDENTS: A LITERATURE ANALYSIS

2.1 INTRODUCTION 27
2.2 DISTANCE EDUCATION 27
2.3 LIBRARY SERVICES TO DISTANCE STUDENTS 29
2.4 INFORMATION SEEKING BEHAVIOUR OF DISTANCE STUDENTS 30
2.4.1 Findings reported on information seeking behaviour of distance students 30
2.5 INFORMATION LITERACY PROGRAMMES 34
2.5.1 Importance of information literacy programmes in higher education 34
2.5.2 Problems and needs associated with information literacy 37
2.5.2.1 *Problems experienced by distance students in accessing library services* 37
2.6 THE PROBLEM OF THE DIGITAL DIVIDE 38
2.6.1 Use and importance of information and communication technology in distance education 39
2.7 ISSUES EMERGING FROM THE LITERATURE ANALYSIS 39
2.7.1 Discussion of issues to consider when designing an information literacy programme for distance students 41
2.8 TERTIARY INSTITUTIONS WITH ONLINE INFORMATION LITERACY PROGRAMMES IN SOUTH AFRICA 45
2.9 REPORTS ON ONLINE INFORMATION LITERACY PROGRAMMES FOR DISTANCE EDUCATION LIBRARIES 49
2.10 LESSONS LEARNED FROM THE STUDIES REPORTED 60

2.11 CONCLUSION 60

CHAPTER 3: VIRTUAL LEARNING ENVIRONMENTS IN DISTANCE EDUCATION

3.1 INTRODUCTION 62
3.2 CONTEXTUALISATION OF VIRTUAL LEARNING ENVIRONMENTS 63
3.3 PRINCIPAL FUNCTIONS OF VIRTUAL LEARNING ENVIRONMENTS 65
3.4 USE OF VIRTUAL LEARNING ENVIRONMENTS AND CHALLENGES FACED 66
3.4.1 Distance education and studies on programmes using ICT 66
3.4.2 Characteristics of virtual learning programmes 67
3.4.3 Virtual learning programmes and distance students 67
3.4.4 Challenges of virtual learning environments in distance education 69
3.5 REASONS FOR DISTANCE EDUCATION INSTITUTIONS TO USE VIRTUAL LEARNING ENVIRONMENTS 72
3.6 DISTANCE EDUCATION LIBRARIES' USE OF VIRTUAL LEARNING PROGRAMMES 74
3.6.1 Technologies to incorporate online information literacy programmes 75
3.7 CONCLUSION 75

CHAPTER 4: RESEARCH METHODOLOGY

4.1 INTRODUCTION 77
4.2 RESEARCH DESIGN 77
4.2.1 Types of research designs 78
4.2.1.1 *Quantitative* 78
4.2.1.2 *Qualitative* 79
4.2.1.3 *Mixed methods* 79
4.3 RESEARCH METHOD: CASE STUDY SURVEY 80
4.4 RESEARCH INSTRUMENTS FOR DATA COLLECTION 83
4.5 POPULATION AND SAMPLING 84
4.5.1 Definition of sampling 85
4.5.2 Sample size 85
4.5.3 Choices of the study 85
4.6 PILOT STUDY 86

4.7	TREATMENT OF DATA	86
4.8	ETHICAL CLEARANCE	87
4.9	VALIDITY AND RELIABILITY OF DATA GATHERING INSTRUMENTS	87
4.10	GRAPHIC PRESENTATION OF THE RESEARCH DESIGN	88
4.11	CONCLUSION	88

CHAPTER 5: DATA ANALYSIS AND FINDINGS

5.1	INTRODUCTION	89
5.2	SUMMARY OF THE EMPERICAL STUDY	89
5.3	REPORT ON QUANTITATIVE FINDINGS	90
5.3.1	Section A: Findings on respondents' registration profiles	90
5.3.1.1	*First-year registrations in the School of Accountancy*	90
5.3.1.2	*Departments where modules are registered*	90
5.3.1.3	*Regions where participants reside*	92
5.3.2	Section B: Findings on access to information and communication technology and the internet	92
5.3.2.1	*Personal use of the internet to find information*	92
5.3.2.2	*Places for accessing the internet*	92
5.3.2.3	*Devices used for accessing the internet*	96
5.3.2.4	*Self-rating skills in using the internet*	99
5.3.2.5	*Self-rating skills in using the online learning management system*	100
5.4	SECTION C: FINDINGS ON TRAINING IN INFORMATION SEEKING AND PREFERENCES WITH REGARD TO INFORMATION SEEKING	105
5.4.1	Access to the Unisa library website	105
5.4.2	Frequency of using the Unisa library	106
5.4.3	Receiving training on accessing and using the physical library	106
5.4.4	Receiving training on how to access and use library resources to find information by using the library website and internet	107
5.4.5	Where training was received	107
5.4.6	Method of preference when requesting assignment-related information from the library	108
5.5	SECTION D: AWARENESS AND UNDERSTANDING OF ELECTRONIC RESOURCES	111
5.5.1	Awareness of the electronic resources of the Unisa library	111

5.5.2	Self-rating of skills in using library resources	111
5.5.3	Self-rating of skills in using Unisa library catalogue	114
5.5.4	Self-rating of skills in using electronic bibliographic full-text databases	117
5.6	REPORTING OF FINDINGS FROM QUALITATIVE DATA: Reasons for not accessing the Unisa library website	120
5.6.1	Reasons for not accessing the Unisa library website	120
5.6.1.1	Inability to give a reason	120
5.6.1.2	Lack of knowledge on how to use the library website or how to use it optimally	121
5.6.1.3	Lack of awareness of the library website and what it entails	121
5.6.1.4	Preference for using Google	121
5.6.1.5	Satisfaction with additional resources	121
5.6.1.6	Not recognising or experiencing a need to use the library	122
5.6.1.7	Requiring training first	122
5.6.1.8	Perceptions that students must visit the library first before they can get access to the internet	122
5.6.1.9	Not recognising the usefulness of using the library	123
5.6.1.10	Lack of awareness	123
5.7	BRIEF DISCUSSION OF KEY FINDINGS	123
5.8	CONCLUSION	124

CHAPTER 6: INTERPRETATION OF FINDINGS

6.1	INTRODUCTION	125
6.2	REITERATION OF THE STUDY PURPOSE, RESEARCH QUESTIONS AND SUB-QUESTIONS	125
6.3	TRIANGULATION AND INTERPRETATION OF FINDINGS	126
6.3.1.	Registration profiles of first-year School of Accountancy students	126
6.3.2	Access to ICT and internet skills	126
6.3.2.1	*Personally using the internet to find information*	127
6.4	WHERE INTERNET ACCESS IS GAINED	127
6.4.1	Device(s) students use to get access to the internet	129
6.4.2	Internet skills	129
6.4.3	Skills in accessing online library resources	129

6.4.4	Skills in using an online learning management system such as MyUnisa to access online library resources	130
6.5	SECTION C: TRAINING IN INFORMATION SEEKING AND PREFERENCES WITH REGARD TO INFORMATION SEEKING	131
6.5.1	Access to the Unisa library website	131
6.5.2	Reasons why some students cannot use the Unisa library website	131
6.5.3	Training in accessing and using the Unisa library resources when physically visiting the library	132
6.5.4	Reasons for not being trained to use the library resources	132
6.5.5	Training in accessing and using Unisa library resources, using the library website and internet	132
6.5.6	Institutions where training was conducted	132
6.5.7	Personally preferred method to use when requesting assignment-related information	132
6.6	SECTION D: AWARENESS AND UNDERSTANDING OF E-RESOURCES	133
6.6.1	Awareness of library e-resources	134
6.6.2	Self-rated skills in using Unisa library‘s e-resources	134
6.6.3	Self-rated skills in using the Unisa library catalogue	134
6.6.4	Self-rated skills in using electronic bibliographic and full-text databases	134
6.7	CONCLUSION	135

CHAPTER 7: FINDINGS, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER STUDIES

7.1	INTRODUCTION	136
7.2	PURPOSE, AIMS AND OBJECTIVES RECONSIDERED	136
7.2.1	Aims reconsidered	136
7.2.2	Objectives reconsidered	137
7.3	PROBLEM STATEMENT, MAIN RESEARCH QUESTIONS AND SUB-QUESTIONS RECONSIDERED	138
7.3.1	Problem statement reconsidered	138
7.3.2	Main research question and sub-questions reconsidered	138
7.4	SUMMARY OF THE RESEARCH DESIGN	140

7.5	BRIEF SUMMARY OF FINDINGS	141
7.5.1	Findings from literature on information literacy programmes for distance education	141
7.5.2	Findings from literature on virtual learning environment with specific reference to distance education	141
7.5.3	Findings from empirical study component: online survey	142
7.5.3.1	*Findings on students' self-rated perceptions of their information literacy skills*	142
7.5.3.2	*Findings on information seeking behaviour and preferences in using online information sources*	143
7.5.3.3	*Findings on self-rated skills in using an online learning management system*	143
7.6	VALUE OF THIS STUDY	144
7.7	LIMITATIONS	144
7.8	RECOMMENDATIONS	144
7.8.1	Recommendations for practice	144
7.8.2	Recommendations for theory	145
7.9	SUGGESTIONS FOR FURTHER RESEARCH	145
7.10	CONCLUSION	146
LIST OF REFERENCES		147
ANNEXURE A: EBIT APPROVAL		165
ANNEXURE B: UREC APPROVAL		166
ANNEXURE C: UNISA GATEKEEPER PERMISSION		168
ANNEXURE D: RESEARCH PERMISSION SUBCOMMITTEE OF SRIHDC		169
ANNEXURE E: ONLINE ANONYMOUS WEB-BASED SURVEY		170
ANNEXURE F: RESEARCHER'S DECLARATION		176
ANNEXURE G: UNISA STATISTICIAN CONFIDENTIAL AGREEMENT		177
ANNEXURE H: REASONS FOR NOT ACCESSING THE LIBRARY WEBSITE		178

LIST OF TABLES

Table 1.1:	Organisation of chapters	23
Table 2.1:	Reports about information-seeking behaviour	31
Table 2.2:	Reports from selected studies on issues to consider when designing information literacy courses	40
Table 2.3:	Issues to consider when designing information literacy programmes	41
Table 2.4:	List of South African universities with online information literacy programmes	46
Table 2.5:	Studies reporting on online information literacy programmes for distance education	51
Table 3.1:	Problems experienced by distance students	71
Table 3.2:	Distance education and the advantages of using virtual learning environments	73
Table 4.1:	Three case study surveys which used online questionnaires to collect data	82
Table 5.1:	Departments presenting the first-year modules for which students are registered	91
Table 5.2:	List of Unisa regional centres	91
Table 5.3:	Personal use of the internet to find information	92
Table 5.4:	Places of access to the internet	93
Table 5.5:	List of devices to access the internet	97
Table 5.6:	Self-rated skills in using the internet	100
Table 5.7:	Skills in using an online learning management system such as myUnisa	102
Table 5.8:	Levels of confidence in accessing the Unisa library	105
Table 5.9:	Frequency of visiting the library	106
Table 5.10:	Access and use of library resources when physically visiting the library	107
Table 5.11:	Access and use of library resources when using the library website	107
Table 5.12:	Type of library where information literacy training was received	108
Table 5.13:	Methods preferred when requesting assignment information	110
Table 5.14:	Awareness of the library resources	111
Table 5.15:	Self-assessment ratings on using the Unisa library's e-resources	113
Table 5.16:	Self-assessment ratings on using the Unisa library catalogue	116
Table 5.17:	Self-rated skills in using bibliographic and full-text databases	119
Table 7.1:	Overview of the research design	140

LIST OF FIGURES

Figure 4.1:	Process followed for the study research design	88
Figure 5.1:	Places where respondents access the internet	93
Figure 5.2:	Devices students use to get access to the internet	97
Figure 5.3:	List of skills in using an online management system such as myUnisa to access online library resources	102
Figure 5.4:	Frequency of using the library either online or on a physical basis	106
Figure 5.5:	Methods preferred to use when requesting assignment-related information from the Unisa library	110
Figure 5.6:	Self-assessment on the levels of skills in knowing and using the Unisa library's e-resources	114
Figure 5.7:	Self-rated skills on using the Unisa library catalogue	117
Figure 5.8:	Self-rated skills in using electronic bibliographic and full-text databases	119

CHAPTER ONE
INTRODUCTION TO THE STUDY

1.1 INTRODUCTION

Chapter 1 provides the background to the study and an outline of the research problem. This is followed by the research questions, the objectives, the significance of the study, its scope and limitations and definitions of key terms used. Finally, the methodology used in the study is outlined, as well as the structure of the dissertation.

The University of South Africa (Unisa) is located in Pretoria, South Africa. This institution does not use face-to-face or residential teaching, which is typical of most universities. The largest portion of students are in locations that are remote or very remote from the institution, e.g. in other parts of South Africa, in other countries and even on other continents. Traditional attendance of lectures is replaced by other means of study, such as study guides, tutorial letters and sometimes media such as audio-tapes, videos, compact disk read-only memory (CD-ROM) and the internet. Students can study at home and in their own time. Sometimes teaching is supported by the use of an electronic learning management system (Badenhorst 2015:20[1]; Lamond & White 2008:3; Pandya & Groove 2007:2).

The terms “remote studies”, “distance studies”, “distance learning”, “distance teaching” and “distance education” are often associated with Unisa. Although Unisa prefers to use the term “open distance learning (ODL)”, the terms “distance education” and “distance students” will be used in this study since they are more in line with the subject literature (Brown *et al*. 2015:12; Lamond & White 2008:2; Aloraini & Kaur 2007:2; Holmberg 2005:65; Garrison 2009:23; Johnston 2003:158; Kazmer 2007:26).

This study is intended to gain understanding of information-seeking behaviour and the information needs of distance students, using Unisa as a case study. The main purpose of the study was to determine the level of readiness and needs of undergraduate (first-

[1] References are arranged according to date of publication, with the most recent reference first.

year) distance students in using the Unisa library's online information resources, and to collect data on their information-seeking behaviour. This compelled the researcher to touch on issues of online information literacy (IL) skills as well.

1.1.1 Background of the study

Information literacy is increasingly important in the contemporary environment of rapid technological change and proliferating information resources. Because of the escalating complexity of this environment, individuals are faced with diverse, abundant information choices in their academic studies, in the workplace and in their personal lives. To emphasise the importance of IL to students, Maritz and Steyn (2003:1) and Dewald, Scholtz-Crane and Levine (2000:33) highlight that for students to be successful academically they are expected to master the knowledge and attitudes required by their disciplines. Students also require critical thinking skills that can be applied in a variety of study contexts and that should be able to support development of their intellectual abilities of reasoning. Information literacy can assist in this. Orr, Appleton and Wallin (2001:457) report that an IL programme should consist of various skills that are vital components of lifelong learning, such as locating, evaluating and using information ethically.

De Jager and Nassimbeni's (2002:167) perspective is that IL replaced earlier concepts used in academic libraries, such as library instruction, bibliographic instruction and user education skills. They further mention that IL is an educational concept that has gained importance as the world became more immersed in technology. Peter *et al*. (2015:3), Shorish (2015:99), Yang (2009:684) and Ojedokun (2007:22) mention that IL has been an important part of academic librarianship. Yang (2009:4) mentions that with the proliferation of information resources and complexity of search skills, students and academics are dazzled by the difficulty in identifying the right resources in their research. According to White and Almond (2008:1), IL is a recognised lifelong learning skill and an expected attribute of graduates. This point is confirmed by Bundy (2004:3), who also clarifies that the term IL refers to a set of skills and insights that enables people to recognise an information need, to decide which resources will best answer that need, to use the resources effectively and to evaluate the information they find.

From the few citations indicated above, one may conclude that IL is a required component in both undergraduate and postgraduate curricula in both distance and residential (on-campus) academic institutions.

With growing numbers of distance students in tertiary institutions, it is important to highlight the barriers they face and the challenges faced by academic libraries in delivering equivalent learning opportunities to students who are studying at a distance. Lamond and White (2008:3) indicate that for on-campus students, IL is aided by frequent opportunities for student interaction with librarians and lecturers, while a serious challenge has been recognised in distance education institutions where interaction is impossible owing to the remoteness. Lamond and White (2008:2) highlight that distance students also face many general barriers, such as lack of computer literacy and internet access. O'Rourke (2009:5) adds that some distance students from rural areas face poverty and inability to access and use information and communication technology (ICT). According to Ojedokun (2007:23), an IL programme also presents challenges to librarians to extend the skills that they teach users to move beyond library orientation, library skills and bibliographic instruction and to train them on how to evaluate information and use it effectively. In addition, librarians should be able to prepare users to exploit the vast array of digital information available in the library irrespective of their geographic location (Odjedokun 2007:23). This presupposes the acquisition of the technical skills needed to access the array of electronic information resources. It also extends beyond the ability to locate information and includes the ability to understand, evaluate and use information appropriately. If students are not exposed to effective IL programmes, they can be frustrated in trying to access subject-specific information from the various electronic information resources. Such frustration can prohibit students from being proactive in their own learning areas. Therefore, this study supports the ideology that IL is recognised globally as an essential competence for education in academic institutions (Peter *et al*. 2015:3; Shorish 2015:99; Corrall 2008:26; Odjedokun 2007:23; Sacchanand 2002:23; Dewald *et al.* 2000:33).

1.1.2 Background of the problem faced by distance libraries

According to the Unisa 2015 Strategic Plan (2007:11), Unisa is an open distance education institution. It is situated in Pretoria, South Africa with satellite campuses and branch libraries elsewhere in South Africa and abroad in Ethiopia. Suttie (2005:97-118) asserts that in response to political and educational changes that took place in South Africa from 1994, Technikon South Africa, the distance education campus of Vista University and the old Unisa (which came into operation in 1916) merged to form a single distance education institution. The new institution legally came into operation with effect from 1 January 2004 (Unisa website; Suttie 2005:97-118).

The institution retained the name Unisa. Unisa is recognised as a major provider of distance education in South Africa. The degrees and programmes provided are considered flexible options for students who choose to study at their own pace and place, using appropriate technologies, and having access to a range of learning support (Unisa 2015 Strategic Plan, 2007). The geographic separation from the institution and the educational approach of allowing students to study at home in their own time require unique approaches to the design of programmes, e.g. supporting self-directed learning (Unisa 2015 Strategic Plan, 2007). Similar approaches are reported in distance education literature, e.g. by Holmberg (2005:484) and Keegan (2000:55).

The worldwide geographic distribution of Unisa students is indicated in the map in Figure 1.1. In total 355 171 students were registered in 2015 (http://heda.unisa.ac.za); the total number of first-year students in the School of Accountancy was 29 685 (http://heda.unisa.ac.za).

Unisa library's 2015 strategic plan considered these registration statistics as extremely large and scattered and therefore accepted responsibility to offer learner support on a massification scale. This is in line with terminology used by Peters with regard to distance education for very large student numbers. Mohamedbhai (2008:59) and Peters (1988:95) use terms such as "mass trend", "mass production" and "consumers and producers", arguing that distance education institutions, as producers, need to research consumers'

(i.e. students') requirements and find standards acceptable to all consumers who are geographically distant from their products.

Unisa follows a distance education model (to which it refers as an ODL model) and a student-centred approach intended to engage students actively and promote interaction with the institution, their lecturers, study material and fellow students. Unisa therefore focuses on providing students with independent study packages and the necessary support to complete their studies successfully (Unisa Library 2010 Strategic Plan). Henning (2010:440) reports on the library's initiatives in this regard and the challenges faced.

To turn distance learning into an interactive and engaging process where students are not passive recipients of information, but actively involved in creating their own learning experiences, Unisa supports processes to provide students with access to resources. This includes a technology-enabled environment to support the administrative, psychosocial (involving factors that are psychological and social in origin) and academic aspects of student experience at Unisa, financial assistance services, flexible options for study material and a well-stocked library, comprehensive study guides and opportunities to engage with lecturers, tutors and peers (Unisa 2015 Strategic Plan 2007; Mahwah 2007:89).

Considering the need for distance students to master IL (explained in the sections to follow) and the unique requirements of a distance education context, the study will determine undergraduate distance students' level of readiness in using online information resources available through the Unisa library, as well as students' information-seeking behaviour. This study's results or findings may point to a need for an online IL programme for first-year distance students and specific needs and preferences of students in this regard. Furthermore, the findings might support the Unisa library in planning and designing such a programme. At the time of writing some initiatives were in process, administered by Unisa library staff to provide training more suitable for distance education. The IL programmes available at the time when this study began (in 2010) were

aimed at students who could visit the library, e.g. on an individual or group basis, or through telephonic support. Such students were trained by librarians in both basic and advanced library skills, and in using the library catalogue, introduction to databases, referencing skills and research skills. These endeavours followed on earlier initiatives to train both students and staff, as reported by Selematsela (2005:14) and Fourie and Ten Krooden (1999:64). The IL training offered at the time of writing the research proposal was, however, not in line with the needs of students who could not visit the library or its branches. A programme was needed that could be made available via an electronic management system, specifically meeting the needs of distance students. Although staff of the Unisa library might embark on some initiatives in this regard during the course of the study, these would not be the result of a systematic review of the subject literature on IL programmes for distance education and online initiatives for IL, as well as a systematic study of the needs of Unisa students for IL training and the requirements such programmes had to meet to satisfy their needs.

1.2 CHARACTERISTICS OF THE UNISA STUDENT CORPS, WITH SPECIFIC REFERENCE TO THE DIGITAL DIVIDE

Ramasodi (2010:36) and Wilson (2002:65-67) note that Unisa students come from rural, peri-urban and urban areas. Several characteristics have been associated with the Unisa student corps. Many of these characteristics are also typical of distance students at other institutions (Ramasodi 2010:36; Wilson 2002:65). The Unisa student corps:

- Represents a spectrum of age groups;
- Is geographically distributed all over South Africa and neighbouring and other countries;
- Represents a spectrum of racial diversity;
- Reflects vast differences in experiences in life (many have held jobs and professions for many years, while others have recently completed school);
- Reflects very diverse levels and types of prior learning;

- Varies substantially in the ability to study as autonomous independent learners;

- Displays low pass rates and long study periods (study periods are reported to be substantially longer than at institutions where students study full-time and stay on campus) (Ramasodi 2010:36; Wilson 2002:65-67; Behrens 1992:77);
- Often reports feelings of isolation and stress;
- Mostly has to deal with multiple responsibilities as adults and finding a balance between their studies, work and personal life;
- Often reports clashing needs with changing relationships;
- Often experiences problems in using the library optimally; and
- Has been reported to lack IL skills.

Along with the characteristics mentioned above, there is a digital divide between Unisa students. According to Chigona, Pollock and Roode (2009:3) and Lor (2003:62), the term "digital divide" refers to the gap between people with effective access to digital and information technology and those with very limited or no access at all. It also refers to the availability of technological infrastructure and information-seeking skills (Fourie & Bothma 2006:469). Many Unisa students do not have access to computers or the internet, and sometimes not even to electricity (Chigona *et al*. 2009:3; Paul 2002:13). Chigona *et al.* (2009:3) explain that the "digital divide" refers to classes of people at risk of being excluded from the rising tide of economic prosperity fuelled by great advances in information technology. According to Lor (2003:62), the digital divide also refers to the gap in access to information services between those who can afford to purchase computer hardware and software necessary to participate in the global information network and those who cannot. It includes imbalances in physical access to technology and imbalances in resources and skills needed to participate effectively as a digital citizen. Paul (2002:13) mentions that the term refers to the unequal and disproportionate pace of development in societies related to access to digital infrastructure and services.

The digital divide thus concerns the unequal access among members of society to ICT, and the unequal acquisition of related skills. Potentially such a divide can also lead to a knowledge divide. The divide in skills, especially information skills and skills in information

seeking, is also noted by Fourie and Bothma (2006:470). Hargittai (2002:267) highlights the difference between the haves and haves-nots regarding access to the internet.

Access to information technology and skills in using computers and the internet, however, do not imply IL. According to Williams (2007:1), students often arrive at universities already familiar with computers and considering themselves experts in internet searching. Such students, referred to as techno-abled, may be computer literate, but they may not have effective searching skills in finding relevant information from electronic databases. *The Chronicle of Higher Education* (January 16th 2008) reports on a wired campus where young students do not have good search strategies to find quality information, and the implications of these problems for library professionals.

1.3 UNISA LIBRARY

The main Unisa library is in Pretoria, at the Muckleneuk campus. According to the Unisa library website (www.unisa.ac.za/library/branches), there were at the time of writing ten branch libraries and two mobile buses serving the following areas:

- The Parow branch library serves the Cape Coastal areas.
- Four branch libraries in Gauteng, namely Florida, Johannesburg, Ekurhuleni and Sunnyside in Pretoria, all serve the Gauteng and metropolitan areas.
- A branch library in Rustenburg serves the North West Province.
- A branch library in Durban serves KwaZulu-Natal.
- A branch library in Polokwane serves students residing in the north-eastern parts of the country, Limpopo and environs.
- There is a branch library in Ethiopia at the Akaki Campus of Unisa.
- A branch library in East London serves students residing in the Eastern Cape.
- Two mobile buses provide library services to remote rural areas in the Western Cape and Limpopo provinces.

The library is set on overcoming geographic, economic, social and communication distances and addressing the challenges faced in distance education by providing branch

or satellite library services. To access information sources, students need to search the library catalogue available via the internet and use various other databases and internet search tools. Students at Unisa therefore need IL skills to enable them to access information from these resources.

The challenges faced when providing library services to distance students have been addressed from the perspective of both the library and the students' point of view (Huwiler 2015:275; Holloway 2011:25). In 1966, Parnell (1966:7) already noted the problems of distance students in conducting satisfactory literature searches to answer their study problems. Kazmer (2007:395) highlights that distance students have unique needs for support from the library services, e.g. needs for IL skills training and technology needs. Kazmer (2007:397) further explains that as students start to use new technologies that solve some of the problems of remote access to materials and people, they need help in learning how to use the resources and dealing with problems when they arise. This implies a need for training in IL for Unisa students, irrespective of their remoteness. (A more in-depth review is provided in subsequent chapters.)

Regardless of the problems and challenges faced, the Unisa library supports the learning and research needs of its students. It accepts the responsibility to ensure that the use of information resources and its services is maximised to benefit all students. A need therefore arises to investigate appropriate programmes for IL.

1.4 STATEMENT OF THE PROBLEM, RESEARCH QUESTION AND SUB-QUESTIONS

The Unisa library is one of the support departments of the university. It plays an important role in assisting the university to meet its institutional goals, which are education and training of distance students and research. The library is expected to see that all registered undergraduate students know how to use the library and information resources to their benefit. Considering the geographic separation between the library and the students, and the challenges of distance education, IL training must be tailored to the needs of Unisa students. The needs of postgraduate students must also be addressed.

1.4.1 Main research problem and research questions

According to Behrens (1992:19), if Unisa graduates are to meet the requirements of an information society, they must be information literate and have command of the full range of information skills. Although dated, this is still true and in line with other claims that distance students should possess the same IL skills as students at contact campuses. As indicated in section 1.1, the training offered by the Unisa library at the time of writing did not cater for students who could not visit the library or its branches.

Departments at Unisa do not explicitly incorporate IL as part of their curriculum, except for the Department of Information Science. There is a strong possibility that Unisa students can graduate without being taught IL skills, and therefore may not qualify as information literate in the context of academic studies and current expectations regarding IL. It is thus vital to examine the possibility of designing an online IL programme to support the needs of distance students. Such a programme should play an integral role in equipping students (and later perhaps other library users) to access relevant information from the information sources they need for their studies.

The main problem to be addressed by this study is that the Unisa library does not offer an online IL programme for distance students. A first step in the design and development of such a programme would be to determine students' needs and their readiness for using online information resources available through the library. The main research question thus was:

What are the information seeking behaviour of first year distance students' at Unisa and their readiness in using and accessing the library online resources?

1.4.2 Sub-problems and sub-questions

From the research problem there are several sub-problems to address, namely the current status of students' needs and abilities in using the library resources and their readiness to use an online learning management system. The latter is important if online

IL training is offered to address the needs of distance students. To answer the research question and sub-problems, several sub-questions were set:

- What has been reported on IL and IL programmes for distance students, with special reference to online programmes?
- What has been reported on virtual learning environments with specific reference to distance education?
- What are the students' self-rated perceptions of their IL skills?
- What are the students' information seeking behaviour and preferences in using online information resources?
- What are the students' readiness in using an online learning management system in a virtual learning environment?

1.5 AIMS AND OBJECTIVES OF THE STUDY

This study aimed to determine undergraduate students' self-reported level of readiness to use the library's online information resources and an online learning management system.

The objectives of the study were:

- To determine undergraduate distance students' self-rated perceptions of their IL skills;
- To determine undergraduate distance students' preferences in using online information resources;
- To determine undergraduate distance students' level of access to the internet and Unisa library website; and
- To determine undergraduate distance students' readiness in using the electronic learning management system (i.e. myUnisa).

To succeed in this aim, the study:

- Reflected on the literature reports on IL and standards for IL programmes in academic libraries, the characteristics of an information literate student and online IL programmes;
- Determined the criteria for IL programmes in general;

- Determined the generic profile of Unisa students;
- Determined the criteria with which an online IL programme should comply (basing these on the criteria for an IL programme); and
- Investigated the use of technology for online teaching of IL.

1.6 LITERATURE REVIEW

The purpose of the literature review at this stage is to indicate that there is sufficient literature to support this study. This section is not dealt with in detail, since details are explored in the chapters to follow. The preliminary literature review for this study is divided into the following aspects:

- Information literacy and standards of IL;
- Distance education and the use of online learning programmes;
- Virtual learning environments and programmes; and
- Information literacy and the distance student.

The relevant literature was identified by searches on the SA-ePublications database from the South African Bibliographic and Information Network (SABINET), international databases such as Library, Information Science and Technology Abstracts (LISTA) and ERIC on EbscoHost, Emerald, Journal Storage (JSTOR), Library and Information Science Abstracts (LISA), E-prints in Library and Information Science (E-LIS), ScienceDirect, Unisa Library Catalogue (Oasis), and the National Research Foundation (NRF) Nexus database on current and completed research projects, SABINET's NDLTD completed thesis and dissertation database, SCOPUS, ISI Web of Science, Google Scholar and the Unisa Institutional Repository.

It became evident that many studies on IL programmes in general are reported, but reports on online IL programmes for distance education and the design thereof are limited. Among the studies conducted in South Africa, two are closely related to this study, namely those of Sierberhagen (2005) and Behrens (1992). Behrens emphasises library skills of undergraduate students at Unisa without addressing online access to IL programmes.

Sieberhagen reports on the design and development of a digital IL programme for academic libraries in South Africa. Sieberhagen (2005:9) defines a digital IL programme as "a set of instruction via a computer that will aid the student to identify digital information which will address a particular information need in locating, evaluating, effectively organizing and ethically using digital information format." Sieberhagen refers to programmes available in digital format, e.g. CD-ROM or the hard drive of a computer, but which are not necessarily available online. For the purpose of this study "online" refers to a connection via the internet, including the World Wide Web.

1.6.1 Information literacy and standards of information literacy

Various IL standards direct training in IL, such as those of the American Library Association (ALA), the Association of College and Research Libraries Standards (ACRL), and the Australian and New Zealand IL Framework. The importance of having standards of IL is emphasised by various authors. Moselen and Wang (2014:116-123), De Jager and Nassimbeni (2003) and ALA (2002:2) all recommend incorporating IL standards in training. South Africa has not as yet generated its own IL standards and draws on the international standards mentioned. Initiatives to produce national IL standards collaboratively have been reported but such standards have not been finalised. According to Esterhuizen and Kuhn (2010:83-106) and Selematsela (2009:38), collaboration took place between IL librarians from nine academic libraries, working together under the umbrella of the Gauteng and Environs Library Consortium. No further reports of such collaboration could be found in the subject literature and web resources, including the consortium website (Esterhuizen & Kuhn 2010:110).

For the purposes of this study, the ALA standards were used as baseline since they are perceived to have had an impact on other IL standards and guidelines (King 2007). As highlighted in ALA (2002), the IL competency standards for higher education provide a framework for assessing an information-literate individual. The standards give higher education institutions the opportunity to articulate IL competencies of students at all levels. The competencies outline the specific indicators that identify students as information literate.

1.6.2 Information seeking behaviour of distance students

The information behaviour of students is one of the most studied topics in the field of information behaviour research (Tury, Robinson & Bawden 2015:313), but few studies report on the information-seeking behaviour of distance students. Studies such as that of Tury, Robinson and Bawden (2015) report on the information seeking behaviour of distance learners enrolled in the University of London's international programmes. Thórsteinsdóttir (2005) investigated the information seeking behaviour of library and information science distance students and staff at a Swedish university. The study revealed that geographical distance had a significant influence on literature acquisition and information seeking in an online environment. Boardi and Letsoalo (2004) studied the information needs and information seeking behaviour of distance learners at the Institute of Extramural Studies in Lesotho, and Byrne and Bates (2009) investigated the information behaviour of distance learning business students in Ireland.

1.6.3 Use of technology for teaching information literacy in academic contexts

Information literacy and technology are related. One cannot explain one without mentioning the other. Brumfield (2010:63) and Mackey and Jacobson (2008) focus on using technology to teach IL. The authors mention that librarians and technology are inextricably linked. Librarians buy or license online research tools and materials along with printed books and periodicals, microfilm, videos, compact disks, manuscripts, and much more. Furthermore, they reach out to meet their users where they are, using an ever-growing array of technologies. IL is sometimes seen as a prerequisite for an information-literate individual to develop technological skills in order to use electronic resources such as the internet, online databases and online library catalogues. This is proved by the literature on IL and technology, which emphasises that IL and technology are critical to lifelong learning. It is, for example, mentioned in the ALA standards (2002:2) and by Mackely and Jackson (2004:vxi) and De Jager and Nassimbeni (2003:36) that IL is related to information technology skills. Information technology skills enable an individual to use computers, software applications, databases and other technologies to achieve a wide variety of academic, work-related and personal goals. Barron (2002:24)

highlights that libraries are in the business of helping students to get the information they want, when they want it, and getting it to them regardless of where they are located.

1.6.4 Information literacy and remote library users

According to Armstrong *et al*. (2005:22), Corral (2005:26), Bloom and Deyrup (2003:56), Hossein (2001:193) and Dewalt *et al*. (2000:33), IL is equally important for distance students. These authors mention that the internet has made it easy for distance education institutions to provide training in IL skills to distance students. The internet technologies available open many avenues for delivering course content and to communicate directly with distance students. According to Dewalt *et al*. (2000:33), the internet supports two basic types of communication in distance education, namely synchronous and asynchronous communication. Synchronous communication allows learners to communicate with other learners and lecturers simultaneously irrespective of their remoteness, while asynchronous communication allows distance students to interact with their lecturers, removing the problem of personal time constraints and geographical space for meaningful learning interaction. That is, the communication need not take place at the same time.

1.6.5 Online training programmes for distance library users

Various studies address aspects of online IL programmes at academic libraries. Aharoni and Bronstein (2014:103), Robertson and Jones (2009:259), Li *et al*. (2007:531), Hufford (2004:153), Sacchanand and Jaroenpuntaruk (2004:501), Bruce (1999:112) and Sacchannand (2000:22) discuss web-based IL programmes. They emphasise that web-based IL instruction has many advantages, especially at distance education institutions where such programmes can enable students to learn by themselves. Such programmes can encourage self-directed learning, self-reflection and a learner-centred approach for learners anywhere, at any time and in any place. Fourie and Bothma (2006:470) have asserted that the internet and ICT training should be vital components of an organisation's enabling infrastructure.

Pandya (2007:12) discusses Blackboard as an electronic learning management system, while Mutula, Kalusopa, Moahi and Wamukoya (2006:168) discuss WEBCT. At the time of writing, Unisa used myUnisa, a product of SAKKAI, as an electronic learning management system.

1.7 SIGNIFICANCE OF THE STUDY

The main significance of this study is to contribute to both the theory and practice of library and information science. On a theoretical level, it contributes to the sub-disciplines of human information behaviour and IL. It was also intended to provide guidelines on the need for online IL training programmes. This might enhance distance education.

The study can advise the Unisa library on the development of a product that can be customised according to the needs of Unisa students. It might also help researchers and students with some knowledge and understanding of the concept of distant students' information-seeking behaviour and their information needs.

1.8 SCOPE AND LIMITATIONS OF THE STUDY

The study was limited to students in the School of Accountancy registered for first-year studies in 2015. The findings and recommendations from the study should, however, hold value for distance education libraries in general and libraries offering or planning to offer online teaching of IL.

1.9 DEFINITION OF KEY CONCEPTS

The key concepts of the study are identified and defined. The following concepts are addressed.

1.9.1 Information behaviour

Ajiboyede and Tella (2007: 23) note that various definitions of information behaviour have been given by researchers. Some defined the term based on the general model of information behaviour developed by Wilson (1997: 39), where he posited that a general model of information behaviour should include at least three elements: (i) an information

need and its drives, i.e. the factors that give rise to an individual's perception of need; (ii) the factors that affect the individual's response to the perception of need; and, (iii) the processes or actions involved in that response.

1.9.2 Information needs

An earlier study by Kuhlthau (1993) mentioned that the concept of information needs can be understood easily in information science study as stemming from a vague awareness of something missing and as culminating in locating information that contributes to understanding and meaning. Further, Du Preez (2008) highlights that an information need is an anomalous state of knowledge, or a gap in an individual's knowledge in sense-making situations. The authors say that for a person to experience an information need, there must be a motive behind it.

1.9.3 Information seeking

Tella (2009:2) asserts that information seeking is a process in which an individual goes about looking for information. The author notes that information seeking is a process that complements the recognition of an information need. Without seeking it is impossible to find. Therefore, information seeking is a basic activity practised by all people and manifested through a particular behaviour (Tella 2009:2). Ikoja-Odongo and Mostert (2006:145) describe information seeking as a process that requires an information seeker.

1.9.4 Information seeking behaviour

Gabbard, Liu, Lei and Guy (2014:1) note that there are many definitions of information seeking behaviour. They adopt the definition proposed by Ingwersen and Jàrvelin (2005), that information seeking behaviour deals with searching or seeking information by means of information sources and interactive information retrieval systems (Gabbard, Liu, Lei & Guy 2014:1). In an earlier study Fairer-Wessels (1990:361) highlighted that information seeking behaviour can be described as an individual's way and manner of gathering and sourcing information for personal use, knowledge updating and development (Fairer-Wessels 1990:361) and Bansode and Nargide (2014:27). This definition is adopted for this

study. Fairer-Wessels (1990:361) further refers to it as the way people search for and use information. Kakai *et al*. (2004) observe that often students' information-seeking behaviour involves active or purposeful information seeking as a result of the need to complete course assignments. Tury, Robinson & Bawden (2015:312), Gabbard, Liu, Lei and Guy (2014:1) and Al-Muomen (2012:431) note that information seeking behaviour attempts to describe the process a user follows to satisfy an information need, prepare for class discussions seminars, workshops and conferences, or write final-year research papers.

1.9.5 Information literacy

Numerous authors have defined IL differently. Authors such as Zhang, Goodman and Xie (2015:23), UNESCO (2008), Odjedokun (2007:27), Johnston and Webber (2004:3) and Dewald *et al*. (2000:33) can be noted. According to Odjedokun (2007:27), IL is a "fundamental component of the educational process, at the basic and advanced level, in which a student learns how to think actively and critically about information rather than to passively receive pre-packaged facts or materials." For the purpose of this study, the definition of the Association of College and Research Libraries (ACRL, 2000) is used, which defines IL as a "set of abilities requiring individuals to recognise when information is needed and have the ability to locate, evaluate and use effectively the needed information." The ACRL expanded the definition by restating the characteristics of an information-literate student as follows:

- Determining the extent of information needed;
- Effectively and efficiently accessing the needed information;
- Critically evaluating the information and its resources;
- Incorporating information into the existing knowledge base;
- Using the acquired information to accomplish a purpose; and
- Understanding that the use of information has economic and legal implications and applying information technology skills (ACRL 2000).

1.9.6 Information literacy programme

Sieberhagen (2005:8) defines an information literacy programme as a course of academic study that will aid students in identifying information that will address a particular information need, locate the information, evaluate and organise it effectively and use it ethically. This definition was accepted for this study.

1.9.7 Distance education

Various definitions are reported in the subject literature; only a few are explored here. Mahwah (2007:89) and Garrison (2003:10) highlight that in distance education, the communication between lecturer (also referred to as teacher or instructor) and student is mediated. Holmberg (2005:65) defines distance education as the various forms of study that are not under the continual immediate supervision of tutors (and presumably also lecturers) present with their students in lecture rooms. Daniel (1996:265) defines distance education as the offering of educational programmes designed to facilitate a learning strategy that does not depend on day-to-day contact teaching, but makes best use of the potential of students to study on their own. He further highlights that this type of education provides interactive study material and decentralised learning facilities where students can seek academic and other forms of educational assistance when they need it. Johnston (2003:158) argues that distance education is often defined as simply a form of education in which the learner and instructor are separated during the larger part of instruction. The definition of distance education by Holmberg (2005) is adopted for this study.

1.9.8 Distance student

The concept “student” is defined by Sieberhagen (2005:10) and Mothata (2000:166) as people pursuing a diploma or a degree course at an institution of higher learning such as a college or university. Based on this, the definition accepted for the purpose of this study will be that a distance student is someone who is engaged in learning that is physically separated from the institution of learning (classroom, lecturers and classmates) (Mothata 2000:165).

1.9.9 Virtual learning environment

"Virtual learning environment" and "online learning environment" are terms used interchangeably (Lihitkar & Yadav 2008:27). According to Lihitkar and Yadav (2008:27), a virtual learning environment refers to software designed to support teaching and learning in an educational setting. It refers to web-based toolkits that facilitate learning through the provision and integration of online teaching and learning materials and virtual communication tools. It is thus associated with the use of online learning management systems.

1.10 RESEARCH DESIGN AND METHODOLOGY

1.10.1 Research method and approach: case study survey

Since the study determines undergraduate distance students' level of readiness in using online information resources available through the Unisa library, and students' information-seeking behaviour, a descriptive quantitative case study research design was used to reach students who were not on campus. The study involved first-year students in the School of Accountancy. The descriptive quantitative data were supplemented by collecting some qualitative data by means of open questions. The quantitative data were analysed by means of SAS JMP version 12. A thematic analysis of the qualitative data revealed reasons for students' actions and needs (Blue-tow 2010:123).

1.10.2 Population and sampling

1.10.2.1. Population

Neuman (2011:195) defines the population of a study as the entire group of people or set of objects that the researcher wants to study. In this study the undergraduate students in the School of Accountancy who registered for first-year modules in 2015 were regarded as the population. The total number of first-year students in the School of Accountancy at the time of data collection in 2015 was 29 685. All four departments in the school participated, namely the Department of Auditing, Department of Financial Accounting, Department of Management Accounting and Department of Tax.

1.10.2.2. Sampling

Neuman (2011:195) mentions that sampling can be probability or non-probability sampling. Probability sampling allows the researcher to state upfront that each segment of the population under study will be represented in the sample. Examples of probability samples are simple random samples, stratified random samples, systematic samples and cluster samples (Neuman 2011:195). This study employed a census sample in collecting data; this means that all first-year students in the School of Accountancy were invited to participate. The online survey questionnaire link was sent to all of them. A census sample approach allows a large number of students to participate.

1.10.2.3. Inclusion and exclusion applied in the study

School of Accountancy students who had registered for first-year modules in the second semester of 2015 were invited to participate. Students at the School of Accountancy who had not registered for a first-year module were excluded from the study.

1.10.3 Research instruments: Questionnaire

Different techniques can be used for research. According to Neuman (2013:195) and Czaja and Blair (2005:59) the main techniques for gathering data in research are observation, interviews, questionnaires and the use of records for content analysis. The appropriate research instrument for this study seemed to be a questionnaire. Czaja and Blair (2005:59) define a questionnaire as “the conduit through which information flows from the world of everyday behaviour and opinion into the world of research and analysis.” The authors further mention that the questionnaire is the link to the phenomena that researchers wish to study. However, Neuman (2013:195) says that a questionnaire is a set of questions for gathering information from individuals.

One can administer questionnaires by mail, telephone, using face-to-face interviews, as handouts, or electronically (i.e. by e-mail or through Web-based questionnaires). A self-administered questionnaire with structured closed-ended questions was developed for the purposes of this study. A self-administered questionnaire is a questionnaire that a respondent completes on his or her own, either on paper or via computer (Powell

2004:123). The questionnaire responses assisted in determining undergraduate students' levels of skills in using online library resources, etc. There were a few open questions that allowed for the collection of qualitative data that were analysed by means of thematic qualitative analysis.

1.11 ETHICAL CONSIDERATIONS IN DATA COLLECTION

According to Bak (2004:28), all research should address ethical issues. This is considered critical, and is aimed at ensuring that no individual is subjected to any harm as a result of the research. Bak (2004:28) further mentions that if any researcher's empirical study involves people as research subjects, then the researcher has to include a statement on ethics in his or her study. Since this study used Unisa students as research subjects, it was crucial for the study to be ethically cleared before collection of data could proceed. The researcher applied for ethical clearance from the Unisa Research Ethical Committee (UREC) to use Unisa students as research subjects. Further ethical clearance was obtained from the Faculty Committee for Research Ethics and Integrity in the Faculty of Engineering, Built Environment and Information Technology (EBIT), University of Pretoria, before starting the data collection process. Permission was also received from the research permission subcommittee of the Senate Research and Innovation and Higher Degrees Committee (SHIHDC) at Unisa.

1.12 VALIDITY AND RELIABILITY OF THE DATA-GATHERING INSTRUMENT

Woodwell (2014) asserts that a research instrument is considered valid if it builds on issues of IL and typical problems experienced by distance students as identified from the subject literature. The intention is not to generalise from the findings to all Unisa students, or to students from other distance education institutions, but to show how data useful to the planning and design of an online IL programme can be collected by means of the instrument, and to make recommendations on the specific group serving as case study.
The data-gathering instrument was tested with a pilot group of 50 first-year students. No problems were noted and the instrument collected what it was intended to collect.

1.13. ORGANISATION OF CHAPTERS

Table 1.1 Organisation of chapters

Chapter	Title	Contents
1	Introduction of the study	• Introduction and background of the study • Background to the problem faced by distance libraries • Characteristics of the Unisa student corps with specific reference to the digital divide • Unisa library • Statement of the problem, research questions and sub-questions • Main research problem and research question • Sub-problems and sub-questions • Aims and objectives of the study • Literature review • Information literacy and standards of IL programmes • Information seeking behaviour of distance students • Use of technology for teaching IL in academic contexts • Scope and limitations of the study • Significance of the study • Definition of the key concepts • Research design and methodology • Ethical considerations • Validity and reliability of the data-gathering instrument • Organisation of chapters • Conclusion
2	Distance education, information seeking behaviour and IL of distance students: a literature analysis	• Introduction and distance education • Library services to distance students • Information seeking behaviour of distance students • Importance of information literacy in higher education • What has been reported about information-seeking behaviour of distance students • Information literacy programmes and the importance of information literacy programmes in higher education • Problems and needs associated with IL

Chapter	Title	Contents
		• Problems experienced by distance students in accessing library services • The problem of the digital divide • Use and importance of ICT and other technologies in distance education • Issues emerging from literature analysis • Issues to consider when designing an IL programme for distance students • List of tertiary institutions with online IL programmes in South Africa and the reports of online IL programmes for distance education libraries • What could be learned from the studies reported Conclusion
3	Virtual learning environments in distance education	• Introduction and contextualisation of virtual learning environments • Principal function of a virtual learning environment • Use of virtual learning environments and challenges as faced • Distance education and studies on programmes using ICT • Characteristics of virtual learning programmes • Virtual learning programmes and distance students • Challenges of virtual learning environments in distance education • Reasons for distance education institutions to use virtual learning environments • Distance education libraries' use of virtual learning programmes • Technologies to incorporate online information literacy programmes • Conclusion
4	Research methodology	• Introduction, research design, types of research designs, quantitative and qualitative research designs and mixed methods • Research method case study survey, research instruments for data collection, population and sampling of the study • Pilot study • Treatment of data • Ethical clearance and validity and reliability of data gathering instrument
5	Findings and data analysis	• Introduction and summary of the empirical study

Chapter	Title	Contents
		• Report on quantitative findings, findings on information seeking and preferences with regard to information seeking • Awareness and understanding of electronic resources • Report of findings from the qualitative data • Brief discussion of key findings • Conclusion
6	Interpretation of findings	• Re-iteration of the study purpose, research questions and sub-questions • Triangulation and interpretation of findings • Findings in training in information seeking and preferences with regard to information seeking • Findings on awareness and understanding of e-resources • Conclusion
7	Findings, recommendations and suggestions for further studies	• Introduction and purpose, aims and objectives reconsidered • Problem statement, main research questions and sub-questions reconsidered • Summary of the research design reconsidered • Brief summary of findings • Value of the study and limitations • Recommendations for practice and theory, and suggestions for further practice and theory and suggestions for further research • Conclusion
	Reference list	
	Appendices	

1.14 CONCLUSION

Chapter 1 provided background to this study of information seeking behaviour, IL and the readiness of first-year undergraduate students at Unisa, with regard to using the Unisa library's online resources from a distance. In this chapter, the problem statement, research questions, aims, delimitations and significance of the study were explained. The next chapter discusses the literature review on distance education, libraries in distance education institutions of higher learning, information seeking behaviour of distance students, issues pertaining to online IL programmes and skills, problems encountered by distance students when accessing the library from a distance, and ways in which the digital divide affects distance students.

CHAPTER TWO
DISTANCE EDUCATION, INFORMATION SEEKING BEHAVIOUR AND INFORMATION LITERACY OF DISTANCE STUDENTS: A LITERATURE ANALYSIS

2.1. INTRODUCTION

This chapter reviews the literature on the concept of distance education, the information seeking behaviour of distance students and the issue of information literacy in higher education. The purpose of this chapter is to gain understanding of what has been reported on the issues of information seeking behaviour of distance students and the importance of an information literacy programme to distance students. The role of libraries in distance education institutions of higher learning will also be briefly discussed. This chapter guides decisions for the empirical study.

2.2 DISTANCE EDUCATION

A brief history of how distance education was conducted in earlier years follows. According to Harper, Kuanchin and Yen (2004:588), the foundation of distance education goes back to the early 1700s. It was conducted through postal correspondence. Instructors and students exchanged information such as assignments, notes and tests; timely mail delivery sometimes presented a problem. Holmberg (2005:47-53) asserts that correspondence education had been in existence for decades, even centuries, in an earlier form and was mainly aimed at adult education. As media other than the written word became more common and started to play a progressively greater role, many regarded the term “correspondence education” as too narrow. Therefore, the term “distance education” was adopted by the English-speaking world in the early 1970s (Holmberg 2005:3).

Gaba (2015:311), Mahwah (2007:89) and Holmberg (2005:65) define distance education as the offering of educational programmes designed to facilitate learning strategies that do not depend on day-to-day contact teaching. There is a risk that a narrow definition of the concept may not be applicable to all situations, since distance education may be different in different places. In spite of this problem, Holmberg describes the concept as follows in his book, *Theory and Practice of Distance Education:*

> Distance education is a concept that covers the learning-teaching activities in the cognitive and/or psychomotor and affective domains of an individual learner and a supporting organization. It is characterized by non-contiguous communication and can be carried out anywhere and at any time, which makes it attractive to adults with professional and social commitments (Holmberg 1995:181).

In a more recent publication Holmberg (2005:65) defines distance education as the various forms of study that are not under the continuous immediate supervision of tutors (and presumably also lecturers) present with their students in the lecture rooms. It facilitates communication between students, lecturers and tutors, and makes use of study material such as online tutorials. This is in line with the operational definition accepted in section 1.9.7.

In present times distance education has been moving very fast from correspondence education to online education or web-based delivery of education (Nickel & Mulvihill 2010:88; Holmberg 2005:6). Authors mention that the internet and the World Wide Web broadened the scope of conventional distance education to anywhere, at any time. They also highlight that the integration of new types of educational technologies allow flexible learning and increased potential for interaction and access to a wide clientele and global markets. Authors such as Esterhuizen (2015:122) and Zhang, Goodman and Xie (2015:259) add that in distance education teaching is supported by the use of an electronic learning management system. This is especially relevant to 21st century distance education institutions.

Since this study aims at determining undergraduate students' level of skill and their information searching behaviour when using online library resources from a distance, the sections below report on what previous research has reported pertaining to library services to distance learners, information-seeking behaviours of distance students, information literacy programmes for distance students, problems experienced and the needs associated with information literacy. Problems experienced by distance students

in accessing library services from a distance and the issue of the digital divide are highlighted.

2.3 LIBRARY SERVICES TO DISTANCE STUDENTS

The provision of distance education has significant implications for library services. There is a growing body of literature on how academic libraries have adapted their services to accommodate distance learners (Tury, Robinson & Bawden 2015:313). Library services to distance learners are important factors to consider when determining the information seeking behaviour of distance students and evaluating the information literacy skills of those students.

According to Owusu-Ansah and Bubuama (2015:2), in order to provide quality library and information services for distance education, distance education institutions must recognise the provision of library services to their students as their primary responsibility. Owusu-Ansah and Bubuama (2015:2) and Kadli and Kumbar (2013:26) further mentions that a supportive and facilitating institutional philosophy should ensure that distance learners have access to quality library and information services to support their learning.

Libraries have been reaching out to their clientele with IL skills training over many years (Nicholson & Eva 2011:497). However, some of the research reports do not use the term “information literacy”. Instead they talk about different concepts and do not always draw a clear distinction between concepts such as library instruction, library user education and bibliographic instruction.

Nicholson and Eva (2011:497), McLean and Dew (2006:45), Hufford (2004:153) and Blakeslee and Johnson (2002:324) use the term “library instruction”. Some reports use the term “library user instruction” (Chen & Lin 2011:399; Hufford 2004:153; Sacchanand 2002:1; Van Vuren & Henning 2001:1). Other reports use “bibliographic instruction” (Fry, Malone & Rose 2013:1; Khamadi 1996:44).

Irrespective of what IL programmes are called in various institutions, distance students should be taught these lifelong skills just as in contact universities.

2.4 INFORMATION SEEKING BEHAVIOUR OF DISTANCE STUDENTS

In addition to the definition of information seeking behaviour accepted in Chapter 1, namely an individual's way and manner of gathering and sourcing information for personal use, knowledge updating and development (Fairer-Wessels 1990:361), the focus of Kakai *et al* (2004) is noted. The authors clarify that information seeking behaviour is the way people go about searching for information. They observe that students' information seeking behaviour involves purposeful information seeking as a result of the need to complete course assignments, prepare for class discussions, seminars and workshops, and write final-year research papers.

Much research has been done on information related behaviour of students (Case 2012). Tury, Robinson and Bawden (2015:312) and Workman, Fiszman and Rindflesch (2014:501) assert that the information seeking behaviour of students in higher education institutions is one of the most studied topics in the whole field of information behaviour research. Studies such as those of Ajiboyade and Tella (2007) and Gabbard, Liu, Lei and Guy (2014:1) have reported on undergraduate students' information seeking behaviour. However, relatively little attention has been paid to the behaviour of distance students specifically. Studies such as those of Tury, Robinson and Bawden (2015), Oladokum (2014), De Groote, Schultz and Blecic (2014), Byrne and Bates (2009), Tompson (2007), and Thórsteinsdóttir (2005) report on information seeking behaviour of distance students from various perspectives, such as issues affecting them, particularly geographical distance, which has a significant influence on literature acquisition and information seeking, even online. Findings are explored in the next section with the use of tables in the literature which reveal what various authors who reported about information seeking behaviours of distance students say.

2.4.1 Findings reported on information seeking behaviour of distance students

A review and synthesis of a selection of key studies on the information seeking behaviour of distance students are presented in Table 2.1 below.

Table 2.1 Synthesis of a selection of studies reporting about information seeking behaviours of distance students

AUTHORS	REPORTED
Tury, Robinson & Bawden (2015)	*Title: The information seeking behaviour of distance learners: a case study of the University of London: international programmes.* The authors' report focuses on a large and representative sample of widely dispersed distance learners. The research aimed at developing a set of recommendations for effectively supporting the library and information needs of distance learners in the digital age. What has been addressed: • The need to foster the idea of a library as a place for distance students who may never visit the physical library. • Document delivery to remote users. • Promotion of awareness of library services among distance users. • An outreach librarian's role for such students. • The use of standards to demonstrate quality of library services to distance students. The study revealed that little attention had been paid to the information seeking behaviour of distance learners in large and dispersed geographical areas. The study addressed issues of IL and library skills instruction for distance learners.
Williams, Steiner & Coonin (2011)	*Title: Fostering library as a place for distance students: best practices from two universities.* What has been addressed: • The need to foster the idea of a library as a place for distance students who may never visit the physical library.
Murphy, Franklin & Raia (2008)	*Title: Delivering library services to users: a case study of the Sooner Express service at the University of Oklahoma* • The author reports on express document delivery. • After several years of service for their distance students, a decision was made to expand those services to include all campus and local users in an effort to streamline retrieval services in the library and to introduce document delivery for remote users. What has been addressed: • The problems and solutions that have been encountered thus far. • Provision of speedy services to distance students.
Ajiboye & Tella (2007)	*Title: University undergraduate students': implications for quality in higher education in Africa.* What has been addressed: • Information-seeking behaviour of undergraduate students in the University of Botswana. Information sources consulted. • General pattern of information gathering by students.

Table 3.1 Synthesis of a selection of studies reporting about information seeking behaviours of distance students

AUTHOR	REPORTED
Baro, Onyenania & Osaheni (2010)	*Title: Information seeking behaviour of undergraduate students in the humanities in three universities in Nigeria.* What has been addressed: • Need to integrate IL courses into the curriculum. • The study revealed that undergraduate students used search strategies such as starting, chaining, browsing, differentiating, monitoring and extracting. It emerged that the undergraduate students used sources such as textbooks, journals and the internet, and relied heavily on human resources for information.
Thompson (2007)	*Title: Information seeking behavior of distance education students.* What has been addressed: • Library use. • Needs of the student population. • The intention of the study was to determine the library's plan of service to this student population. The students were found to favour electronic resources. Overall they were highly confident in their search abilities.
Siong (2013)	*Title: Finding my way around: the information process of distance students when searching for free online resources* What has been addressed: • Where students seek information. • What kind of information students are looking for. • How technology and social networking sites change or contribute to social networking processes. • Findings: 70% of the participants indicated that they used search engines such as Google or Yahoo when seeking information. Participants were confident about their research skills most of the time. The majority of the participants indicated that their main sources of information were commentaries and theological books.

In addition to noting findings on the information seeking behaviour of distance students, reports and findings on IL programmes are also important. These are covered in the next section.

2.5 INFORMATION LITERACY PROGRAMMES

Information literacy programmes address various important skills required in people's lives. It is a recognised lifelong learning skill to be acquired in all spheres of life, and it is an expected attribute of graduates (Lamond & White 2008:1). In addition to the interpretation of IL accepted in Chapter 1, it must be noted that IL has been extended to the workplace. Hung (2012) reports on an examination of the mediating role of person-job fit in relations between IL and work outcomes, Bober (2011), Kirton and Barham (2005) and Cheuk (2002) reports on workplace IL, Sokoloff (2011) reports on IL in the workplace and employer expectations, Travis (2011) reports on transitions made from the classroom to the boardroom and the impact IL instruction can have on workplace research skills, Weiner (2011) reports on reviews of IL in the workplace, Oman (2001) reports on IL in the workplace and Bruce (1999) reports on workplace experiences of IL. In the South African context, Molopyana and Fourie (2015) report on the perception of the need for workplace IL skills at a university. The interest in workplace IL makes it more important that distance learners receive opportunities to develop appropriate IL skills.

The importance of information literacy programmes for distance institutions is the same as for contact universities. As Lamond and White (2008:1) mention, it is expected that students from both contact universities and distance education institutions should be equipped with IL skills.

2.5.1 The importance of information literacy programmes in higher education

Before exploring the importance of information literacy in higher education, the definition of IL adopted for this study will be restated. This is the definition of the ACRL (2000), emphasising that it is a set of abilities requiring individuals to recognise when information is needed and to have the ability to locate, evaluate and use the needed information

effectively. However, Lamond and White (2008:1) and Bundy (2004:10) define the concept as the broadest of skills and understandings that enable a person to recognise an information need, to decide which resources will best answer that need, to use those resources effectively and to evaluate the information they find in those resources. Other authors, such as Sacchanand (2002:3), emphasise the importance of IL for independent study, self-directed learning and lifelong learning, as well as serving as the foundation of a literate society.

The following are further arguments why IL is of crucial importance in higher education:

- According to Dadzie (2009:165), Rockman (2004:4) and Kavulya (2003:216), students entering college or university have limited knowledge of fundamental research and information competency skills. They may not have learned how to locate information effectively, evaluate or synthesise and integrate ideas, or may not have learned how to use information in original work or give proper credit for information used. Although some students may have picked up basic computer skills to send electronic mail, chat and download music, they may not have learned how to search the internet or use databases effectively for academic work (Dadzie 2009:165; Rockman 2004:4; Kavulya 2003:216).
- Comba (2011:59) and Dadzie (2009:165) mention that today's young generation is growing up in a digital world, where much information is produced per minute. Students are inundated with a great deal of information or "data smog". Both authors assert that simply being exposed to so much information does not necessarily make one informed. It does not mean that young people who have natural digital skills have the competencies they need to apply in learning activities where information must be used effectively, efficiently and ethically. Wilson (2004:338) describes this young generation as "digital natives" who are accustomed to being completely connected to each other via a cell phone and the internet. Sieberhagen (2005:21) describes them as "Generation Y", referring to students who prefer maintaining connectivity by using the web and telephone. Comba (2011:59) describes them as "the Net generation" referring to the fact that

they are “opportunistic” because they can bend information technology to suit their own purposes. Comba (2011:59) highlights that young people qualifying as digital natives possess sophisticated skills with information technologies. They may have strong preferences for online sources but may not be aware of the types of information available from the library’s electronic resources (Comba 2011:59; Dadzie 2009:165; Wilson 2004:338). Wilson (2004:338) asserts that students may not know how the library’s electronic sources are organised and how to retrieve them. They might also not be knowledgeable about the quality of information available from the electronic resources or know how the information can contribute to meeting their information needs.

- Students at universities cannot learn everything they need to know in their field in their few years of study. Hence they need to acquire critical IL skills in order to become independent lifelong learners (Dadzie 2009:165). Information literacy skills can also help employed graduates to be productive (Sokoloff 2011:1; Travis 2011:17; Wiener 2011:11; Dadzie 2009:165). Lloyd (2010:397) and Dadzie (2009:165) extend the context of academic IL to include workplace IL. The authors see IL as a catalyst for learning, somewhat of a “meta-practice” that is embedded in every part of people’s lives. Travis (2011:19), Wiener (2011:7), Sokoloff (2011:2) and Dadzie (2009:165) consider that IL in the workplace can improve the productivity of employees.

Because of the importance attached to IL in the higher education curriculum, certain regional discipline-based accreditation associations, such as the ACRL, consider it a significant outcome for students (ACRL 2000). Many arguments have been offered to incorporate information literacy across curricula as a collaborative programme for all members of the higher education community, particularly academics, librarians and administrators (Lwehabura 2008:159; Snavely 2008:37; Kazmer 2002:395; ACRL 2000; Hepworth 2000:65). The literature on information literacy and instruction that has been reviewed highlights issues such as needs and problems.

2.5.2. Problems and the needs associated with information literacy

2.5.2.1 Problems experienced by distance students in accessing library services

Distance students frequently experience problems in using library resources and services. The following problems were identified by various authors:

- No access to libraries (Nickel & Mulvihill 2010:88; Sacchanand 2002:2; Cavangah & Lingham 2001:153); the reason may be that the institutions do not offer library services.
- Delays in communication and interaction with the library (Nickel & Mulvihill 2010:88; Sacchanand 2004:2; Cavangah & Lingham, 2001:153). Distance students may be faced with expenses and other barriers when contacting the library, which can result in their giving up trying to use the library. Expenses such as the cost of travelling to the point of service and paying internet cafés for internet access are problems (Sacchanand 2004:2; Cavangah & Lingham 2001:153).
- Distance students' library expectations may be low. They lack skills in accessing library resources. Distance students have frequently been noted not to know what services and resources are available in the library or how to access them. They also have inadequate knowledge and experience of library research, electronic information resources and technology in general (Nickel & Mulvihill 2010:88; Sacchanand 2004:2) because they are unable to receive in-person assistance from their librarian.
- They may lack IL skills (they frequently do not know or do not find out what library services and resources are available or how to access them).
- Distance students rarely visit the campus (Nickel & Mulvihill 2010:88; Sacchanand 2004:2).

Overall it seems they might not receive IL training and they are unable or unwilling to ask for assistance from the librarians.

In Chapter 1, some of the problems faced by distance students in general, specifically regarding the use of and access to information about library resources, were identified

and listed. Ramasodi (2010:36), Sachannand (2004:3) and Wilson (2002:65) note that problems include students not coping with rapid technological change caused by the proliferation of electronic resources as sources of information, lack of information retrieval and computer skills, lack of access to the internet and slow internet connections due to slow bandwidth. Chetty *et al.* (2011:1889), Horrigan (2008:13), Shapiro (2007:46) and Duffy-Deno (2000) again highlight the issue of the digital divide between students. Thorne (2012:82) and Silver and Nickel (2007:34) mention issues such as:

- Access to a computer;
- Availability of equipment to listen to audio material;
- Technical problems in using online tutorials; and
- Lack of confidence in using online learning material.

In addition to the above-mentioned challenges, there is the serious challenge of the "digital divide" in the distance education scenario. A definition of the digital divide is considered in the next section.

2.6. THE PROBLEM OF THE DIGITAL DIVIDE

Because of rapid developments in information technology some distance students face more difficulty than others in accessing a library and library services (Block 2010:5; Van Biljon & Renaud 2009:90). According to Block (2010:5) and Van Biljon and Renaud (2009:90), the digital divide is defined as the gap between those who have access to technology and those who do not. The challenge comes from the fact that there is no "homogenous" student profile because students come from a variety of backgrounds and study in diverse contexts. However, many distance students face poor or no access to computers, the internet, printers and the required software.

The use of ICT and other technologies goes hand in hand with the issue of IL programmes for distance students. The only way to reach all students at a distance is by using online learning programmes through webpages and tools such as the Web 2.0 and Web 3.0 technologies.

2.6.1 Use and importance of ICT and other technologies in distance education

The importance of ICT and other technologies and the internet is briefly discussed in this section. Odjedokun (2007:6) and Motiwalla and Tello (2000:253) assert that the rapid advancement of the internet and the variety of ICTs have caused the distance education arena to change the way it used to offer education to distance students; the internet and ICT have become a popular platform and means of communication and delivery of distance learning programmes (Bruce 2008:5).

Regardless of the problems indicated earlier, remote students can easily communicate through ICT with their tutors and lecturers and the courses and course material can be made available online, saving students time and sometimes money. Heather and Bruce (2008:5) highlight that advances in ICTs provide greatly improved opportunities to deliver IL training to distance students.

2.7. ISSUES EMERGING FROM THE LITERATURE ANALYSIS

From the reports of various authors, such as Hahn (2012:49), Thornes (2012:82), McLean and Dew (2006:317) and Wilder (2008:4), a table with issues on which emphasis must be put and which should be considered when designing an online IL programme was compiled. These issues are categorised and portrayed in Table 2.2. In section 2.7.1 the issues are discussed in more detail with regard to the scope and content of the reports from which the issues were deduced. Further, use of table in the literature will be seen again on Table 2.2 which displays issues to consider when designing information literacy courses.

Table 2.2 Issues to consider when designing information literacy courses

Learner issues to consider	**Instructional and didactic issues to consider**
• Provision of support specifically for the needs of distance students • Assessment of the prior knowledge of students • Acknowledgment of differences in learning styles and the need to design learning programmes accordingly	• Adherence to the principles of adult learning • Curriculum, syllabus and content development according to didactic principles • Adherence to principles of instructional design • Importance of setting appropriate learning outcomes • Designing instruction appropriate for different learning styles • Employing appropriate methods of assessment for example pre- and post-test and examinations. • Adherence to IL standards such as the ACRL and the Committee of Higher Education Libraries in South Africa (CHELSA, based on ACRL)
Institutional issues and policies to consider	**Library issues to consider**
• Getting faculty buy-in • Need to consider if the programme is compulsory • Need for specific support for distance students	Distinguishing between main campus, single campus and satellite libraries
Evidence-based decisions	**Actions to take**
• Need to acknowledge differences in learning styles • Knowledge of the learner • Need for curriculum planning and syllabus or content	• Need to determine learning outcomes • Promotion and marketing • Need to consider methods of assessment or examination, for example pre- and post-test and examinations

2.7.1 Discussion of issues to consider when designing information literacy programmes for distance students

Table 2.3 elaborates on the issues to consider when designing an IL programme. The findings and arguments of key authors are portrayed.

Table 2.3: Issues to consider when designing information literacy

Issues to consider when designing information literacy programmes	Authors and dates	Key issues and arguments featuring in reports
Need for instructional design and applying principles of instructional design	Wilder (2008:4); Cordes (2006:79); Dewalt *et al.* (2000:33)	These authors report on pilot studies with podcasts as library support for the use of distance library information systems and services. To develop effective IL instruction for distance students, academic librarians should consider design issues and important factors in the selection of technologies. Examples of technologies suggested include podcasts, e-mail, e-mail discussion groups, webpages, chat, muds and mood, and webcasting. They highlight that there is a need to use suitable interactive technologies to teach IL to undergraduate students and mention a highly interactive animated tutorial using Macromedia flash software.
Enhancement and management of online learning	Hahn (2012:49); Thornes (2012:82); Armstrong & Georgas (2006:491); (2006:316)	The authors discuss how video lectures can help to enhance online IL courses. Students can view video lectures at their own convenience. Authors mention the use of web management tools such as WEBCT and Blackboard with collaboration of HorizonLive, to deliver instruction to distance students. They mention the use of virtual learning environments and learning management systems.
Need to consider reports by others	Wilder (2008:2-3); Hufford (2004:153)	These authors highlight the issues of determining who the distance students are, their characteristics, as well as their age groups and gender. They offer suggestions on knowing and working well with academics and instructors. Issues to note include what discipline they teach, which assignments require library research and how the academics feel when librarians teach IL programmes. They also address the issue of budgets.
Need to be guided by principles of adult learning	Wilder (2008:2); Machet & Behrens (2000:10)	The authors argue that the approach of teaching IL skills in class or at a distance needs to consider similar principles. The use of a variety of methods or technologies is recommended to reach out to students with different learning styles. For distance students both adult and younger learners must be considered.

Issues to consider when designing information literacy programmes	Authors and dates	Key issues and arguments featuring in reports
Need to determine learning outcomes	Machet & Behrens (2000:10)	The authors mention that the outcomes of a course should be identified and should be in line with the eventual requirements of the South African Qualifications Authority (SAQA) (i.e. for a programme to be presented in South Africa).
Teaching learning frameworks	Thornes (2012:85); Holloway (2011:25)	The authors report on frameworks that can help in teaching IL to distance students. They highlight the importance of learning outcomes for each section or unit of a course.
Note the importance of distinguishing between single campus and satellite libraries	Holloway (2011:25); Lo & McGraw Dale (2009:148); Wilder (2008:3); Holloway (2011:28); Orr & Wallin (2006:457)	These authors assert that librarians should collaborate with instructors to design IL courses. They argue the importance of blending an IL programme into the curriculum; IL instruction should be closely aligned with students' coursework. They also assert the need for librarians to attend faculty meetings and any other formal and informal gatherings that may lead to contact with the faculty. They highlight collaboration between the subject specialists and instructional design librarians. There should be an outreach programme to reach out to the satellite locations. Librarians serving a distance population are forced to be creative in outreach efforts.
Getting faculty buy-in	Wilder (2008:3); Holloway (2011:28); Orr & Wallin (2006:457)	The authors highlight the importance of marketing and outreach in ensuring that students are aware of and able to use resources when studying at a distance from the institution and library. An IL programme should be marketed in order to ensure the success of the programme. Librarians must market it at every opportunity and at all possible events. It is especially important to get faculty buy-in.
Need for courses to be credit bearing	Lo & McGraw Dale (2009:148)	They assert that librarians should collaborate with instructors to design an IL course. They mention blending an IL programme into the curriculum. IL instruction needs to be closely aligned with students' coursework. Librarians should attend faculty meetings and any other formal or informal gatherings that may lead to contact with the faculty. They highlight collaboration between the subject specialists and instructional design librarians.
Promotion and marketing	Wilder (2008:6); Holloway (2011:26) Wilder (2008:7); Coulter (2011:101)	Marketing and outreach are very important in making sure that students are aware of and able to use resources at a distance. The programme should be marketed in order to ensure its success. Librarians must market the programme at every opportunity. Authors further mention the use of fliers, bookmarks, hand-outs and e-mail to help market the online IL programme. The authors discuss the use of fliers, bookmarks, hand-outs, and e-mail to help with marketing an online IL programme.
Need to consider if the programme is	Wilder (2008:6); Lindsay (2004:482)	The standards are the basis when designing an online IL programme for all types of students. There are five standards to be considered in the design process.

Issues to consider when designing information literacy programmes	Authors and dates	Key issues and arguments featuring in reports
compulsory (i.e. a credit-bearing course)		CHELSA suggests a credit-based online IL course. The best way to ensure that students receive the necessary education to become information literate, lifelong learners is to have a class that all students complete successfully.
Information literacy programme or instruction to be informed by IL standards such as the ACRL and the CHELSA	Holloway (2011:26); Lindsay (2004:482)	The authors point out the need to understand the student population: know their age groups, ethnicity, technological proficiency, language barriers. CHELSA adopted the ACRL standards as the basis when designing an online IL programme for all types of students. There are five standards to be considered in the design process.
Knowledge of the learner	Ivanitskaya, DuFord, Craig & Casey (2008:511) Wilder (2008:7); Dewalt *et al*. (2000:39)	Authors investigated the impact of pre-tests and post-tests on the effectiveness of library instruction. Librarians and academics are partnered to measure library instruction outcomes. They considered types of assessment methods to use, such as questionnaires, surveys, reaction pieces that measure student satisfaction with course content and delivery methods, multiple questions, essays, etc. The IL programme should be evaluated constantly to ensure its efficacy. Assessments should continue throughout the life of the programme. Evaluation should incorporate feedback from students and faculty. Student testing questions and quizzes could be used at the end of each tutorial. The authors mention self-evaluation exercises, assignments, self-tests exercises. They stress the need to understand the student population: know their age groups, ethnicity, technological proficiency, language barriers.

Issues to consider when designing information literacy programmes	Authors and dates	Key issues and arguments featuring in reports
Need to consider methods of assessment or examination, for example pre- and post-tests and examinations	McLean & Dew (2006:317); Muhammad & Mahmood (2012:469); Johnston (2010:210); Ivanitskaya, DuFord, Craig & Casey (2008:511) Wilder (2008:7); Dewalt *et al*. (2000:39)	Authors highlight the use of a variety of methods to reach out to distance students. Different learning styles should also be considered, such as reflective, impulsive, abstract, concrete, holistic, visual, auditory and kinaesthetic. They further mention that the latest generation of learners grew up with video games and a great deal of technology. The students turn out to be kinaesthetic learners who are highly visual and prefer to learn in groups. The use of a variety of tools and technologies should be explored to reach out to distance students. Librarians should adopt the Web 2.0 technologies such as instant messaging, blogs, social networking and wikis to communicate with distance students. The authors encourage the use of online tutorials because they can reach more people, and they provide constant access to library information resources as well as online tutorials in IL skills. Tutorials provide focused demonstrations that can be viewed at the learner's convenience, repeatedly if necessary.
Need for specific support for distance students	Muhammad & Mahmood (2012:469); Johnston (2010:210); Wilder (2008:2); McLean & Dew (2006)	The literature highlights the use of a variety of methods to reach out to distance students. Different learning styles should be considered, such as reflective, impulsive, abstract, concrete, holistic, visual, auditory and kinaesthetic. The authors further mention that the latest generation of learners grew up with videos games and a great deal of technology. The students turn out to be kinaesthetic learners who are highly visual and prefer to learn in groups.
Need to acknowledge difference in learning styles	Wilder (2008:2); McLean & Dew (2006)	Different learning styles should be considered, such as reflective, impulsive, abstract, concrete, holistic, visual, auditory and kinaesthetic.

Various academic libraries have designed online IL programmes. The following section addresses a few national and international programmes that have been reported on in the literature.

2.8 Tertiary institutions with online information literacy programmes in South Africa

According to De Jager and Nassimbeni (2005), when reporting on the initiative by CHELSA, all university libraries in South Africa have recognised the need for learners to develop IL and have embarked on a range of IL programmes, some catering for distance education. There has, however been little co-operation, co-ordination or consensus among those universities and their libraries about what, when and how IL should be taught. At some residential universities, IL programmes have been institutionalised and courses are offered by academic departments (e.g. the University of Pretoria). Generally, in practice, generic and add-on IL training remains largely the domain of libraries and is often not credit-bearing. An increasing number of institutions and libraries are, however, including IL training in their strategic mission statements as a credit-bearing module (De Jager & Nassimbeni 2005:35-36). Table 2.4 lists some of the South African tertiary institutions offering online IL programmes, as noted in the CHELSA (2005) report. This is based on the CHELSA (2005) survey. Although there are certainly newer programmes available, these are not always widely reported in the subject literature. The CHELSA report was readily available at the start of the study. More recent reports (not considered during the initial planning of the study) include work done by Bothma on the University of Pretoria IL course (2014), Jiyane and Onyancha (2010) on IL education and instruction in academic libraries and library and information schools in institutions of higher education in South Africa.

Table 2.4: List of South African Universities with online IL programmes as reported in CHELSA (2005)

Name of institution	Conduct information literacy training	Online	Credit-bearing, meaning that the programme is included in the courses and is allocated a mark
University of Pretoria The programme was based on collaboration between the University of Pretoria and the (then) Potchefstroom University for Christian Higher Education, and is password-protected	Yes, previously there were various initiatives by the Academic Information Service (Library) at the University of Pretoria to promote IL. The university recognised that computer literacy and IL skills are vital to graduates and embarked on a formal programme called Computer and Information Literacy. The course consisted of six sections: Section A Information Section B Finding information Section C Computerised databases Section D Search strategies Section E Internet Section F Evaluation Section G Practical database searching.	Yes	Not a library project but a university campus wide project that is not publicly available online. The IL module is part of the academic literacy programme -compulsory for all first-year students. The programme is the responsibility of the Department of Information Science.[2]
University of Cape Town	Yes The course consisted of five tutorials: Unit 1: Start the research process Unit 2: Finding information Unit 3: Evaluation of information Unit 4: Write and present your report Unit 5: Plagiarism and copyright	Yes	Credit-bearing
Nelson Mandela Metropolitan University: access though INFO-WISE and is password-protected	Yes	Yes	Not credit-bearing
University of Johannesburg: password-protected	Yes	Yes	Yes, for certain courses only; Education, Humanities, Economics, Medical faculty, Engineering design

[2] Since this report the programme has been adapted substantially. It is based on a textbook by Bothma *et al*. 2014 (currently under revision for the 5th edition). Several articles report on this model, e.g. De Beer & Bothma (2016)

Name of institution	Conduct information literacy training	Online	Credit-bearing, meaning that the programme is included in the courses and is allocated a mark
Durban University of Technology (DUT): http://library.dut.ac.za/Learner%20Guide%202011.pdf	Yes: the programme consisted of seven units Unit 1: The nature and need of information Unit 2: The organisation of information. Unit 3: The online public access catalogue. Unit 4: The nature and use of a variety of printed sources. Unit 5: The nature and use of electronic sources. Unit 6: Collecting, analysing, evaluating information sources. Unit 7: Academic integrity (plagiarism, copyright and referencing).	No	In some cases
Cape Peninsula University of Technology (CPUT) http://ixion.cput.ac.za/library_2/infoLit/index.html	Yes • Before starting • Starting out • Finding information • Evaluation of information and legal use	Yes	Yes
University of Stellenbosch http://library.sun.ac.za/eng/help/Infolit2002/index.html.	Yes • Before starting • Starting the search process • Finding information • Evaluation • Plagiarism and copyright • Writing/presenting a report • Faculty examples	Yes	Credit-bearing
Rhodes University http://www.ru.ac.za/static/library/infolit/objectives.html	Yes • Step1: Starting • Step 2: Finding • Step 3: Evaluating • Step 4: Legal and ethical use	Yes	Credit-bearing

Name of institution	Conduct information literacy training	Online	Credit-bearing, meaning that the programme is included in the courses and is allocated a mark
University of Fort Hare	Yes	Yes	For certain courses only. Foundation year - English; Human movement studies
Free State University	Yes	Yes	Yes For certain courses only; Faculty of Law; economic and management sciences
North West University (Potchefstroom campus)	Yes	Yes	The IL module is part of the academic literacy programme - compulsory for all first-year students.

2.9 REPORTS ON ONLINE INFORMATION LITERACY PROGRAMMES FOR DISTANCE EDUCATION LIBRARIES

The literature emphasises that distance education IL programmes should meet the expectations and preferences of distance students (Gonzales 2014:46; Brown *et al*. 2007:10). Distance students' preferences and needs should be taken into consideration when planning IL programmes. (Such needs have already been noted in section 2.4.1.) Use of technology to design online programmes for distance education and using interactive features have been highlighted by various authors. According to Diaz (2012:13), Johnston (2010:208), Dewald *et al.* (2000:34), the internet technologies available to distance educators open numerous avenues for delivering course content and communicating directly with distance students. Many authors emphasise the need to consider the younger generation, referred to as the Net Generation (Brown *et al.* 2007:10). This includes the use of interactive features that can be embedded in an online programme, especially features such as videos, podcasts, games, discussion boards, etc. Diaz (2012:13) and Hahn (2012:49) notes that while one-time instruction sessions delivered face-to-face are still desirable, technologies making use of various forms of multimedia allow for other ways in which students can expand their IL skills. Hahn (2012) further notes that with the various technologies available, online courses cannot be limited to plain webpages; they should be more interactive (Artemchik 2016:309; Anderson & Bull 2014:42; Johns 2014:255).

Some authors emphasise that interactivity, multimedia and a game-like quality are essential components in effective online tutorials. Yang (2009:686) and the ACRL Instructional Technologies Committee (2008) mention that "Web tutorials should include interactive exercises such as simulations or quizzes". The need for interactive exercises is also noted by De Beer and Bothma (2016), Gonzalez (2014:55), Johnston (2012:206), McClure, Cooke and Carlin (2011:26) and Tirado and Munoz (2011:33). A similar point of view is shared by many other authors such as Hahn (2012:49), Leeder, Markey and Rieh (2012:115), Gravett and Gill (2010) and Anderson *et al*. (2008).

For instance, Anderson *et al*. (2008) mention that these types of activities encourage active learning and allow students to respond to what is taught, while self-assessing their own learning. Furthermore, these modes of instruction can help facilitate student empowerment and engagement in the learning process and transforming students from being passive “recipients” of instruction to active participants (Lents & Cifuentes 2009:39-40).

Studies reporting on online IL for distance education in various countries were traced. Most of these reports were on tertiary education. Much can be learned from these studies in terms of groups to which they address the training, scope of programmes (referring to what is included in terms of the topic or issues), platform or format used (i.e. whether the training is stand-alone or in combination with other methods such as lectures), whether and how the training is assessed, as well as how to involve students. As an introduction to the review of online IL programmes reported in the literature, a selection of key reports is reflected in Table 2.5 below.

Table 2.5: Studies reporting on online information literacy programme for distance education

Author	Content of information literacy programme	Learning management system used	Medium of delivery	Purpose, objectives, outcomes	Student engagement	Inclusion in curriculum syllabus of courses and accreditation
Anderson & Bull (2014)	Interactive IL as an outreach programme. Offered tutorials such as: Getting to know an academic library Boolean logic Website evaluation Plagiarism Grades and behaviour	Blackboard	Online interactive through library website that can be accessed at distance	Students to have information-seeking competencies	Interactive presentation on PowerPoint, chats, videos Quizzes and tests are done by students	Not mentioned
Artemchik (2015)	Interactive online database instruction for in-depth research using GotS software and websites	WEBCT	Online and interactive through library website that can be accessed at distance	Students to have information-seeking competencies	Uses evaluation surveys at the end of every tutorial, series of questions to test their knowledge	Credit-bearing and is integrated into the first-year curriculum
Blakeslee & Johnson (2002)	They discuss library instruction but no detail on the content	WEBCT	Web-casting technology such as HorizonLive, Web pages with streaming media, chart, shared applications and pushed content in the form of PowerPoint slides	Not mentioned	Students can watch the presentation, and can chat with the librarian afterwards for further clarification Includes answers and quizzes	Not mentioned

Author	Content of information literacy programme	Learning management system used	Medium of delivery	Purpose, objectives, outcomes	Student engagement	Inclusion in curriculum syllabus of courses and accreditation
Courtney & Wilhoite-Mathews (2015)	The focus is on online library instruction and collaboration with academics	Blackboard	Video conferencing system	Marketed the service by means of newsletters, handouts and LibGuides	Tutorials are in the form of online webinars; live chat via the instant message system	Not mentioned
Da Costa & Jones (2007)	Starting and doing assignment; finding journal articles; searching the internet; summative assessment	Blackboard	Web-based programme with a brief introductory lecture; students had to work through links to resources (They used laptops or desktop computers)	Locating information within the library using OPAC and Web pages; understanding the concept of keywords and using appropriate terms to find information on a topic; recognising the main processes of locating and accessing information; creating a bibliography using the correct citation methods	Students were able to follow links to the resources and to refer to online materials. Students were encouraged to contact librarians using e-mail and discussion boards. Assessment was based on summative and formative evaluation; quizzes at the end of sessions	Nothing mentioned on accreditation
Patrick & Wilson (2015); De Beer & Bothma (2016)	Tutorials cover: The gathering of information Integration of digital information sources Analysis of digital information sources using games	Use of various different games	Interactive game videos	To uncover, collect, interpret and reassemble game information	Students are expected to solve puzzles, collect information, disseminate information and compile new information collectively	No details

Author	Content of information literacy programme	Learning management system used	Medium of delivery	Purpose, objectives, outcomes	Student engagement	Inclusion in curriculum syllabus of courses and accreditation
Gravett & Gill (2010)	Introduction to key online databases and journal collection; introduction to guide to literature searching	Interactive website; embedded in the foundation syllabus	Video, multimedia, and screen demonstration	Not indicated	No details	No details
Hahn (2012)	Introduction to formats of periodical information; Introduction to the research process; Introduction to summarising, evaluation and citing resources. Exposure to and building an understanding of print and electronic business reference resources	Blackboard Vista	Camtasia Studio to produce podcasts Video lecturers Webpage, games	No details given on outcomes	Students are expected to submit one assignment and answer one quiz each	Accredited course; formative evaluation; observations of students' achievements; interviews on completion of the tutorial; summative evaluation to measure adherence to the original goals
Holloway (2011)	Searching online databases and online information sources; searching the internet; evaluating information sources	WEBCT	Skype, e-mail, Web conferencing	To enable students to make the most efficient use of the library resources and services	In-class exercises; pre-testing; assignments	Collaboration with English instructor to build IL into English course
Hufford (2007)	Introduction to library research	WEBCT	Web-based course	To introduce students to basic library research	Practical exercises and online tests	Integrated into the curriculum

Author	Content of information literacy programme	Learning management system used	Medium of delivery	Purpose, objectives, outcomes	Student engagement	Inclusion in curriculum syllabus of courses and accreditation
Hufford (2004)	To introduce students to basic library research	WEBCT	Use Web pages to provide library training	Not indicated	Students write online assignments and there are test questions	A credit-bearing course
Johnston (2010)	Search strategies; information evaluation; referencing techniques	Blackboard .	Captivated tutorials and podcasts presented on web pages	To develop effective search strategies; to be able to use web search engines to find relevant information on a topic; to be able to evaluate the quality of information on the internet; to use APA referencing style	Students have the opportunity to use technological tools including discussion boards, screen casts, and podcasts	The programme integrated and assessment done: Monkey Survey questions are used to assess the effectiveness of the programme
Leeder, Markey & Rieh (2014)	Searching for sources; evaluating sources for credibility and relevance; narrowing down the scope of the research topic; selecting the best sources for the topic; creating a bibliography of quality sources relevant to a research topic	Not indicated	Used BiblioBouts game play	No details given	Engages students in each stage of the research process through competitive game play	Not indicated
Lents (2009)	Not discussed	Web-based lecture	Voice-over PowerPoint slides	No details	No details	No details

Author	Content of information literacy programme	Learning management system used	Medium of delivery	Purpose, objectives, outcomes	Student engagement	Inclusion in curriculum syllabus of courses and accreditation
Li, Leung & Tam (2007)	Information sources and their characteristics; effective search strategies; use of the library catalogue; use of databases; use of internet; evaluation of information sources; citing information sources	Each module contained a hyperlinked table of contents, icons, action buttons and clickable text words, allowing students to select parts of the content	Web-based tutorials. Interactivity elements were created using a combination of Flash, HTML, JavaScript, CEI Script etc.	Addressed two key competencies: Technical competencies focussing on using specific information tools or searching skills, and critical thinking. Skills in using information. The courses include an introduction to information sources, effective database searching skills, locating information, evaluating information, and citing and managing references using bibliographic management software.	Multiple-choice quizzes to measure learning outcomes Tests automatically scored once completed, giving students immediate feedback	Not credit-bearing; faculties requested IL instruction
Lo & Dale (2009)	Introduction to library homepage; assignments and how to avoid plagiarism; evaluation of resources; search strategies; finding specific types of resources, e.g. journal articles; finding books; citations	Web-based instruction	Video; flash tutorial; interactive games; quizzes	It is mentioned that the course has seven modules each with outcomes; no details are given on outcomes Video introduction to the library's homepage and a link to the multipage subject guide; how to write an assignment and avoid plagiarism; evaluating resources; search strategy;	Students take virtual field trips.	Pre- and post-assessment tests using an online survey

Author	Content of information literacy programme	Learning management system used	Medium of delivery	Purpose, objectives, outcomes	Student engagement	Inclusion in curriculum syllabus of courses and accreditation
				finding specific types of resources, e.g. journal and magazine articles Finding books; two short videos are provided to explain how to find books Demonstration on using a catalogue for simple searches; Tutorial on how to cite references		
McLean & Dew (2006) Based on two academic institutions supporting distance learning	Course with five tutorials: How to use online public access Introduction to the WWW Internet strategies How to search using databases Citing and evaluating information sources	Various learning management systems are used e.g. Moodle, Blackboard, WEBCT, Desire 2Learn	Interactive web pages for tutorials; PowerPoint presentations (slides)	To introduce distance students to the library services To teach them about the various library resources To teach them search strategies To teach them how to evaluate sources To use information responsibly	Students were expected to interact with librarians by fax or e-mail	IL was integrated into the under-graduate courses Mention is made of an appropriate evaluation instrument to measure the effectiveness of the module
McClure, Cooke & Carlin (2011)	Four standalone tutorials including getting started and search strategies	Open web pages	A robust and interactive online IL tutorial using video	Each tutorial has its own objectives and outcomes but no detail is indicated	Quizzes, questions, sorting and labelling activities	Not indicated
McFarland & Chandler (2002)	How to use databases to search for information; how to use	WEBCT	Interactive	Familiarity with typical services provided by the home library and by host	Team assignments; formative	Faculty buy-in

Author	Content of information literacy programme	Learning management system used	Medium of delivery	Purpose, objectives, outcomes	Student engagement	Inclusion in curriculum syllabus of courses and accreditation
	the catalogue; how to use Boolean operators; how to evaluate information found on the internet			libraries; understanding of the diverse nature and quality of internet-based research resources Ability to build, develop and manage an effective information search Strategies for evaluating the results of information searches	assessment (feedback)	
Mutula, Kalusopa, Moahi & Wamukoya (2006)	Defining a task; locating resources; selecting the most useful resources; organising information; presenting information effectively; assessing what has been done	WEBCT	Interactive web tutorials	Developing IL competencies e.g. identifying and defining information needs; locating information resources by choosing from a variety of internet and library sources; selecting the most useful resources by evaluating the sources available; organising information; presenting information effectively; assessing what has been done by critically reviewing work; sharing learning experiences among students	Compulsory, accredited module; Online-only submission of assignments	Assessment on writing screenshots, tests and exercises
Patridge *et al*. (2008)	ROSS consisting of eight modules: Understanding the information need;	Web-based programme developed by the University	Interactive videos	Instant messaging, blogs, social networking and wikis	Students are expected to answer questions, make	Nothing was mentioned

Author	Content of information literacy programme	Learning management system used	Medium of delivery	Purpose, objectives, outcomes	Student engagement	Inclusion in curriculum syllabus of courses and accreditation
	preparing for the information search; selecting the online information resources; designing and running the information search; reflecting on the information search; identifying high quality results; creating alerts critical reflection	of Queensland, namely ROSS (Reflective Online Searching Skills Environment)			observations and complete exercises	
Siebodnik (2009)	Not discussed	Blackboard	Video	No details	Formative evaluation, observation of student achievements, interviews on completion of the tutorial; summative evaluation to measure adherence to the original goals	No details
Tirado & Munoz (2011)	Information searching and retrieval; internet and its services; types of information sources	Moodle; the programme is based on web 2.0 technologies	Interactive webpages	Not indicated	Information search and retrieval; designing and creating databases; designing websites; checking for updates in real time without leaving the system; creating presentations; working with	Programme is embedded in the syllabus and allows for self-evaluation and feedback; students evaluate the role of the platform in

Author	Content of information literacy programme	Learning management system used	Medium of delivery	Purpose, objectives, outcomes	Student engagement	Inclusion in curriculum syllabus of courses and accreditation
					spreadsheets; internet, communication tools, effective elements for various digital information Using the Web to promote experiential and collaborative learning and engaging students in each stage of the research process through quizzes	their learning processes
Wilder (2008)	Evaluation of sources; evaluation of information on the internet; limitations of internet search engines; successful searching; transferring skills across the discipline; citing sources; avoiding plagiarism; understanding copyright laws	Not indicated	Library websites; e-mail reference; instant chatting reference; web tutorials; blogs	Not mentioned	Survey questions for students; self-tests at the end of the tutorial	Credit-bearing course

2.10 LESSONS LEARNED FROM THE STUDIES REPORTED

The studies reveal different approaches **(**e.g. content, medium of delivery), but most programmes cover at least core topics such as introduction to information literacy, how to search the library catalogue, subject databases for accessing articles, how to use information legally, copyright issues, etc. (Leeder, Markey & Yake 2012; Tirado & Munoz 2011; McLean & Dew 2006; Mutula, Kalusopa, Moahi & Wamukoya 2006). Various approaches are used to make learning content available, although most are available online through websites and online learning management systems (Courtney & Wilhoite-Mathews 2015; Holloway 2011; Tirado & Munoz 2011; Siebodnik 2009; Li, Leung & Tam 2007). Some courses also use an introductory lecture (Courtney & Wilhoite-Mathews 2015; Hahn 2012; Hufford 2007; McLean & Dew 2006). Although many courses are compulsory or credit-bearing (Hahn 2012; Tirado & Munoz 2011; Lo & Dale 2009; Wilder 2008; DaCosta 2007), there were at the time of publication of the studies also some that were not compulsory.

2.11. CONCLUSION

This chapter examined various issues relevant to the planning of an online training programme in IL for distance learners, the challenges faced and the available technology. These include issues such as the information seeking behaviour of distance students, the issues to consider in the design and development of an online IL skills programme, advice from designers of online IL programmes and published reports on online IL programmes for both distance students and on-campus students and what they entail. Key issues include the need to adhere to the principles of instructional design, knowledge of the types of students to be targeted by the programme and their prior knowledge, catering for different learning styles and the special needs of distance students, collaboration with faculty members, course designers and academic librarians, consideration of pre- and post-assessment methods to assess students as well as programmes, adherence to internationally accepted standards for IL when designing any IL programme, and the need to consider promotion and marketing. As for reported studies, the scope of content,

means of delivery, assessment and students' engagement and inclusion in the curriculum were mentioned.

The next chapter discusses virtual learning environments and the Web 2.0 technologies that can be used when designing online IL programmes for distance students.

CHAPTER 3

VIRTUAL LEARNING ENVIRONMENTS AND DISTANCE EDUCATION

3.1 INTRODUCTION

> *"The web has played a more important role than any other factor in helping learning technology to gain general acceptance. And it was in 1998 and 1999 that the web truly began to influence strategic thinking throughout tertiary and higher education"* (Brown 2010:1).

As touched on in earlier chapters, distance education is an instructional delivery system that allows students to use an educational opportunity without being physically present in the same location with the instructor (Dewan & Steeleworthy 2013:278; Mahwah 2007:89; Johnson & Aragon 2002:1). It can be done effectively when using web instruction (Dewan & Steeleworthy 2013:278). According to Johnson and Aragon (2002), the reason for much of the growth in distance education in recent years is the development of the internet and the improvement of technologies that support online learning. According to Clayton (2011:3), Brown (2010:1) and Leese (2009:72), one of the key ways in which both distance and campus-based learners can be provided with more appropriate and flexible teaching material is through the use of virtual learning environments. In the previous chapter, it was stated that virtual learning environments could be used to present online IL programmes, including online teaching, learning materials and virtual communication tools. This chapter thus focuses on reports in the literature on virtual learning environments and programmes from a distance education perspective, and how the virtual learning environments can be used by distance education institutions' libraries as online learning platforms. The rationale is that libraries should be aware of the value of virtual learning environments and how they can be used in offering online IL programmes.

This chapter covers virtual learning environments and their effect on the distance student.

3.2 CONTEXTUALISATION OF VIRTUAL LEARNING ENVIRONMENTS

This section will address the literature searching and the clarification of concepts for this chapter. Although a working definition of a virtual learning environment was provided in Chapter 1 (section 1.9.9), this section looks at further definitions and explanations to justify the choice of the working definition.

In order to write this chapter, a search was conducted on the Unisa library catalogue for books and on the databases for journal articles. The SA-ePublications database, international databases such as Library, Information Science and Technology Abstracts, E-LIS (Library and Information Science), Emerald, JSTOR, Wilson Web (Library Literature and Information Science Full Text), ERIC, LISA, Science Direct and Google Scholar were searched. The NRF database was searched for completed theses and dissertations. The main keyword strategy was followed and key concepts searched on the databases given above. It became evident that various studies had been conducted on virtual and online learning environments, computer-assisted instruction, computer-based training, computer-managed instruction, course-management systems, integrated learning systems, learning management systems, technology-based learning, technology-enhanced learning, web-based training, programmes using ICT, etc. This chapter deals only with virtual learning environments, online learning environments, virtual learning programmes and web-based programmes with specific focus on the potential for offering IL programmes to distance students.

The concepts “virtual learning environment”, “learning management system” and “online learning environment” are often used interchangeably. As explained in Chapter 1, in this study the concept “virtual learning environment” is used. According to Ball (2006:2), a virtual learning environment is not a new phenomenon. It has, however, gained widespread acceptance in recent years, and has been proclaimed as a transformational technology, changing fundamentally how students and their universities interact (Ball 2006:2). Ball (2006:2) also notes that an increasing number of university courses (for

both contact and distance teaching) are now available as hybrid courses in virtual learning environments.

There are many opinions and definitions of the meaning of virtual learning environments. As stated in section 1.10.7, this study follows Lihitkar and Yadav (2008:27) who define a virtual learning environment as a software system designed to support teaching and learning in an educational setting. The authors take the definition further and highlight that virtual learning environments are web-based toolkits that facilitate learning, through the provision and integration of online teaching and learning materials and virtual communication tools. However, when taking the virtual learning environment to the wider context), Lyndon and Hale (2014:57) mention that it is an integrated solution to manage online learning and improve student learning. He further clarifies that virtual learning environments not only offer facilities to structure learning content, but also provide student management, communication and assessment tools and a range of other useful functions. In this sense they can be very useful for distance IL training programmes.

Lyndon and Hale (2014:57), Ball (2006:2) and Bach, Haynes and Smith (2007:71) assert that virtual learning environments are learning platforms or components in which learners and tutors participate in online interactions of various kinds, especially online learning. On the same note, Clayton (2011:3), Brown (2010:1), Leese (2009:72), Crook and Cluley (2009:200) and Bach *et al.* (2007:71), in their definitions of virtual learning environments, highlight that virtual learning environments are any electronic space where learning can take place or where online interactions occur. In a higher educational setting, Huerta-Wong and Schoech (2010:85) note that virtual learning environments are computer- and internet-based software systems that facilitate the management and delivery of educational content for instructors and learners.

The definitions and explanations noted here all support the definition that was adopted, in the sense that each highlights that a virtual learning environment should be an electronic space, should allow interaction between students and lecturers, and should encourage students' participation, use of computers and the internet.

3.3 PRINCIPAL FUNCTIONS OF A VIRTUAL LEARNING ENVIRONMENT

Ball (2010:2) and Bach *et al*. (2007:71) highlight that the principal functions of virtual learning environments are:

- To offer controlled access to a curriculum that has been mapped to elements (or "chunks") that can be separately assessed and recorded;
- To track student activity and achievement against certain elements using simple processes for course administration and student tracking that make it possible for tutors to define and set up a course with accompanying materials and activities to direct, guide and monitor learner progress;
- To support on-line learning, including access to learning resources, assessment and guidance. The learning resources may be self-developed, or professionally authored and purchased materials that can be imported and made available for use by learners;
- To facilitate communication between the learner, the tutor and other learning support specialists to provide direct support and feedback for learners, as well as peer-group communications that can build a sense of group identity and community of interest;
- To link to other administrative systems, both in-house and externally; and
- To provide a shared space for all students to interact regardless of their physical location, on condition that they have access to a computer connected to the internet.

In addition to the above functions, Ball (2006:2) and Secker (2005) identify five major tools that are integrated in a virtual learning environment. Such tools make it easier to perform specific services. The tools are:

- Content delivery tools to provide teaching materials in a wide variety of formats (audio, video, PowerPoint, as well as text) to students in one convenient place. Generally content is accessible only to the students of the institution (Ball 2006:2; Secker 2005:26);

- Communication tools to allow many-to-many interactions through bulletin boards, discussion groups and other means;
- Assessment tools to enable formative and summative assessment, self-testing, diagnostic testing and formal assessment, as well as automated marking where needed;
- Course management tools to enable tutors to record data about students' progress, to track individuals or groups of students, and to enable students to submit assignments and upload presentations; and
- Tools to make course resources such as learning resources not produced in-house available through uploading the material or by means of links (Ball 2010:2; Bach *et al*. 2007:71; Secker 2004:27).

3.4 USE OF VIRTUAL LEARNING ENVIRONMENTS AND CHALLENGES FACED

The use of virtual learning environments to reach distance students effectively is widely noted (Clayton 2011:3; Brown 2010:1; Leese 2009:72), as mentioned in earlier chapters. This is mostly ascribed to advances in information and communication technologies to provide training opportunities (Brown 2010:1). However, Ojedokun (2007:6) as well as Motiwalla and Tello (2000:253) note that virtual learning environments also introduce problems of their own.

3.4.1 Distance education and studies on programmes using ICT

In support of the idea that libraries can use virtual learning environments to present IL, Brown (2010:1) reports that the advances in ICT can provide opportunities to offer IL training to distance students. However, distance education experiences challenges when using virtual learning environments. The following section highlights characteristics of the virtual learning environment.

3.4.2 Characteristics of a virtual learning programme

This study focuses on an online, web-based or virtual learning programme. In Chapter 1, the definition of a web-based programme was provided. According to Robertson and Jones (2009:34), Lai, Lang and Tam (2007:36), Saccanand and Jaroenpuntaruk (2007:536), and Hufford (2004:204), a web-based program is any software that runs on or interacts with a website, which may be on the internet or on an in-house intranet (Sierberhagen 2005:10), or on a virtual learning environment platform. Therefore, a learning programme interacts with a website, or a server through the internet. In the case of Unisa, myUnisa, powered by SAKAI, is a virtual learning environment that is used for setting up internet-based courses or programmes for distance students.

3.4.3 Virtual learning programme and distance students

According to Singh and Devi (2009:178), Bach *et al.* (2007:71) and Ball (2006:2), the National Qualifications Framework and Curriculum Development and SAQA (2006), the concept programme refers to a set of planned learning activities linked to outcomes that satisfy a range of requirements for delivery in learning, teaching and assessment. From the SAQA definition, it could be said that a learning programme consists of the following:

- Sequential learning activities linked to outcomes;
- A delivery plan that identifies how the learning is to be offered and how learners will be supported;
- An assessment plan including formative and/or summative tasks and a guide for how and when assessments will take place;
- Learning materials and other physical resources or equipment required for the learning activities and tasks; and
- Trained practitioners and other essential human resources.

In terms of this broad description, any course of study with a defined purpose can be described as a learning programme. These would include:

- Learnerships;

- Apprenticeships;
- Institution-based courses (leading to a qualification, or some other form of certification); and
- Skills programmes.

There are important distinguishing factors that will qualify the virtual learning environment. The following section will list all the characteristics of the virtual learning programme. According to Dictionary.com the concept “characteristic” refers to a distinguishing feature, quality or attribute of an item, person and phenomenon.

However, the *Oxford Advanced Learners’ Dictionary of Current English* (2001a: 182) defines the concept as referring to a typical feature or quality that somebody or something has. It is important to identify the characteristics of virtual learning environments so that they can be considered for making recommendations on the ideal online IL programme this study aims to establish. According to Mueller and Strohmeier (2010:214-215), Crook and Cluley (2009:199) and Leese (2009:70-77):

- All virtual environments provide a shared space, a place that allows many users from around the world to interact simultaneously. The online IL programme should be accessible to multiple scattered distance students through an online interface and computer or mobile device;
- All virtual environments host a graphical user interface. The VLE can depict space visually, ranging in style from two-dimensional cartoon imagery to more immersive 3D environments. This may include a self-tutor interactive tutorial, where students can master IL through self-study;
- Action in virtual environments can take place in real time, which requires synchronous communication. A chat room facility allows interaction to take place like a face-to-face meeting. Contribution can take place in real time between two or more students who are online at the same time. Interaction can also be asynchronies;

- Virtual environments are interactive and encompass the use of multimedia tutorials, which entails that a tutorial can be in an electronic format, which may include video clips, webcasts and audio presentations.
- Virtual environments allow and encourage the formation of in-world social groups, teams, guilds, clubs, cliques, housemates, neighbourhoods, etc.

To add to the above characteristics, the JISC (2005) lists:

- Virtual learning environments can provide for quizzes, tests or other exercises that are completed and answered online. Sometimes the answers appear after the individual questions, while others give a score at the end of the completed exercise. Feedback is provided as an on-screen explanation of why a particular answer is incorrect or insufficient, an invitation to try again, and/or a direction to the specific area of the course materials for further study of the point in question;
- Asynchronous communication (discussion boards or bulletin boards). Use of online discussion facilities to conduct a debate on a particular topic, set by the teacher. Students can contribute whenever they happen to sign in, within a defined period of time, typically one or two weeks; and
- Virtual programmes and learning or knowledge objects. Knowledge objects are discrete items that can be integrated into lessons – for example a text, graphic, audio, video, or interactive file. Learning objects are more highly developed, consisting of discrete lessons, learning units or courses.

3.4.4 Challenges of virtual learning environments in distance education

Ball (2010:2) and Bach *et al.* (2007:71) mention that a virtual learning environment is “the components, in which learners and tutors participate in ‘online’ interactions of various kinds, including online learning”. However, the virtual learning environment may also impose problems in distance education. Table 3.1 lists the problems that distance students may experience.

This section discusses the common problems that might occur when distance students are using *virtual learning environments*, shown to be the same as those already highlighted in section 2.3.1 of this study, which focused on general problems experienced by distance students when *accessing and using library resources*.

Table 3.1: Problems experienced by distance students

PROBLEMS IDENTIFIED	EFFECT ON DISTANCE STUDENTS
Distance students may lack IT skills	Students, especially those from rural areas or poor families, do not have access to computers and the internet
The system may not be robust	Slow internet connection due to slow bandwidth. They may also be faced with the challenge of insufficient bandwidth, which causes the internet connection to be slow (Chetty *et al*. 2011:1889; Horrigan 2008:73).
Digital divide	Students may lack access to computers with internet connections because of the digital divide (Chetty *et al*. 2011:1889; Ramasodi 2010:36; Horrigan 2008:10; Shapiro 2007; Duffy-Deno 2000).
Downtimes of the technical system	From time to time, downtime occurs. This may be planned for updates and necessary maintenance, or may occur in reaction to unforeseen problems, such as an electrical surge (William 2002:263).
Students may not cope with rapid technological change	In the context of Unisa, students, especially those from rural areas or poor families, do not have access to computers or the internet, and sometimes do not even have electricity in their homes (Chetty *et al.* 2011:1889; Ramasodi, 2010:36; Horrigan, 2008:10; Shapiro, 2007; Duffy-Deno, 2000).
Inability to use virtual learning environment	Students, especially those from rural areas or poor families, do not have access to computers and the internet

3.5 REASONS FOR DISTANCE EDUCATION INSTITUTIONS TO USE VIRTUAL LEARNING ENVIRONMENTS

Mueller and Strohmeier (2010:209), Tello and Motiwalla (2010:138), Mash *et al*. (2006:e1), van Raaij and Schepers (2006:832) mention that there are a number of reasons why distance education institutions want to use virtual learning environments. These are listed in Table 3.2 below.

Table 3.2: Distance education and the advantages of using virtual learning environments

Issues important to distance education	Ways in which virtual learning environments can address the needs of distance students
Access and reaching out to students who are geographically scattered	All virtual environments involve the use of computers so that students with access to computers can be reached (Mueller & Strohmeier, 2010:214-215; Crook & Cluley 2009:199)
Networking issues for the communities of practice	The formation of different groups, such as social groups, teams, guilds, clubs, cliques, housemates, neighbourhoods, etc.
Module and curriculum design	Academics and their tutors can use the platform to design new modules It provides an excellent context in which to design the curriculum for the module or subject where planning the order of content, learning activities and assessment strategies have to be carefully thought out.
Communication with a number of students	Group work and discussions can easily be facilitated in a virtual learning environment. Students who may be too intimidated to contribute during face-to-face contact may be happy to add something electronically. Large amounts of information can be made available to large groups of students, including those who have easy access to resources such as a record of their own marks and online discussions, library catalogues, study skills help, past examination papers and other aids to learning.
Communication with many students	Given that most students now work part-time and are often not on the campus, it is an excellent way of being able to communicate with a number of students, or all one's students, outside of normal class contact times. (Appropriate Martini characteristic "any time, any place, anywhere"!)
National law benchmarks	According to the national law benchmarks, students are supposed to be familiar with using legal databases, search engines and other means of electronic data collection; all or any of these can be designed into a virtual learning environment.
Tasks and formative feedback	Virtual learning environments allow lecturers to bring together in one place a variety of powerful resources linked to tasks and formative feedback. These may include links to law reports, statutes and journal articles, all aimed at adding value to student learning.
Tracking system to check student progress	Student progress can be more easily checked through the 'tracking' function found in most virtual learning environments.
New forms of assessment	New forms of assessment become possible, for example through the use of discussion or evaluation by students of the resources assembled in the virtual learning environment.

With the above appropriate support mechanisms, distance learning can be easier to manage through a virtual learning environment (Mueller & Strohmeier 2010:209; Mash *et al*. 2006:e1; Raaij & Scheepers 2006:832).

3.6 DISTANCE EDUCATION LIBRARIES' USE OF VIRTUAL LEARNING PROGRAMMES

E-learning is becoming an integral part of higher education today. Ball (2006:2), Stacey and Gerbic (2009:8) mention that introducing virtual learning environments into campus can change relations between students and their teachers, peers and the university by increasing connectedness both physically and virtually. The authors further highlight that the growth of e-learning, in which education is delivered and supported through computer networks such as the internet, has also posed new challenges to the library services. With the internet and the World Wide Web, distance education libraries can put online training tutorials on the web to support learning. The distance students now have access to a universe of digital information through the information superhighway. Therefore, new technologies in education require libraries and librarians to re-evaluate the way they develop, manage and deliver resources and services (Sharifabadi 2006:389). However, Lo and Dale (2012:150) and Bury and Oud (2005) caution that it is important to establish the effectiveness of online tutorials or their suitability for students before designing and implementing them.

On the other hand, Robertson and Jones (2009:259), Li *et al*. (2007:531), Hufford (2004:153), Sacchanand and Jaroenpuntaruk (2004:501) and Sacchanand (2000:22) highlight the importance of web-based IL programmes. They emphasise that web-based IL instruction has many advantages, especially at distance education institutions where such programmes can enable students to learn by themselves. Such programmes can encourage self-directed learning, self-reflection and a learner-centred approach for learners anywhere, any time and at any pace.

3.6.1 Technologies to incorporate online information literacy programmes

Aharony and Bronstein (2014:106) assert that the advancement of participatory technologies and Web2.0 has modified the surroundings in which people access information and build knowledge.

Various technologies can be used to incorporate online IL programmes that are interactive and self-tutored and allow learners to learn on their own, in their own time and space. The use of interactive technology to teach IL was highlighted by various authors. Aharony and Bronstein (2014:106), Curran (2013:2), Armstrong and Georgas (2006:491), Durrington *et al*. (2006:190), Hrycaj (2005:210) and Dewald *et al*. (2000:33) mention that "interactivity is a key contributory factor to the success of library online instructional tutorials".

A major objective of creating interactive tutorials to teach IL is to provide students with an enjoyable learning experience. Armstrong and Georgas (2006:491) also mention that: "Interactive tutorials are an innovative and clear way to teach various skills in researching." Therefore, it is important to make tutorials as visually engaging, innovative, interactive and game-like as possible. Bak (2006:491), Durrington *et al*. (2006:190), Hrycaj (2005: 210) and Dewald *et al*. (2000:33) mention that: "Interactivity is a key factor contributing to the success of the online library instructional tutorials." The authors talk about highly animated interactive tutorials that introduce undergraduate students to basic IL concepts, including selecting keywords for a research topic.

Virtual learning environments, online learning management systems and online programmes thus hold much potential for distance education, and therefore also for libraries planning online IL programmes.

3.7 CONCLUSION

This chapter has highlighted that as online education becomes increasingly popular and widespread, distance education institution librarians need to consider the potential of virtual learning environments for IL training. The advantages of designing and using

virtual learning environments by distance education institution libraries were highlighted. The chapter lists the problems that can be encountered when using virtual learning environments. The use of various technologies to provide IL tutorials for distance students was highlighted. The next chapter discusses the research methodology and research design.

CHAPTER 4
RESEARCH METHODOLOGY

4.1 INTRODUCTION

The purpose of this chapter is to describe and discuss the details of the research design, research method, pre-test, population and sample, technique used to collect data, ethical clearance, and validity and reliability of the data-gathering instrument used in this study. The collected data assisted the researcher to determine the information-seeking behaviour, self-reported perceptions of skills of the participants when using and searching the library's online information resources from a distance, as well as their levels of readiness for an online IL programme.

4.2. RESEARCH DESIGN

The research design for this study provides a detailed outline of how the investigation was conducted. This includes how data were collected and the tools used to collect data. Kumar (2012:94) defines a research design as a plan, structure and strategy of investigation to obtain answers to research questions or problems. The plan includes an outline of what the study did to answer the stated problem and the operational implications for the final analysis of data. Babbie (2010:86), Leedy and Ormrod (2010:135) define a research design as a strategic framework for action that serves as a bridge between research questions and the execution or implementation of the research.
Kumar (2011:104), Leedy and Ormrod (2010:135), and Babbie (2007: 86) note that the purpose of a research design is to understand, explain, discover and clarify situations, feelings, perceptions, attitudes, values, beliefs and experiences of a group of people.

This study essentially involved the following steps:

- Analysing selected literature to gain better understanding of the subject and to learn about gaps in the subject knowledge;
- Identifying research objectives;
- Preparing a preliminary list of research questions;

- Selecting a suitable research method for the purpose of the study;
- Developing a questionnaire as research instrument;
- Selecting the sample from the university (case study) used for the study;
- Pre-testing the questionnaire and revising it;
- Distributing the questionnaire to the potential respondents;
- Checking the data for reliability and usability;
- Analysing the data by coding the responses, tabulating data, performing appropriate statistical computations and interpreting the results; and
- Reporting the findings in Chapter 5.

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4.2.1. Types of research designs

Creswell (2013:42), Neuman (2012:92), and Babbie (2010:90) mention that there are two types of research designs, qualitative and quantitative. For mixed methods research designs both quantitative and qualitative data are collected and analysed in appropriate ways (Creswell 2014:155). Most methods of data collection can be used in both qualitative and quantitative research designs. Kumar (2011:138) asserts that the distinction is mainly due to the restrictions imposed on flexibility, structure, sequential order, depth and freedom that researchers have during the research process.

4.2.1.1 Quantitative

The study employed a descriptive quantitative approach supplemented with qualitative data. Cresswell (2013:42), Kumar (2012:94), Neuman (2012:92), Babbie (2010:90) and Leedy and Ormrod (2010:135) note that quantitative analysis measures phenomena using numbers in combination with statistical procedures to process data and summarise results. Cresswell (2013:42), Kumar (2012:94), Neuman (2012:92) explain quantitative research as research conducted in a natural setting. It is concerned with viewing experiences from the perspective of those involved and attempts to understand why individuals react or behave as they do. This means that the variables are usually not controlled because it is the freedom and natural development of action and representation that the researcher must capture.

4.2.1.2 Qualitative

Cresswell (2013:42), Kumar (2012:94), Neuman (2012:92), Babbie (2010:90) and Leedy and Ormrod (2010:135) define qualitative research as a research design that seeks answers to questions by examining various social settings and individuals who inhabit these settings. However, Babbie (2010:285) defines qualitative research as a field of research that enables researchers to observe social life in its natural habitat, i.e. to go where the action is and watch. According to Babbie (2010), qualitative research can produce richer understanding of many social phenomena than can be achieved through other observational methods. Creswell (2008:7) describes it as an inquiry approach useful for exploring and understanding a central phenomenon. He mentions that to learn about this phenomenon, the inquirer asks the participants broad, general questions, collects the detailed views of participants in the form of words and images and analyses the information for description and themes. From these data, the researcher interprets the meaning of the information drawing on personal reflections and past research.

4.2.1.3 Mixed methods

Mixed methods research designs combine the quantitative and qualitative approaches in a single research project to gather and analyse data according to the principles of both quantitative and qualitative research (Creswell 2014:158). Kumar (2012), Perri and Bellamy (2012:305), and Powell (2004:64) use the term “mixed methods design”. They note different types of mixed methods design, namely embedded, explanatory and exploratory design. Case and Given (2016:267) refer to “multiple methods”: “More commonly a multiple-methods approach takes the form of using just two or three sources of data drawn from some mix of individual interviews, focus groups, observations, question and document analysis.”

This study adopted a quantitative research approach supplemented by limited qualitative data.

4.3 RESEARCH METHOD: CASE STUDY SURVEY

In planning the research design, several studies on related topics were consulted. The methods were considered and their instruments were examined.

This study adopted a case study approach with Unisa, a very large distance teaching institution with more than 320 000 students and a well-established and well-stocked library, as the case study. Yin (2013) defines the case study research method as an empirical inquiry that investigates a contemporary phenomenon in its real-life context. May (2011:127) defines a case study as a strategy that examines through the use of a variety of data sources, a phenomenon in its natural context, with the purpose of confronting theory with the empirical world. A survey was selected as the method to collect data. Various authors, including Creswell (2014:155), Babbie (2010:169-173), Leedy and Ormrod (2010:212) and Babbie and Mouton (2001:230), have mentioned surveys as a common method used to collect data in social science research.

Three case study surveys that used online questionnaires to collect data had a particular influence on this study. These studies are portrayed in more detail in Table 4.1 with reference to how the researchers stated the purpose of the study, the methodology chosen, how the sample group of participants for each study was chosen, and how their data collection could enable them to report findings. The third case study on “Finding my way around: the information process of distance students when searching for free online resources” (Siong 2013), followed the same research approach as this study. The reason for selecting a case study is that it is evident from the studies below that the researchers investigated various forms of online information-seeking behaviour of students at a distance and on campus. They used online or web-based questionnaires as data collection methods, which the present study also used. Refer to Table 4.1 below.

Table 4.1: Three case study surveys which used online questionnaires to collect data

Listening from distance: a survey of University of Illinois distance learners and its implications for meaningful instruction (Hensley & Miller 2010)	
Purpose	Explore distance learners' perceptions about and use of the library services
Methodology	Survey
Sampling	Only students enrolled in online or off-campus distance education
Data collection instrument	Web-based survey
Findings	The scope of the library services accessed is limited. In order to build awareness of the diverse range of services available, the library must communicate proactively with distance students. The findings demonstrate that online surveys are a useful tool in attempting to understand the needs of library patrons who are enrolled in distance education.
Undergraduate students' interaction with online information resources in their academic tasks: a comparative study (He et al: 2012)	
Purpose	The paper aims to ascertain the opinions of undergraduate students on the importance of internet-based information sources when they undertake academic tasks.
Methodology	Quantitative method. Based on a set of identified typical academic tasks for undergraduate students, three research questions were designed concerning students' usage and views of information resources for completing these tasks.
Sampling	Students in two universities in USA and China.
Data collection	Web-accessible questionnaire.
Findings	The results of the study confirm that undergraduate students use different information sources for their academic tasks; online resources and search engines are the most commonly used; social networking sites are not used for students' tasks; however traditional resources still play an equal role or more in doing certain specific academic tasks.
Finding my way around: the information process of distance students when searching for free online resources (Siong 2013)	
Purpose	To develop and evolve the way distance students seek information and how technology contributes to their information seeking process (i.e. to find out how distance students access free online resources)
Methodology	Mixed methods approach (combining quantitative and qualitative data and analysis). Quantitative data covered what resources students use, how they locate information, and the qualitative data focussed on steps they took to locate information by exploring aspects of how the way the internet provides access to electronic information affected their behaviour when locating scholarly materials.
Method	Survey
Sampling	Ten students
Data collection	A web-based questionnaire survey with multiple-choice questions as well as open-ended questions
Findings	Findings revealed that there are a number of ways in which undergraduate theology distance students look for information and use information: 70% of participants indicated that they used search engines such as Google or Yahoo when seeking information. The majority of the participants were confident most of the time of their research skills, but only 8% indicated that they were confident all the time. The majority of participants' main sources of information were commentaries, theological books and books on Biblical topics. Participants ranked websites second highest as one of the main sources of information.

4.4 RESEARCH INSTRUMENTS FOR DATA COLLECTION

Survey research is usually conducted by interviews or questionnaires. This study used a questionnaire as the only instrument for data collection, like other studies of distance students. An electronic questionnaire could reach all potential participants. Further reasons for choosing a questionnaire as the best instrument for collecting data for this study included that data could be collected from a large number of respondents, and that it was more cost-effective than arranging and conducting interviews with each respondent or even a group of respondents.

Because of the large number of potential participants (first-year students in the School of Accountancy, Unisa), and in order to reach students in a diversity of geographic locations, an online questionnaire was selected. It was administered electronically with the help of Mr Oscar Manamela, a Unisa staff member who acted as administrator of the questionnaire. The researcher followed the prescribed protocol to request a space from the Unisa Department of ICT where the link to the questionnaire was created. The Department of ICT sent all the first-year students in the School of Accountancy a link to access the questionnaire with the formal cover letter (i.e. invitation) (Appendix D). The cover letter used the Unisa template (as the institution where the case study survey was conducted) on a University of Pretoria letterhead. The cover letter clearly stated that participation was optional, that students would not be penalised for deciding not to participate in the survey and that there would be no monetary benefits for participating in the survey.

The questionnaire was in English, because the medium of instruction at Unisa is English (see Appendix D). It required 10-15 minutes to complete. At the beginning of the questionnaire a brief instruction explaining the purpose of the study was provided. In order to secure honest responses from the respondents, they were requested to remain anonymous and were assured that any information they gave would be treated in complete confidence. All data were reported in aggregate format and no responses were related to identifiable individuals.

The questionnaire was composed of structured closed-ended questions; the responses assisted the researcher in determining undergraduate students' level of skills in using online library resources. A few open questions allowed the researcher to collect qualitative data that were analysed by means of thematic qualitative analysis. The qualitative data revealed reasons for students' actions and needs. The questionnaire had four parts. Section A was structured to elicit registration information from the respondents: their status of registration in 2015, the department presenting the key first-year modules for which they had registered, and where they lived. Section B concerned ICT access and internet skills. The section consisted of five questions collecting data on ICT access, computer skills and internet skills. Section C had nine questions with 11 sub-questions. It collected information on training, use of the library, preferences for getting information on assignments, whether students were trained to access the Unisa library website, their frequency of using the Unisa library website, training on how to access and use the library resources when visiting the library in person, training on using the library website and the internet, and their preference for methods when requesting assignment-related information. Section D was on awareness and understanding of electronic resources. It consisted of five questions, which had a further 17 sub-questions asking among others whether respondents were aware of the library's e-resources, and their self-rating of their skills in using the library's e-resources etc.

For this study a structured questionnaire was used as instrument to collect data from first-year undergraduate students registered for first-year modules in the School of Accountancy. The students' participation was voluntarily. Data were collected in July 2015 and the first week of August 2015. A cover letter with the invitation and a link to the online questionnaire was sent to all first-year students in the School of Accountancy through their myLife (Unisa) e-mail addresses (Appendix C).

4.5 POPULATION AND SAMPLING

Sampling is the process of selecting units of analysis from a population (Creswell 2014:158; Neuman 2012:146). In the reviewed literature, the common types of sampling techniques mentioned are probability and non-probability (purposive) sampling.

Probability sampling techniques are used in quantitative-oriented studies, while non-probability sampling techniques are used in qualitative studies. Census sampling could also be used (Levy & Lemeshow 2013).

4.5.1. Definition of sampling

Sampling is the process of selecting one or more samples from a bigger group (Kumar 2011:154). In this section (4.5) the population of the study and the choices made are explained. Information is also provided on sample sizes and sample characteristics as portrayed in the literature on research methods. Leedy and Ormrod (2012:65) explain that sampling is often one of the most crucial steps in survey research and they define a sample as “a selection of units from the total population to be studied”.

4.5.2 Sample size

Creswell (2007:157) and Neumann (2012:163) assert that sample size is an equally important decision to sampling strategy in the data collection process. According to the authors a guideline for sample size in qualitative research is to study not only a few sites or individuals, but to collect extensive details about each site or individual studied as well. Creswell (2007:157) and Neumann (2012:163) argue that it is important in sampling to determine the most adequate size of the sample. The main criterion to use when deciding on sample size is the extent to which the sample is representative of the population. In contrast to selecting a sample size, a census sampling approach can be followed.

Remier *et al.* (2015:147) define census as a study of every unit, everyone or everything, in a population. It is known as a complete enumeration.

4.5.3 Choices for this study

The total number of students registered for first-year modules in the School of Accountancy was 29 685 at the time of data collection (Unisa Statistics for 2015 registrations). The statistics can be classified per department as follows:

- Department of Auditing: **2 767**
- Department of Financial Accounting: **21 372**
- Department of Management Accounting: **2 992**

- Department of Tax and Taxation: **587**
- Others students registered for accounting modules in other schools: **1 967** (Unisa: DISA Information Service, 2016).

A census approach was followed for the study, inviting all students registered for first-year modules in 2015 in the School of Accountancy to take part. This was done to ensure that all students had the opportunity to participate. Since ethical clearance from both the degree-granting institution and the institution where the research was conducted was received only in April 2015, only students registered for the second semester were included in the census sample.

4.6 PILOT STUDY

A pre-test was conducted prior to the actual data collection to make sure that the questions fitted the purpose of the study and were clear and easy to follow. The students using the Muckleneuk information area reading space and level 6 reading spaces and Sunnyside library's reading spaces were targeted and issued with the printed survey questionnaires. The researcher targeted only students registered for first-year modules in the School of Accountancy. The students were asked on a daily basis, for a period of one week, if they were registered for a first-year module in the School of Accountancy. This was done until the number of 50 was reached. The students were given time to complete the printed questionnaire. The result showed that, in general, the 50 first-year students in the School of Accountancy who completed the questionnaire encountered no difficulty in answering the questions. The pilot study was conducted from 18 February 2015 to 5 March 2015.

4.7 TREATMENT OF DATA

The collected data were coded and entered into the statistical package called SAS JMP version 12 with the help of a Unisa statistician, Mr Hennie Gerber. Demographic data were tabulated and summarised as percentages and frequencies. Only descriptive statistics were recorded. The findings are presented in the following chapter (Chapter 5) under sub-headings based on the research questions.

4.8 ETHICAL CLEARANCE

Creswell (2014:95) and Neuman (2012:64) emphasise that ethical issues apply to all research designs and are a vital part of research. The authors assert that if the empirical research involves people or vertebrate animals as research subjects, the researcher must include an ethics statement in his or her proposal. Bak (2004:28) confirms that all research should address ethical issues. Both Creswell (2014:95) and Bak (2004:2) say that addressing ethical issues in any research is meant to ensure that no individual is subjected to any harm as a result of the research. According to Bak (2004:28), any empirical study involving people as research subjects must include an ethics statement or ethical declaration from the researcher.

As the study used first-year students in the Unisa School of Accountancy modules who had registered for 2015 in the second semester, ethical clearance had to be obtained from both the University of Pretoria and Unisa before collection of data. The researcher was granted ethical clearance from the UREC (see Appendix B) to use Unisa students as research subjects. Further, official clearance was granted by the University of Pretoria, the degree-granting institution, in the EBIT Faculty to proceed with the data collection (see Appendix A). Further approval was granted by the Unisa Research Permission Subcommittee of SRIHDC to do research involving Unisa staff, students and/or data (see Appendix C).

4.9 VALIDITY AND RELIABILITY OF THE DATA-GATHERING INSTRUMENT

The research instrument is considered valid because it builds on issues of IL and typical problems experienced by distance students as identified from the subject literature. The intention was not to generalise from the findings to all Unisa students and students from other distance education institutions, but to show how useful data can be collected for the planning of an online IL programme for distance students. The data-gathering instrument was tested with a pilot group of 50 first-year students. No problems were noted and the instrument collected what it was intended to collect.

4.10 GRAPHIC PRESENTATION OF THE RESEARCH DESIGN

The graphic below illustrates the process followed by the study to answer the research questions.

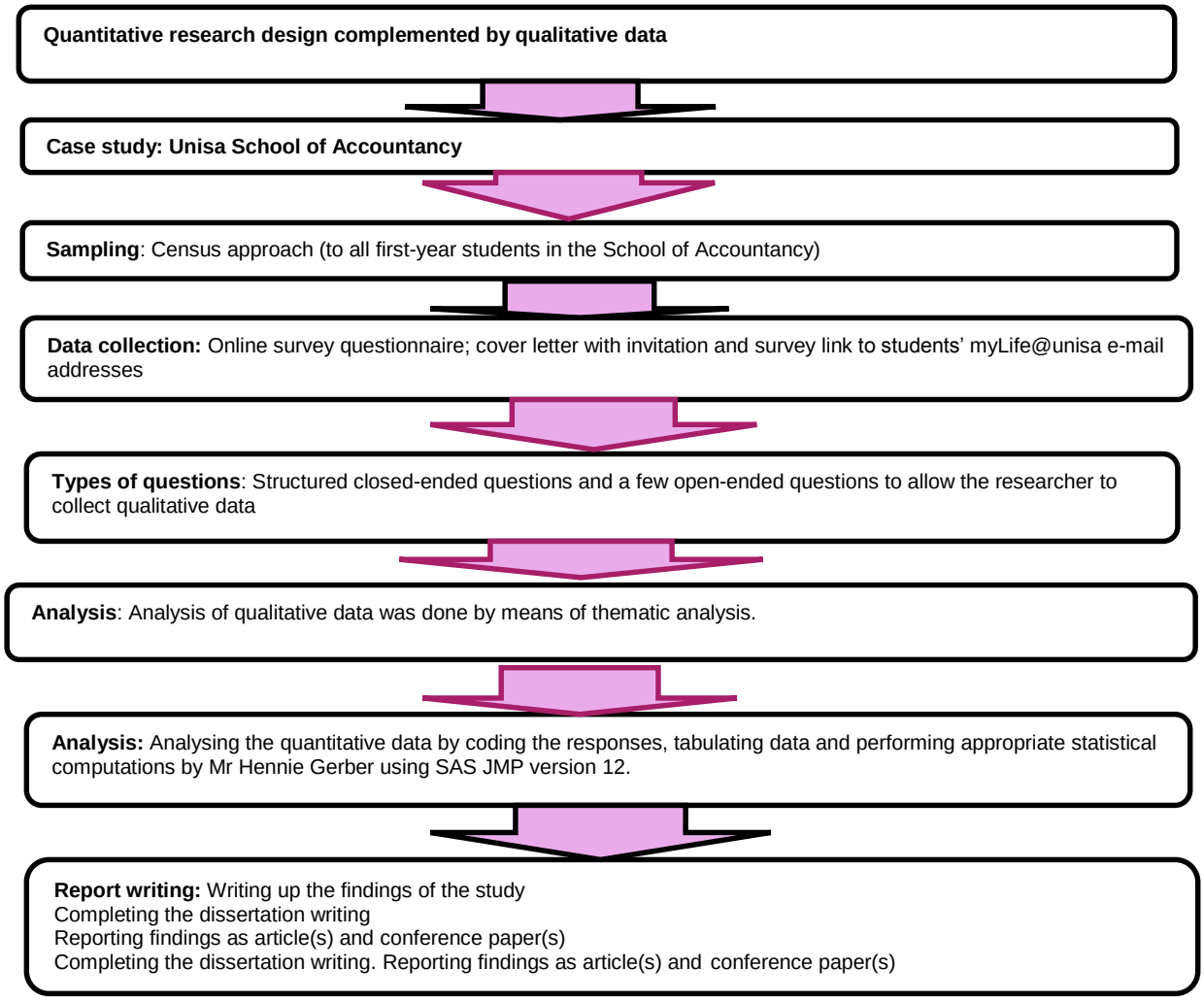


Figure 4.1: Process followed for the study research design

4.11. CONCLUSION

This chapter explained the research design process followed in this study. It addressed the research method (which is a case study), research instruments used for data collection, population and sampling, the pilot study that was conducted, how data were treated, ethical clearance and the validity and reliability of the data-gathering instrument. The next chapter will focus on the statistical analysis of data obtained from the questionnaires.

CHAPTER 5
FINDINGS AND DATA ANALYSIS

5.1 INTRODUCTION

This chapter presents the findings and data analysis of this study. The study was designed to assess the research problem: *"Determining first-year undergraduate distance students' level of readiness in using online information resources available through the library as well as their information seeking behaviour."* Apart from presenting the findings of the study, this chapter also presents a summary of the sub-questions addressed through the empirical study, the means of data collection and a report on research participation.

5.2 SUMMARY OF THE EMPIRICAL STUDY

To find answers to the research problem, two sub-questions had to be answered by means of empirical data collection:

- What are the students' self-rated perceptions of their IL skills?
- What are the students' self-rated readiness in using electronic resources available through the Unisa library and the electronic learning management system (i.e. myUnisa)?
- The study used a survey method to collect data by means of an electronic self-administered questionnaire. The questionnaire was administered in July and August 2015. It had four main sections covering participants' registration profiles, access to ICT and the internet, training in information seeking and preferences with regard to information seeking, and awareness and understanding of electronic resources. The questionnaire is provided in Annexure D.

Following a census sample approach, the questionnaire link was sent to all first-year students in the Unisa School of Accountancy. In total 29 685 first-year students were registered in the school at the time. Responses were received from 587 students. The response rate from participants was thus 587/29 685 = 2%. Although it is a low response rate, 587 respondents were considered sufficient, as the number yields 2% for the various

statistical analyses. Low response rates are often noted for internet surveys (Thompson 2007). Sixty-two students did not complete all answers. These 62 questionnaires were not included in the analysis. The number of questionnaires used for the analysis was thus 525. Findings are presented using figures and tables where applicable. The focus is on descriptive statistics with limited qualitative analysis based on the open questions. The qualitative analysis is reported in section 5.6.

5.3 REPORT ON QUANTITATIVE FINDINGS

This section reports the findings on quantitative data. Each of the four sections of the questionnaire with their questions and findings are presented.

5.3.1 Section A: Findings on participants' registration profiles

Section A of the questionnaire posed three questions covering registration, the departments where modules were taken and regions were the participants were residing.

5.3.1.1 First-year registrations in the School of Accountancy

Question 1 determined if participants were registered for 2015 second semester modules for their first year of study in the School of Accountancy. The 528 participants who answered "Yes", could participate in the survey and were allowed to continue with Question 2.

5.3.1.2 Departments where modules are registered

Question 2 asked participants to indicate the department presenting the key first-year modules for which they were registered. Participants could choose from four departments in the School of Accountancy, namely the Department of Auditing, Department of Financial Accounting, Department of Management Accounting and Department of Taxation. The responses to Question 2 are portrayed in Table 5.1 below.

Table 5.1: Departments presenting the first-year modules for which students are registered

Departments N=528	Number of responses	Percentages
Department of Auditing	41	7.77%
Department of Financial Accounting	406	76.89%
Department of Management Accounting	71	13.45%
Department of Taxation	10	1.89%
Total	**528**	**100**

The largest number of responses was from the Department of Financial Accounting, with a total of 406/525 (76.89%) responses. The lowest number was from the Department of Taxation, with 10/525 (1.89%) responses.

5.3.1.3 Regions where participants reside

Question 3 required participants to indicate the regional centre to which they belonged, i.e. the regional centre where they resided. The responses are shown in Table 5.2. Not all responded to this question.

Table 5.2: Unisa regional centres where participants reside

Unisa regional centres N=520	Number of responses	Percentages
Eastern Cape sub-region	35	6.73%
Ethiopia	0	0%
Gauteng	262	50.38%
KwaZulu-Natal	55	10.58%
Limpopo	46	8.85%
Midlands	31	6.73%
Mpumalanga sub-region	38	7.31%
Western Cape	53	10.19%
Total	**520**	**100%**

Table 5.2 shows that the highest percentage was from Gauteng province, with 262/520 (50.38%) respondents. The region with the lowest number of responses was Midlands with 31/520 (6.73%).

5.3.2 Section B: Findings on access to information and communication technology and the internet

Section B focused on the participants' access to ICT and especially internet access. The section posed five closed-ended questions (questions 4 to 8), covering how students personally use the internet to find information, places for accessing the internet, devices used to access the internet, rating of skills in using the internet and skills in using an online management system such as myUnisa to access online library resources.

5.3.2.1 Personal use of the internet to find information

Question 4 was a "yes/no" question; participants were asked to indicate if they ever personally used the internet to find information. The findings are shown in Table 5.3. N for this question was 487. A hundred participants did not answer question 4.

Table 5.3: Personal use of internet to find information

YES	Percentage	NO	Percentage
445	91.38%	42	8.62%

A very large percentage of respondents (445/487; 91.38%) had used the internet personally at some time to find information. Only 42/487 (8.62%) participants indicated that they had never used the internet to find information.

5.3.2.2 Places for accessing the internet

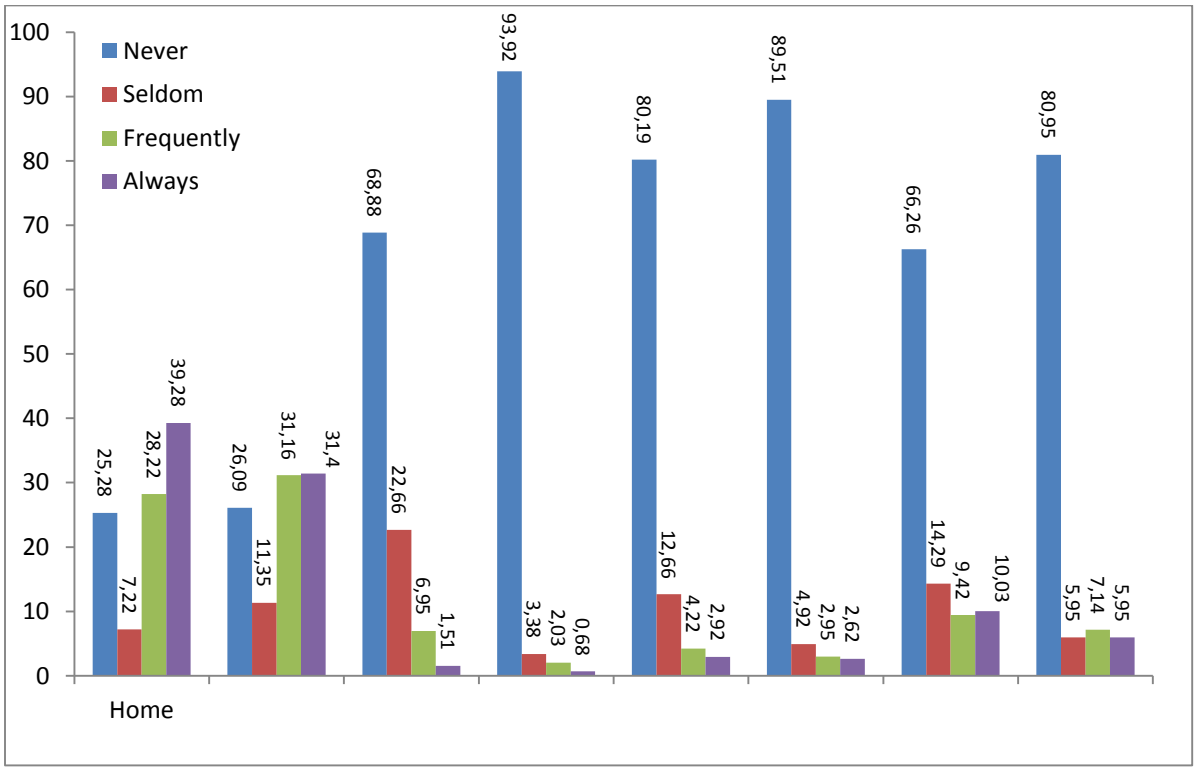
Question 5 followed up on Question 4. Participants who answered "yes" to question 4 (i.e. 445 participants), were asked where they accessed the internet. The options given were home, work, internet café, telecentre, public library, mobile bus and Unisa library and

participants were given the opportunity to indicate other places. Participants had to rate their access to the options on a four-point Likert scale ranging from “always” to “never”. Although they responded to more than one option, as requested, the participants did not respond to all options. (The number of responses for each of the options thus differs.) The responses are portrayed in Table 5.4 and Figure 5.1.

Table 5.4: Places of access to the internet

Place of internet access	N for each option	Always	Frequently	Seldom	Never
Home	443	174 (39.28%)	125 (28.22%)	32 (7.22%)	112 (25.28 %)
Work	414	130 (31.40%)	129 (31.16%)	47 (11.35%)	108 (26.09%)
Internet café	331	5 (1.51%)	23 (6.95%)	75 (22.66%)	228 (68.88%)
Telecentre	296	2 (2.62%)	6 (6.95%)	75 (22.66%)	278 (93.92%)
Public library	308	9 (2.92%)	13 (4.22%)	39 (12.66%)	247 (80.19%)
Mobile bus	305	8 (2.62%)	9 (2.95%)	15 (4.92%)	273 (89.51%)
Unisa library	329	33 (10.03%)	31 (9.42%)	47 (14.29%)	218 (66.26%)
Other	168	10 (5.95%)	12 (7.14%)	10 (5.95%)	136 (80.95%)

Figure 5.1: Places students use to get access to the internet



Responses to the options to access the internet are discussed in more detail below.

- **Home access** elicited 443 responses, with 174/443 (39.28%) saying “always”, 125/443 (28.22%) indicating “frequently”, 32/443 (7.22%) indicating “seldom” and 112/443 (25.28%) indicating that they had never accessed the internet from home. When combining these, 157/443 (35.44%) either always or frequently accessed the internet from home. In contrast, 299/443 (67.50%) indicated that they seldom accessed the internet from home, with 144/443 (32.50%) indicating that they had never accessed the internet from home.
- **Work access** received 414 responses, with 130/414 (31.40%) participants indicating that they always accessed the internet from work and 129/414 (31.16%) indicating that they frequently accessed the internet from work. When combining these, 259/414 (62.56%) either always or frequently accessed the internet at their workplace. In contrast, 47/414 (11.35%) indicated that they seldom accessed the internet from work, with 108/414 (26.09%) indicating that they had never accessed the internet from work. Combining these numbers shows that 155/414 (37.44%) either never or seldom accessed the internet from work.
- **Internet café access** received 331 responses, with 5/331 (1.51%) participants indicating that they always accessed the internet from an internet café and 23/331 (6.95%) indicating that they frequently used the internet from an internet café. When combining these, 28/331 (8.46%) either always or frequently used the internet from an internet café. In contrast, 75/331 (22.66%) indicated that they seldom accessed the internet from an internet café, with 228/331 (68.88%) indicating that they had never accessed the internet from an internet café. Combining these groups shows that 303/331 (91.54%) either never or seldom accessed the internet from an internet café.
- **Telecentre access** received 296 responses, with 2/296 (0.68%) participants indicating that they always accessed the internet from telecentres and 6/296 (2.03%) indicating that they frequently accessed the internet from telecentres. When combining these, 8/296 (2.71%) either always or frequently accessed the internet from a telecentre. In contrast, 19/296 (3.38%) indicated that they seldom

accessed the internet from a telecentre, with 278/296 (93.92%) indicating that they had never accessed the internet from a telecentre. Combining these shows that 288/296 (97.30%) had seldom or never accessed the internet from a telecentre.

- **Public library** received 308 responses, with 9/308 (2.92%) participants indicating that they always accessed the internet from a public library and 13/308 (4.22%) indicating that they frequently accessed the internet from a public library. When combining these, 22/308 (7.14%) either always or frequently accessed the internet from a public library. In contrast, 39/308 (12.66%) indicated that they seldom accessed the internet from a public library, with 247/308 (80.19%) indicating that they had never accessed the internet from a public library. Combining these shows 246/308 (92.85%) who had either never or seldom accessed the internet from a public library.
- **Mobile bus** received 305 responses, with 8/305 (2.62%) participants indicating that they always accessed the internet from a mobile bus and 9/305 (2.95%) indicating that they frequently accessed the internet from a mobile bus. When combining these, 22/305 (7.14%) either always or frequently accessed the internet from a mobile bus. In contrast, 15/305 (4.92%) indicated that they seldom accessed the internet from a mobile bus, with 273/305 (89.19%) indicating that they had never accessed the internet from a mobile bus. Combining these shows 288/305 (94.11%) who either never or seldom accessed the internet from a mobile bus.
- **Unisa library** received 329 responses, with 33/329 (10.03%) participants indicating that they always accessed the internet from the Unisa library and 31/329 (9.42%) indicating that they frequently accessed the internet from the Unisa library. When combining these, 64/329 (19.45%) either always or frequently accessed the internet from the Unisa library. In contrast, 47/329 (14.29%) indicated that they seldom accessed the internet from the Unisa library, with 218/329 (66.26%) indicating that they had never accessed the internet from the Unisa library. Combining these shows 265/329 (80.55%) who either never or seldom accessed the internet from the Unisa library.

- In total 168 responses were received to the option asking about other means of accessing the internet. Participants mentioned Wi-Fi networks and mobile phones, which can be considered as means and devices, instead of places. In the responses 10/168 (5.95%) indicated that they always used options other than those listed in the questionnaire, 12/168 (7.14%) indicated that they frequently used options other than those listed in the questionnaire, 10/168 (5.95%) indicated that they seldom accessed the internet at places other than those indicated on the list and 136/168 (80.95%) indicated that they never accessed the internet at places other than those on the list.

Overall the internet is mostly accessed from home and work, followed by the Unisa library, other places, internet cafés, public libraries and mobile buses. The place eliciting fewest responses for internet access was telecentres.

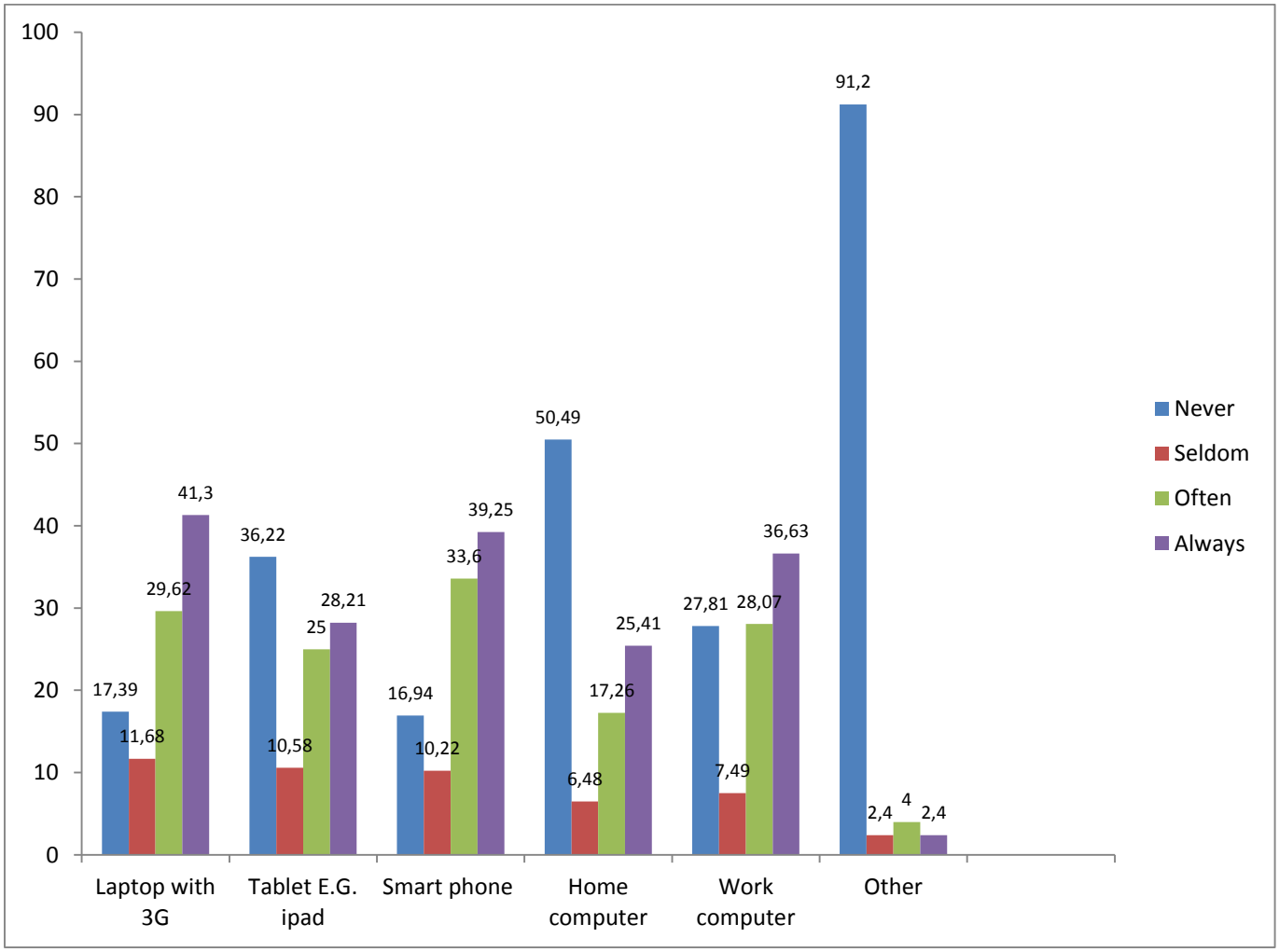
5.3.2.3 Devices used for accessing the internet

Question 6 followed up on Question 5. It requested participants to indicate how they accessed the internet and they were requested to choose more than one option if appropriate (i.e. the 493 participants). They were asked about the device they used to get access to the internet. The options given were laptop with 3G, tablet (e.g. iPad), smart phone (e.g. iPhone), and home computer and work computer. Participants were given the opportunity to indicate other devices they used to access the internet than those listed in the questionnaire options. Participants had to rate their preference for devices they used to access the internet. Access to the options on a four-point Likert scale ranged between always, often, seldom, and never. Overall 488=N respondents answered this question. The participants, however, did not respond to all options. (The number of responses for each of the options thus differs.) The responses are portrayed in Table 5.5 and Figure 5.2.

Table 5.5: Devices used to access the internet

Device(s) used to access the internet N=488	N for each option	Always	Often	Seldom	Never
Laptop with 3G	368	152 (41.30%)	109 (29.62%)	43 (11.68%)	64 (17.39%)
Tablet (e.g. iPad)	312	88 (28.21%)	78 (25.00%)	33 (10.58%)	113 (36.22%)
Smart phone (e.g. iPhone)	372	146 (39.25%)	125 (33.60%)	38 (10.22%)	63 (16.94%)
Home computer	307	78 (25.41%)	53 (17.26%)	21 (6.84%)	155 (50.49%)
Work computer	374	137 (36.63%)	105 (28.07%)	28 (7.49%)	104 (27.81%)
Other	125	3 (2.40%)	5 (4%)	3 (2.40%)	114 (91.20%)

Figure 5.2: Devices used to access the internet



Responses to each of the devices are discussed below.

- **Laptop with 3G** received 368 responses, with 152/368 (41.30%) participants indicating that they always used a laptop with a 3G card and 109/368 (29.62%) indicating that they often used a laptop with a 3G card. When combining these responses, 261/368 (70.92%) either always or often used a laptop with a 3G card. In contrast, 43/368 (11.68%) indicated that they seldom accessed the internet from a laptop with a 3G card, with 64/368 (17.39%) indicating that they had never accessed the internet using a laptop with a 3G card. Combining these numbers shows 107/368 (29.07%) who either never or seldom accessed the internet from a laptop with a 3G card.
- **Tablet (e.g. iPad)** received 312 responses, with 88/312 (28.21%) participants indicating that they always accessed the internet from a tablet and 78/312 (25%) indicating that they often accessed the internet from a tablet. When combining these replies, 166/312 (53.21%) of the respondents either always or often accessed the internet from a tablet. In contrast, 33/312 (10.58%) respondents indicated that they seldom accessed the internet from a tablet, with 113/312 (36.22%) indicating that they had never accessed the internet from a tablet. Combining these replies shows 146/312 (46.80%) who either never or seldom accessed the internet from a tablet.
- **Smart phones (e.g. iPhone)** received 372 responses, with 146/372 (39.25%) participants indicating that they always accessed the internet from smart phones and 125/372 (33.60%) indicating that they frequently accessed the internet from a smart phone. When combining these replies, 271/372 (72.85%) either always or often accessed the internet from a smart phone. In contrast, 38/372 (10.22%) indicated that they seldom accessed the internet from a smart phone, with 63/372 (16.94%) indicating that they had never accessed the internet from a smart phone. Combining these two groups shows that 101/372 (27.16%) respondents either never or seldom accessed the internet from a smart phone.
- **Home computer** received 307 responses, with 78/307 (25.41%) participants indicating that they always accessed the internet from a home computer and 53/307 (17.26%) indicating that they often accessed the internet from a home

computer. When combining these numbers, 131/307 (42.67%) participants either always or often accessed the internet from a home computer. In contrast, 21/307 (6.84%) indicated that they seldom accessed the internet from a home computer, with 155/307 (50.49%) indicating that they had never accessed the internet from a home computer. Combining these numbers, 176/307 (57.33%) participants either never or seldom accessed the internet from a home computer.

- **Work computer** received 374 responses, with 137/374 (36.63%) participants indicating that they always accessed the internet from a work computer and 105/374 (28.07%) indicating that they often accessed the internet from a work computer. When combining these numbers, 242/374 (64.70%) participants either always or often used the internet from a work computer. In contrast, 21/374 (6.84%) of the participants indicated that they seldom accessed the internet from a work computer, with 104/374 (27.81%) indicating that they had never accessed the internet from a work computer. Combining these groups, 125/374 (34.65%) participants either never or seldom accessed the internet from a work computer.
- **In total 125 participants** responded to the question whether they accessed the internet from other devices; 3/125 (2.40%) said always and 5/125 (4.00%) said often. Combining these numbers shows that 8/125 (6.40%) participants either always or often used other devices not listed. In contrast, 3/125 (2.40%) said “seldom” and 114/125 (91.20%) indicated that they had never accessed the internet from other devices. Combining these numbers, 117/125 (93.60%) participants either never or seldom accessed the internet from devices other than those listed in Question 6.

5.3.2.4 Self-rating of skills in using the internet

Question 7 required respondents to self-rate their skills in using the internet on a four-point Likert scale ranging from excellent to good, fair and poor. Only 475 participants responded to the question. The responses are shown in Table 5.6.

Table 5.6: Self-rated skills in using the internet

Rating	Responses N=475	%
Excellent	188	39.58%
Good	178	37.47%
Fair	59	12.42%
Poor	50	10.53%

Respondents were requested to rate their skills in using the internet on a Likert scale of excellent, good, fair or poor. Using the internet received 475 responses, with 188/475 (39.58%) participants rating their skills in using the internet as excellent and 178/475 (37.47%) rating themselves as good in using the internet. This is in contrast to the 59/475 (12.42%) self-rating their skills in using the internet as fair and 50/475 (10.53%) self-rating their skills as poor.

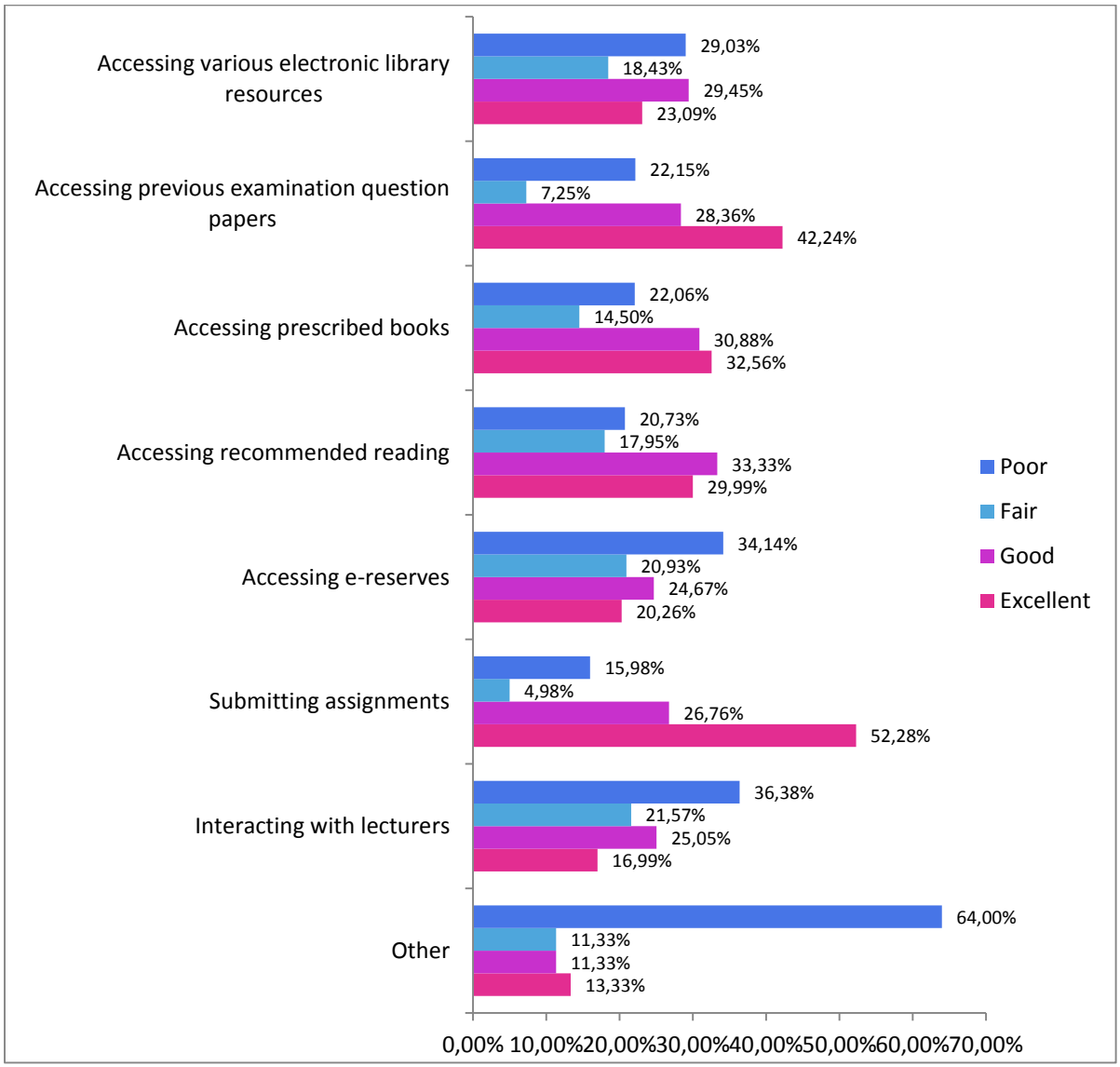
5.3.2.5 Self-rating of skills in using an online learning management system

Question 8 required participants to rate their skills in using an online learning management system such as myUnisa to access the online library resources. Respondents had to assess their skills in various functions offered at the time by the myUnisa platform. There were 493 responses to the question; not all answered all the questions. N for the options is not always the same, and for none of the options N=493. Figure 5.3 and Table 5.7 below illustrate the distribution of responses on a level of confidence in using the Unisa online learning management system; the Likert scale allowed for a rating of poor, fair, good or excellent.

Table 5.7: Self-rating of skills in using an online learning management system to access online library resources

Skills in using an online learning management system N=493	Excellent	Good	Fair	Poor
Accessing various electronic library resources (N=472)	109 (22.11%)	139 (29.45%)	87 (18.43%)	137 (29.03%)
Accessing previous examination papers (N=483)	204 (42.24%)	137 (28.36%)	35 (7.25%)	107 (22.15%
Accessing prescribed books (N=476)	155 (32.56%)	147 (30.88%)	69 (14.50%)	105 (22.06%)
Accessing recommended reading (N=468)	131 (27.99%)	156 (33.33%)	84 (17.95%)	97 (20.73%)
Accessing e-reserves (N=454)	92 (20.26%)	112 (24.67%)	95 (20.93%)	155 (34.14%)
Submitting assignments (N=482)	252 (52.28%)	129 (26.76%)	24 (4.98%)	77 (15.98%)
Interacting with lecturers (N=459)	78 (16.99%)	115 (25.05%)	99 (21.57%)	167 (36.38%)
Other (N=150)	20 (13.33%)	17 (11.33%)	17 (11.335)	96 (64.00%)

Figure 5.3: Self-rating of skills in using an online management system to access online library resources



For the purpose of clarity, responses to each skill are discussed separately.

- **Skills in accessing various electronic library resources** received 472 responses, with 109/472 (23.09%) participants self-rating their skills in accessing various electronic library resources as excellent, and 139/472 (29.45%) self-rating their skills in accessing various electronic library resources as good. When combining these, 248 (52.51%) claimed to have either excellent or good skills in accessing various electronic library resources. In contrast, 87/472 (18.43%)

participants self-rated their skills in accessing various electronic library resources as fair and 137/472 (29.03%) self-rated their skills in accessing various electronic library resources as poor. In combination 224/472 (47.46%) reported being fair or poor at accessing various electronic library resources.

- **Skills in accessing previous examination papers** received 483 responses, with 204/483 (42.24%) participants self-rating their skills in accessing previous examination papers as excellent and 137/483 (28.36%) self-rating their skills in accessing previous examination papers as good. When combining these, 341/483 (70.60%) had either excellent or good skills in accessing previous examination papers. In contrast, 35/483 (7.25%) self-rated their skills in accessing previous examination papers as fair and 137/483 (28.36%) self-rated their skills in accessing previous examination papers as poor. In combination 142/483 (29.40%) reported fair and poor skills in accessing various previous examination papers.
- **Skills in accessing prescribed books** through the electronic learning management system received 476 responses, with 155/476 (32.56%) participants self-rating their skills as excellent when accessing prescribed books, and 147/476 (30.88%) self-rating their skills in accessing prescribed books as good. When combining these, 302/476 (63.44%) claimed to have either excellent or good skills in accessing prescribed books. In contrast, 69/476 (14.50%) self-rated their skills as fair in accessing prescribed books and 105/476 (22.06%) self-rated their skills as poor in accessing prescribed books. In combination, 174/476 (36.56%) reported fair or poor skills in accessing prescribed books.
- **Skills in accessing recommended reading** through the electronic learning management system received 468 responses, with 131/468 (27.99%) participants self-rating their skills as excellent when accessing recommended reading, and 156/468 (33.33%) self-rating their skills as good. When combining these, 287/468 (51.32%) reported either excellent or good skills in accessing recommended reading through the electronic learning management system. In contrast, 84/468 (17.95%) self-rated their skills as fair in accessing recommended reading and 97/468 (20.73%) self-rated their skills as poor. In combination, 181/468 (38.68%) reported fair or poor skills in accessing recommended reading.

- **Skills in accessing e-reserves** through the electronic learning management system received 454 responses, with 92/454 (20.26%) participants self-rating their skills as excellent in accessing e-reserves, and 156/454 (33.33%) self-rating their skills as good. When combining these, 248/454 (53.59%) reported having either excellent or good skills in accessing e-reserves. In contrast, 95/454 (20.93%) self-rated their skills as fair and 155/454 (34.14%) self-rated their skills as poor in accessing e-reserves. In combination 237/454 (50.33%) reported fair and poor skills in accessing e-reserves.
- **Skills in submitting assignments** through the electronic learning management system received 482 responses, with 252/482 (52.28%) participants who self-rated their skills as excellent and 129/482 (26.76%) who self-rated their skills as good in submitting assignments. When combining these, 381/482 (79.04%) reported having either excellent or good skills in submitting assignments through the electronic learning management system. In contrast, 24/482 (4.98%) self-rated their skills as fair, with 77/482 (15.98%) self-rating their skills in submitting assignments as poor. In combination 101/482 (20.96%) reported fair and poor skills in submitting assignments through the electronic learning management system.
- **Interacting with lecturers** through the electronic learning management system received 459 responses, with 78/459 (16.99%) participants self-rating their skills as excellent and 115/459 (25.05%) self-rating their skills as good in interacting with lecturers through the electronic learning management system. When combining these, 193/459 (42.04%) had either excellent or good self-rated skills in interacting with lecturers through the electronic learning management system. In contrast, 99/459 (21.57%) self-rated their skills as fair and 167/459 (36.38%) self-rated their skills as poor. In combination, 266/459 (57.95%) reported fair and poor skills in interacting with lecturers through the electronic learning management system.
- **Other skills** in using the electronic learning management system elicited 150 responses to the option on other skills. (Because of a technical error with Survey Monkey the skills mentioned could not be displayed). Although 20/150 (13.33%)

self-rated their other skills in using the electronic learning management system as excellent, 17/150 (11.33%) as good, 17/150 (11.33%) as fair and 96/150 (64.00%) as poor, there is limited value in this, since the skills they noted could not be displayed.

5.4 SECTION C: FINDINGS ON INFORMATION SEEKING AND PREFERENCES WITH REGARD TO INFORMATION SEEKING

Section C of the questionnaire (see Appendix E) collected data pertaining to training in information seeking and preferences with regard to information seeking. Students were to indicate the training they had received on various skills related to searching information. They had to select options from a predetermined list. The section consisted of eight "yes/no" questions (question 9-16). Where respondents selected "no", they were asked to give a reason for choosing "no". These reasons generated qualitative data that are analysed in Section 5.6. Question 11 consisted of two sub-questions using a Likert scale with never, seldom, frequently and always as possible answers.

5.4.1 Access to the Unisa library website

Question 9 (a "yes/no" question) asked participants if they had ever accessed the Unisa library website. The responses are illustrated in Table 5.8. In total 466 responses were received. Of these, 218/466 (46.78%) indicated that they had accessed the Unisa library website at some stage, and 248/466 (53.22%) that they had never accessed the Unisa library website. Table 5.8 below shows the responses to this question.

Table 5.8: Prior experience in accessing the Unisa library website

Answers N=466	Responses	Totals
Yes	218 (46.78%)	218
No	248 (53.22%)	248
Total		466

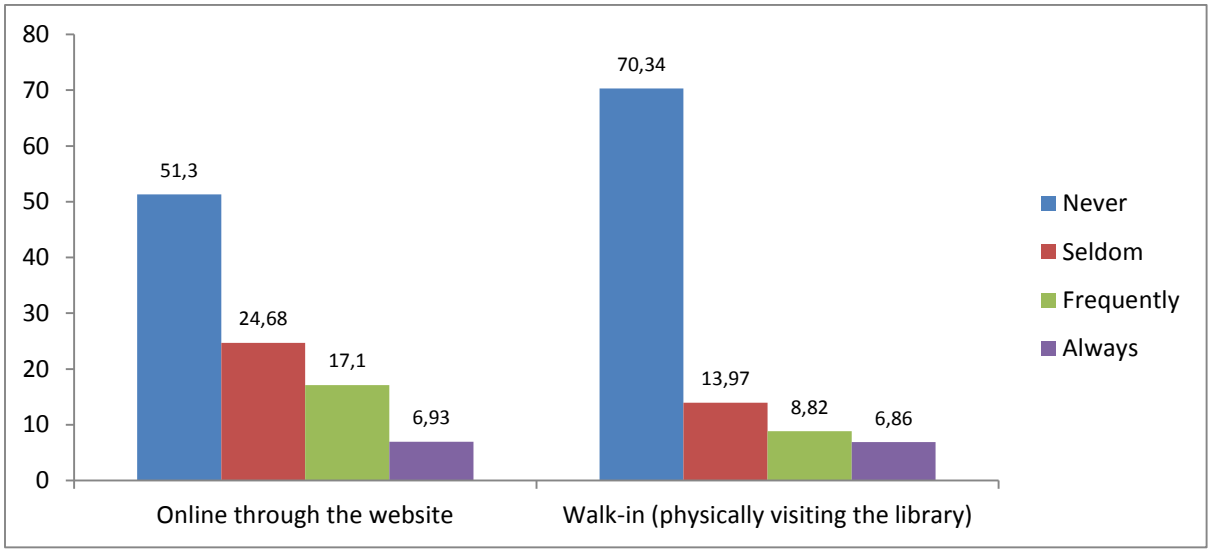
5.4.2 Frequency of using the Unisa library

Question 11 asked participants to indicate how often they used the Unisa library. Respondents were to select between two types of visits, namely online through the library website or walk-in (i.e. physically visiting the library building). In total 467 responded to the question. Table 5.9 and Figure 5.4 show the responses.

Table 5.9: Frequency of visiting the Unisa library

Frequency of visiting the library (N=467)	Always	Frequently	Seldom	Never
Online through the website (N=462)	32 (6.93%)	79 (17.10%)	114 (24.68%)	237 (51.30 %)
Walk-in (physically visiting the library) (N=408)	28 (6.86%)	36 (8.82%)	57 (13.97%)	287 (70.34%)

Figure 5.4: The frequency of using the library either online or physical



5.4.3 Receiving training on accessing and using the physical library

Question 12 asked whether participants had ever received training on how to access and use the library resources when physically visiting the library and/or seeking information when physically in the library. The question elicited 461 responses. Of these, 85/461 (18.44%) indicated that they had received training and 376/461 (81.56%) indicated that they had not. Table 5.10 below shows the responses to this question; N=461.

Table 5.10: Access and use of the library resources when physically visiting the library

YES	NO
85 (18.44%)	376 (81.56 %)

5.4.4 Receiving training on how to access and use library resources to find information by using the library website and the internet

Question 14 asked participants to indicate if they had ever received training on how to access and use the library resources to find information by using the library website and the internet. The number of students who responded was 459. Of these, 68/459 (14.91%) indicated that they had received training and 383/459 (83.44%) indicated that they had not. Another 8/459 (1.74%) selected “other”. The specific details of “other” could not be traced owing to a problem with Survey Monkey. Table 5.11 below shows the responses to this question. N=459.

Table 5.11: Access and use of library resources when using library website and internet

YES	NO	Other
68/459 (14.81%)	383/459 (83.44%)	8/459 (1.74%)

5.4.5 Where training was received

For question 16, respondents who replied “yes” to Question 12 and/or Question 14 were asked to indicate where they received training. They could select more than one option. In total 146 responses were received. A list of possible places typically providing training was given, and 39/146 (26.71%) indicated a high school library, 15/146 (10.27%) a college library, 28/146 (25.45%) a public library, 1/146 (0.91%) a national library, 49/146 (44.55%) the Unisa library and 17/146 (15.46%) other types of libraries, which were not included on the list. Table 5.12 below displays the responses.

Table 5.12: Type of library where information literacy training was received

Type of library N = 146	Number of selected
High school library	39/146 (26.71%)
College library	15/146 (10.27%)
Public library	28/146 (19.18%)
National library	1/146 (0.68%)
Unisa library	49/146 (33.56%)
Other	14/146 (9.59%)

5.4.6 Method of preference when requesting assignment-related information from the library

Question 17 asked respondents to indicate their preference for methods to request assignment-related information from the library. For purposes of clarity, responses to each method are discussed separately.

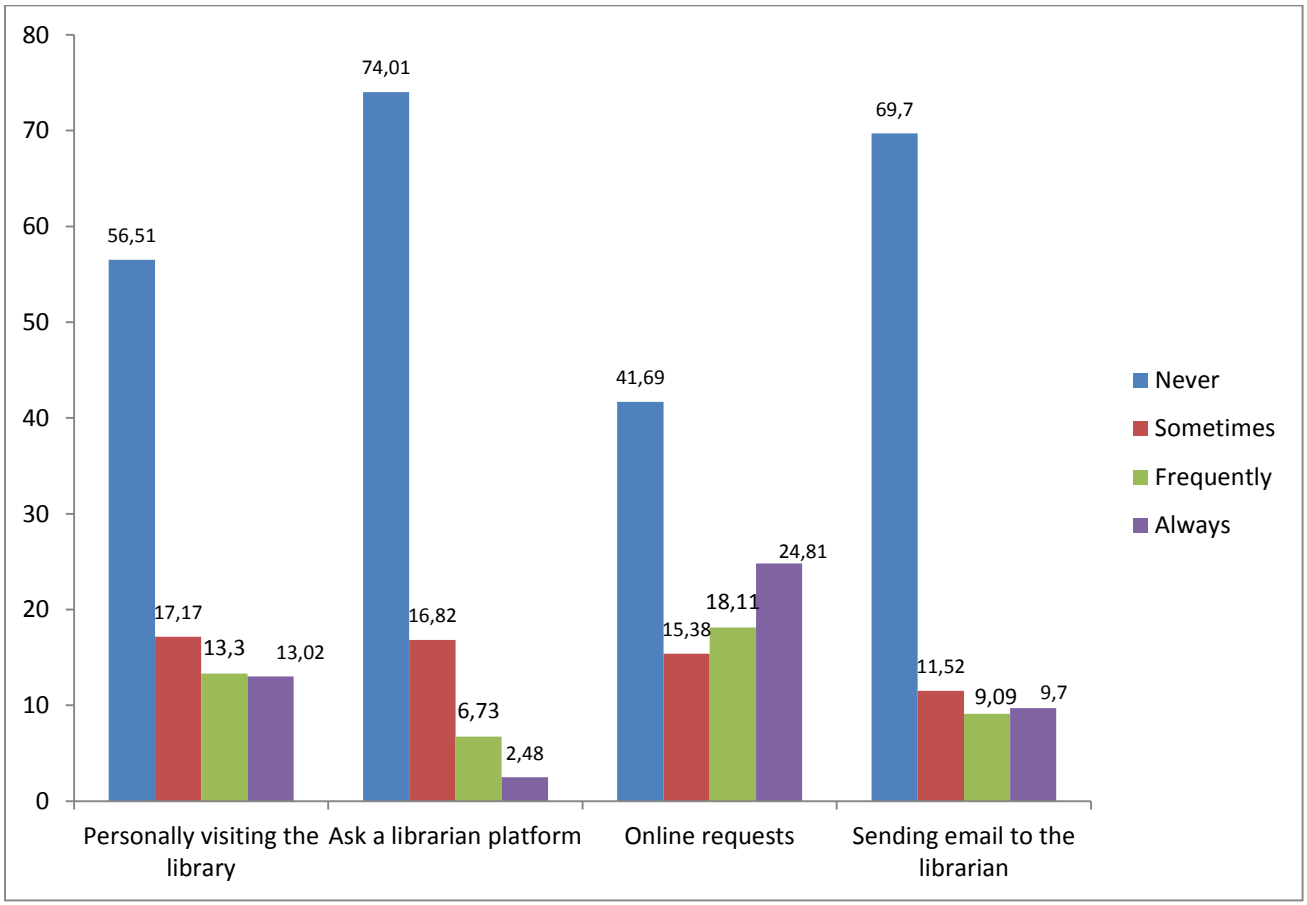
- **Personally visiting the library** received 361 responses, with 47/361 (13.02%) participants indicating that they always visited the library and 48/361 (13.30%) indicating that they frequently visited the library. When these numbers are combined, 95/361 (26.32%) either always or frequently visited the library personally to get assignment-related information. In contrast, 55/361 (17.17%) indicated that they sometimes visited the library personally and 204/361 (56.51%) indicated that they had never personally visited the library. In combination, 266/361 (73.68%) had either only occasionally (i.e. sometimes) or never visited the library.
- **Ask-a-Librarian platform** received 327 responses, with 8/327 (2.45%) participants indicating that they always used the Ask-a-Librarian platform and 22/327 (6.73%) indicating that they frequently used the Ask-a-Librarian platform. When combining these responses, 30/327 (9.18%) either always or frequently used the Ask-a-Librarian platform. In contrast, 55/327 (16.82%) indicated that they only sometimes used Ask-a-Librarian, with 242/327 (74.01%) indicating that they had never used the platform. In combination, 297/327 (90.83%) respondents either occasionally (i.e. only sometimes) or never used the Ask-a-Librarian platform.

- **Online requests** received 403 responses, with 100/403 (24.81%) students indicating that they always visited the library and 73/403 (18.11%) indicating that they frequently used online requests as an option to request material related to their assignments. When combining these, 173/403 (42.92%) either always or frequently used online requests for assignment-related material. In contrast, 62/403 (15.38%) indicated that they only sometimes used online requests and 168/403 (41.69%) indicated that they had never used online requests. Combining these numbers shows that 230/403 (57.07%) had either only occasionally (i.e. sometimes) or never used the website feature for online requests for material related to their assignments.
- **Sending e-mail to a librarian** received 330 responses, with 32/330 (9.70%) participants indicating that they always sent e-mail to a librarian with requests for assignment-related material, and 30/330 (9.09%) indicating that they frequently sent e-mail to a librarian. When combining these, 62/330 (18.79%) either always or frequently used e-mail to request assignment-related information from a librarian. In contrast, 38/330 (11.52%) indicated that they only sometimes sent e-mail to a librarian, and 230/330 (69.70%) indicated that they had never sent e-mail to a librarian to request assignment-related information. Combining these groups shows that 268/330 (71.22%) students either only occasionally (i.e. sometimes) or never used e-mail to request assignment-related information from a librarian. Table 5.13 and Figure 5.5 display the responses to the question.

Table 5.13: Methods preferred for requesting assignment-related information

Preferred method for requesting assignment-related information	N=443	Always	Frequently	Sometimes	Never
Personally visiting the library	361	47 (13.02%)	48 (13.30%)	62 (18.79%)	204 (56.51%)
Ask-a-Librarian platform	327	8 (2.45%)	22 (6.73%)	55 (16.82%)	242 (74.01%)
Online requests	403	100 (24.81%)	73 (18.11%)	62 (15.38%)	168 (41.69%)
Sending e-mail to the librarian	330	32 (9.70%)	30 (9.09%)	38 (11.52%)	230 (69.70%)

Figure 5.5: Method of preference when requesting assignment-related information from the library



5.5: SECTION D: AWARENESS AND UNDERSTANDING OF ELECTRONIC RESOURCES

Section D (See Appendix D) was composed of five questions, namely Questions 18 to 22. Four of these collected quantitative data while Question 19 collected qualitative data. Responses to Question 19 are dealt with under 5.6. Section D focused on students' awareness and understanding of electronic resources.

5.5.1 Awareness of the electronic resources of the Unisa library

Question 18 was a "yes/no" question to determine if students were aware of the electronic resources available through the Unisa library (see Appendix D). In total 421 responses were received to Question 18; of these 223/421 (52.97%) indicated "yes" and 198/421 (47.03%) indicated "no". Table 5.14 shows the responses.

Table 5.14: Awareness of the library resources

Awareness of electronic resources available through the Unisa library N=421	Responses
Yes	223 (52.97%)
No	198 (47.03%)
Total	421 (100%)

5.5.2 Self-rating of skills in using library resources

Question 20 requested participants to self-rate their skills in using the Unisa library's resources (See Appendix E). For purposes of clarity, responses to each skill are discussed separately as indicated in Table 5.15 and Figure 5.6.

- **Library catalogue** received 385 responses, with 36/385 (9.35%) participants rating their skills in using the library catalogue as excellent and 82/385 (21.30%) rating their skills as good. When combining these, 118/385 (30.65%) claimed to have either excellent or good skills in accessing the library catalogue. In contrast 73/385 (18.96%) self-rated their skills in using the library catalogue as fair, and 194/385 (50.39%) rated their skills as poor. In combination, 267/385 (69.35%) reported fair and poor self-ratings of their skills in accessing the library catalogue.

- **Electronic articles** received 378 responses, with 41/378 (10.85%) participants rating their skills in accessing electronic articles as excellent, and 66/378 (17.46%) rating their skills as good. When combining these, 107/378 (28.31%) had either excellent or good skills in accessing electronic articles. In contrast, 76/378 (20.11%) indicated that they were fair at accessing the electronic catalogue, with 195/378 (51.59%) indicating that they were poor at accessing electronic articles. Combining these numbers shows 271/378 (71.70%) who are either poor or fair at accessing electronic articles.
- **Electronic bibliographic full-text databases** received 375 responses, with 31/375 (8.27%) participants rating their skills in using electronic bibliographic full-text databases as excellent and 57/375 (15.20%) rating their skills as good. When combining these, 88/375 (23.47%) had either excellent or good skills in using bibliographic full-text databases. In contrast, 76/375 (20.27%) indicated that they were fair at using electronic bibliographic full-text databases, with 211/375 (56.27%) indicating that they were poor at using electronic bibliographic full-text databases. Combining these numbers shows 287 (76.54%) who were either poor or fair at using electronic bibliographic full-text databases.
- **Electronic books** received 382 responses, with 43/382 (9.35%) participants rating their skills in using electronic books as excellent and 66/382 (17.28%) rating their skills as good. When combining these, 109/382 (26.63%) claimed to have either excellent or good skills in using electronic books. In contrast, 69/382 (18.06%) indicated that they were fair at using electronic books, with 204/382 (53.40%) indicating that they were poor at using electronic books. Combining these groups shows 273/382 (71.46%) who were either poor or fair at using electronic books.
- **Electronic reference sources** received 378 responses, with 36/378 (9.52%) participants rating their skills in using electronic reference sources as excellent and 65/378 (17.20%) rating their skills as good. When combining these, 101/378 (26.72%) had either excellent or good skills in using electronic reference sources. In contrast to 71/378 (18.78%) who indicated that they were fair at using electronic reference sources, 206/378 (54.50%) indicated that they were poor at using

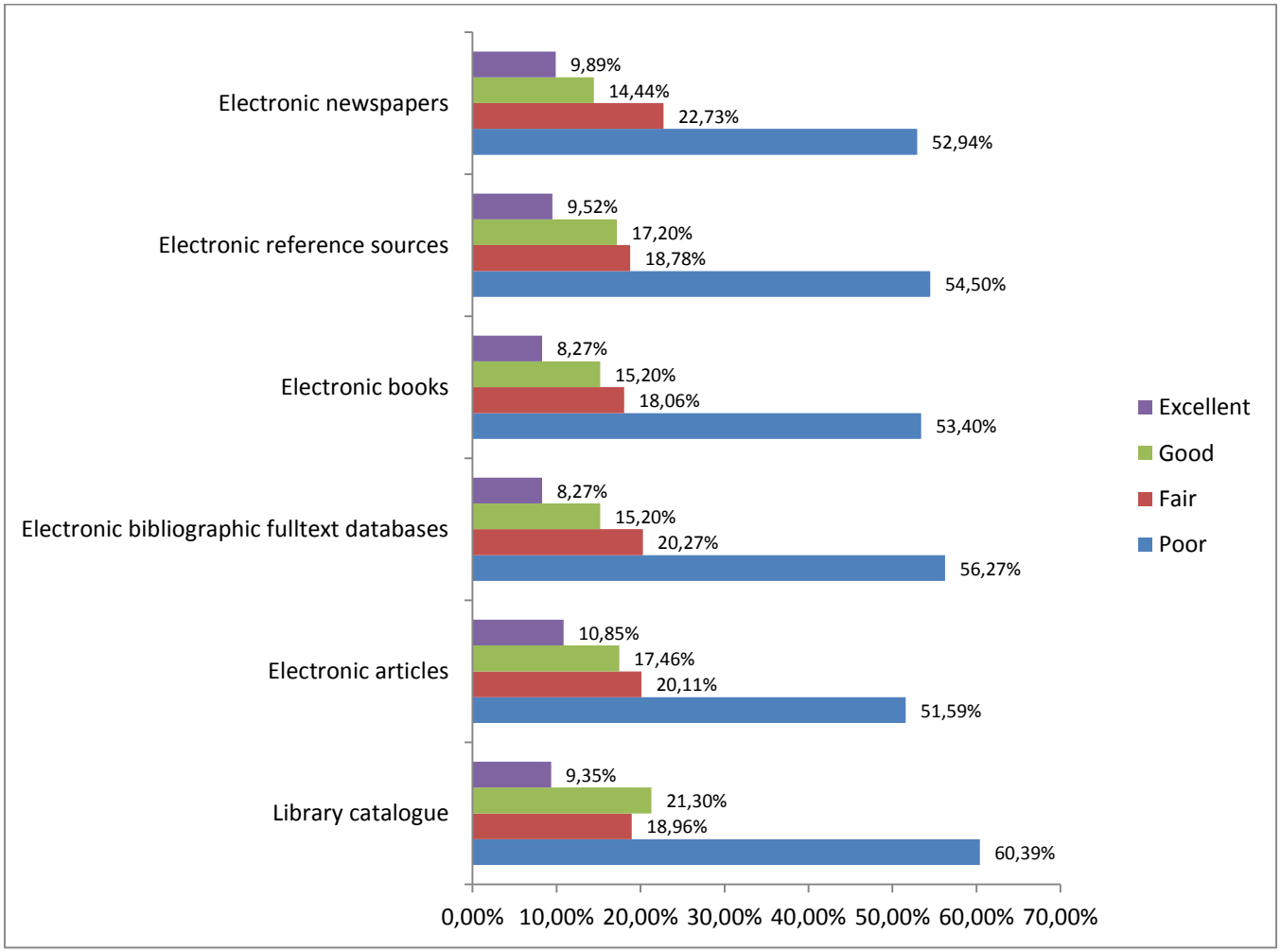
electronic reference sources. Combining these numbers reveals that 277/378 (73.28%) reported being either poor or fair at using electronic reference sources.

- **Electronic newspapers** received 374 responses, with 37/374 (9.89%) rating their skills in using electronic newspapers as excellent and 54/374 (14.44%) rating their skills as good. When combining these, 91/374 (24.33%) claimed to have either excellent or good skills in using bibliographic full-text databases. In contrast 76/374 (20.27%) self-rated their skills in using electronic newspapers as fair, with 211/374 (56.27%) self-rating their skills as poor. In combination 287/374 (76.54%) reported being poor or fair at using electronic newspapers. Table 5.15 below shows responses according to the type of library resources.

Table 5.15: Self-assessment ratings on using library's e-resources

Self-assessment on using library's e-resources	Excellent	Good	Fair	Poor
Library catalogue (N=385)	36 (9.35%)	82 (21.30%)	73 (18.96%)	194 (50.39%)
Electronic articles (N=378)	41 (10.85%)	66 (17.46%)	76 (20.11%)	195 (51.59%)
Electronic bibliographic full-text (N=375)	31 (8.27%)	57 (15.20%)	76 (20.27%)	211 (56.27%)
Electronic books (N=382)	43 (11.26%)	66 (17.28%)	69 (18.06%)	204 (53.40%)
Electronic reference sources (N=378)	43 (11.26%)	66 (17.20%)	71 (18.78%)	206 (54.50%)
Electronic newspapers (N=374)	37 (9.89%)	54 (14.44%)	85 (22.73%)	198 (52.94%)

Figure 5.6: Self-assessment on the level of knowing and using library's e-Resources



5.5.3 Self-rating of skills in using the Unisa library catalogue

Question 21 required participants to self-rate a number of their skills with regard to using the Unisa library catalogue (see Appendix E). For the purpose of clarity each skill is discussed separately below and results shown in Table 5.17 and Figure 5.8.

- **Accessing the catalogue** received 384 responses, with 36/384 (9.38%) participants rating their skills in accessing the catalogue as excellent and 77/384 (20.05%) rating their skills as good. When combining these, 113/384 (29.43%) said that they had either excellent or good skills in accessing the catalogue. In contrast, 70/384 (18.23%) self-rated their skills in accessing the catalogue as fair

and 201/384 (52.34%) rated their skills as poor. In combination, 271/384 (70.57%) reported their skills in accessing the catalogue as fair or poor.

- **Searching for a specific author of a book** received 386 responses, with 41/386 (10.62%) participants rating their skills in searching for a specific author of a book as excellent, and 95/386 (24.61%) rating their skills as good. When combining these, 136/386 (35.23%) claimed to have either excellent or good skills in searching for a specific author of a book. In contrast, 63/386 (16.32%) self-rated their skills in searching for a specific author of a book as fair and 187/386 (48.45%) rated their skills as poor. Combining these numbers shows that 250/386 (64.77%) rated their skills in searching for a specific author of a book as either fair or poor.
- **Searching for a specific book title** received 383 responses, with 37/383 (10.44%) participants rating their skills in searching for a specific book title as excellent, and 100/383 (26.11%) rating their skills as good. When combining these, 137/383 (35.77%) had either excellent or good skills in searching for a specific book title. In contrast, 62/383 (16.19%) self-rated their skills in searching for a specific book title as fair and 181/383 (47.26%) rated their skills as poor. In combination, 243/383 (63.45%) reported their skills as fair and poor in searching for a specific book title.
- **Searching according to selected keywords** elicited 382 responses, with 37/382 (9.38%) participants rating their skills in searching according to selected keywords as excellent, and 92/382 (24.08%) rating their skills as good. When combined, 129/382 (33.46%) had either excellent or good skills in searching according to selected keywords. In contrast, 61/382 (15.97%) self-rated their skills in searching according to selected keywords as fair and 192/382 (50.26%) rated their skills as poor. In combination, 253/382 (66.23%) reported fair and poor self-ratings of their skills in searching according to selected keywords.
- **Conducting an online request** received 377 responses, with 33/377 (8.75%) participants rating their skills in conducting an online request as excellent, and 78/377 (20.59%) rating their skills as good. When combined, 111/377 (29.44%) said that they had either excellent or good skills in conducting an online request. In contrast, 67/377 (17.77%) self-rated their skills in conducting an online request

as fair and 199/377 (53.83%) rated their skills as poor. In combination, 266/377 (71.60%) reported fair and poor self-ratings of their skills in conducting an online request.

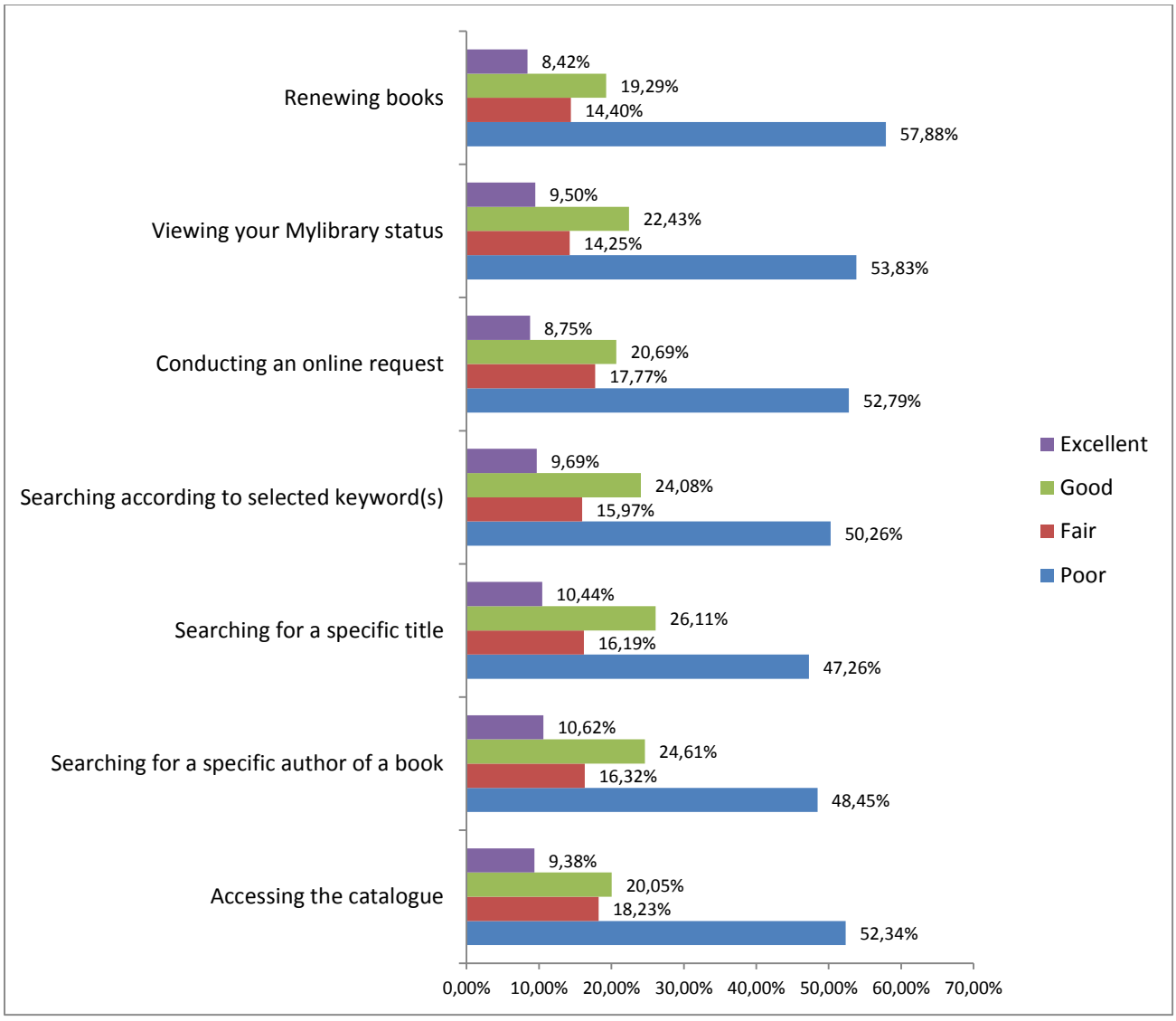
- **Viewing their "my library" status** received 379 responses, with 36/379 (9.50%) participants rating their skills in viewing their "my library" status as excellent, and 85/379 (22.43%) rating their skills as good. When combining these, 121/379 (31.93%) had either excellent or good skills in viewing their "my library" status. In contrast, 54/379 (14.25%) self-rated their skills in viewing their "my library" status as fair and 204/377 (53.83%) rated their skills as poor. In combination, 258/379 (68.08%) reported being fair and poor at viewing their "my library" status.

Table 5.16: Self-assessment rating on using the Unisa library catalogue

Self-assessment of various skills relevant to using the Unisa library	Excellent	Good	Fair	Poor
Accessing the catalogue (N=384)	36 (9.38%)	77 (20.05%)	70 (18.23%)	201 (52.34%)
Searching for a specific author (N=386)	41 (10.62%)	95 (24.61%)	63 (16.32%)	187 (48.45%)
Searching for a specific title (N=383)	40 (10.44%)	100 (26.11%)	62 (16.19%)	181 (47.26%)
Searching according to selected keywords (N=382)	37 (9.69%)	92 (24.08%)	61 (15.97%)	192 (50.26%)
Conducting an online request (N=377)	33 (8.75%)	78 (20.69%)	67 (17.77%)	199 (52.79%)
Viewing their "my library" status (N=379)	36 (9.50%)	85 (22.43%)	54 (14.25%)	204 (53.83%)
Renewing books (N=368)	31 (8.24%)	71 (19.29%)	53 (14.40%)	213 (57.88%)

Figure 5.7 below displays the self-rated skills in using the Unisa library catalogue.

Figure 5.7: Self-rating of skills in using the catalogue



5.5.4 Self-rating of skills in using electronic bibliographic and full-text databases

Question 22 required participants to self-rate various skills related to using electronic bibliographic and full-text databases (See Appendix E). For the purpose of clarity each skill is discussed separately below.

- **Accessing electronic bibliographic and full-text databases** received 389 responses, with 33/389 (8.48%) participants rating their skills in accessing electronic bibliographic and full-text databases as excellent and 62/389 (15.94%) rating their skills as good. When combining these, 95/389 (24.42%) said they had

either excellent or good skills in accessing electronic bibliographic and full-text databases. In contrast, 81/389 (20.82%) self-rated their skills in accessing electronic bibliographic and full-text databases as fair and 213/389 (54.76%) rated their skills as poor. In combination, 294/389 (75.58%) reported fair and poor ratings for their skills in accessing electronic bibliographic and full-text databases.

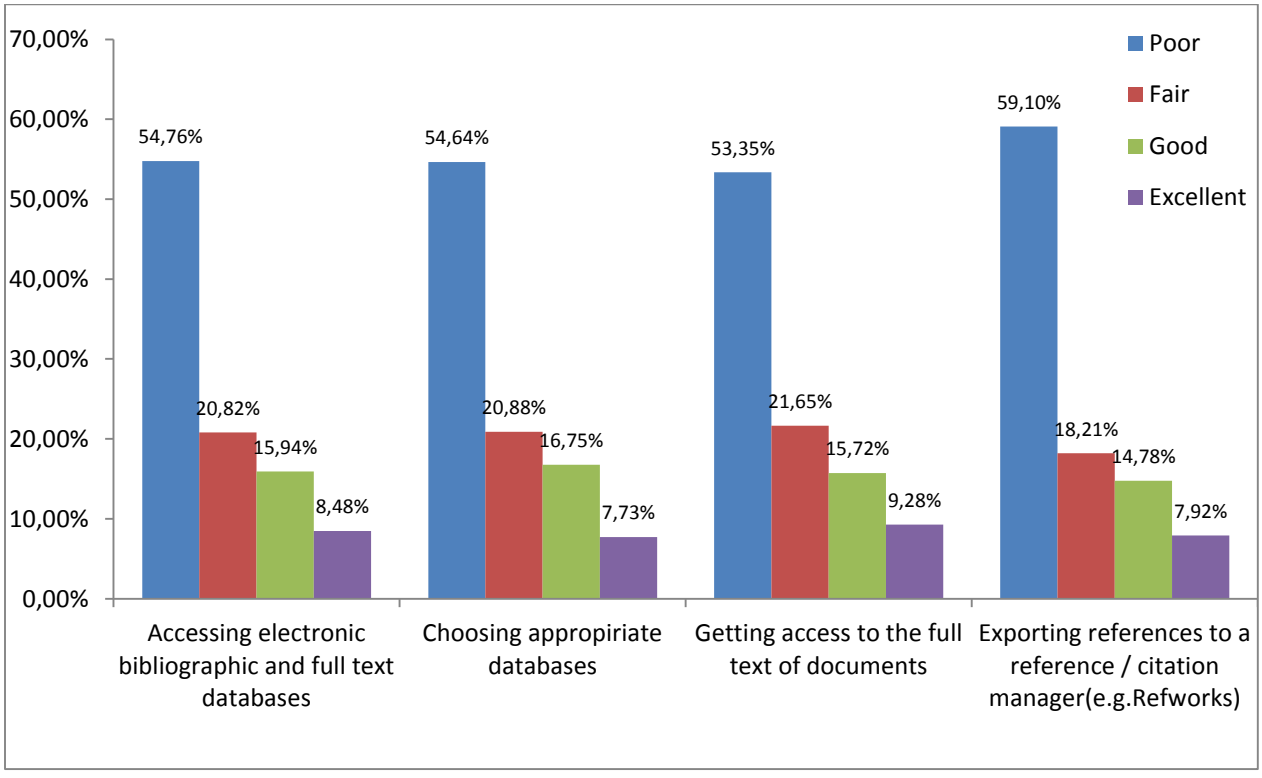
- **Choosing appropriate databases** received 388 responses, with 30/388 (7.73%) rating their skills in choosing appropriate databases as excellent, and 65/388 (16.75%) rating their skills as good. When combining these, 95/388 (24.48%) claimed to have either excellent or good skills in choosing appropriate databases. In contrast, 81/388 (20.88%) self-rated their skills in choosing appropriate databases as fair and 212/388 (54.64%) rated their skills as poor. In combination 293/388 (75.52%) reported fair and poor skills in choosing appropriate databases.
- **Getting access to full text of documents** received 388 responses, with 36/388 (9.28%) participants rating their skills in getting access to the full text of documents as excellent, and 61/388 (15.72%) rating their skills as good. When combining these, 97/388 (25.00%) had either excellent or good skills in getting access to the full text of documents. In contrast, 84/388 (21.65%) self-rated their skills in getting access to the full text of documents as fair and 207/388 (53.35%) rated their skills as poor. In combination, 291/388 (75.00%) reported fair and poor skills in getting access to the full text of documents.
- **Exporting references to a reference or citation manager (e.g. Refworks)** received 379 responses, with 30/379 (7.92%) participants rating their skills in exporting references to a reference/citation manager as excellent, and 56/379 (14.78%) rating their skills as good. When combining these, 86/379 (22.70%) said they had either excellent or good skills in exporting references to a reference/citation manager. In contrast, 69/379 (18.21%) self-rated their skills in exporting references to a reference/citation manager as fair and 224/379 (59.10%) rated their skills as poor. In combination 293/379 (77.30%) reported fair and poor skills in exporting references to a reference or citation manager. Table 5.17 shows

the self-assessment ratings on exporting references to a reference or citation manager.

Table 5.17: Using bibliographic and full-text databases

Rating skills on using electronic bibliographic and full-text databases N=390	Excellent	Good	Fair	Poor
Accessing electronic bibliographic and full-text databases. (N=389)	8/389 (48%)	15/389 (94%)	20/389 (82%)	54/389 (76%)
Choosing appropriate databases. (N=388)	30/388 (7.73%)	6/388 (16.75%)	81/388 (20.88%)	212 /388 (54.64%)
Getting access to full text of documents. (N=388)	36/388 (9.28%)	61/388 (15.72%)	84/388 (21.65%)	207/388 (53.35%)
Exporting references to a reference/citation manager (e.g. Refworks). (N=379)	30/379 (7.92%)	56/379 (14.78%)	69/379 (18.21%)	224/379 (59.10%)

Figure 5.8: Rating of skills in using electronic bibliographic and full-text databases



5.6 REPORTING ON FINDINGS FROM QUALITATIVE DATA

In sections C and D (see Appendix E) there were four open questions (10, 13, 15 and 19), where participants' responses generated qualitative data. The purpose of this section is to report the findings from the qualitative data, which supplement the quantitative data reported in the preceding sections. If participants responded "no" to questions 10, 13, 15 and 19 they were asked to give reasons for their "no" answers. Much repetition and similarity were noted in the answers; participants often used different words but reflected the same reason. For each of the questions the reasons were analysed through thematic analysis, as explained by Vaismoradi (2013) and Blue-tow (2010) to identify key themes applying to the reasons given for "no" answers to the four questions. The four questions concerned reasons for not accessing the Unisa library website (Question 10), reasons for not having been trained in accessing and using the available library resources when physically visiting the library and seeking information (Question 13), reasons for not being trained on how to access and use the library resources to find information by using the library website (Question 15) and reasons why participants were not aware of the library's e-resources (Question 19).

In the following sub-sections participants' explanations are quoted verbatim (with only minor corrections where necessary) to support the themes identified from responses. A detailed list of quotations is provided in Appendix H.

5.6.1 Reasons for not accessing the Unisa library website

The study identified 10 themes, which are discussed in the sub-sections to follow.

5.6.1.1 Inability to give a reason

Some participants felt that they were unable to explain or give reasons for not using the Unisa library website. They explained: "*I do not know*"; "*I really don't have a reason why, I just don't use it*"; and "*Oasis cannot go on the networks.*"

5.6.1.2 Lack of knowledge of how to use the library website or how to use it optimally

Participants indicated lack of knowledge on how to access the library website as well as how to use it. "*I do not know how to use it*"; "*Sometimes, but I do not know how to use it optimally*". Some participants considered the library website to be too complicated, and some expressed the need for instruction and even training. "*I do not even understand what is it and have not been told about it."*

5.6.1.3 Lack of awareness of the library website and what it entails

Some participants were not aware of the existence of the library website. *"Not aware of such website."* Other participants associated the library website with the actual electronic resources to which the library provides access. "*I really do not know how use an online library"; I know that there are e-resources but do not know how they work."* Participants claimed lack of knowledge and understanding of electronic resources, and even said that they had no knowledge at all of such resources. "*Don't know anything about the library e-resources.*"

5.6.1.4 Preference for Google

Some participants indicated that they preferred Google rather than the library website. They found Google easier to use and adequate in meeting their information needs. *"Google, YouTube and other aids are more than sufficient and often easier to understand. Although I do not make use of the e-resources, I am confident I would have zero difficulty in doing so, I just choose not to use them."*

5.6.1.5 Satisfaction with additional resources

Participants' satisfaction with what they get from other or additional resources was also given as a reason for not using the Unisa library website. *"I usually get what I need from the additional resources." "I am using study tutorials." "The Unisa DVD is a good example."*

5.6.1.6 Not recognising or experiencing a need to use the library

Some participants felt that they had not yet experienced a need to use information resources. *"Heard about it but have not attempted using it because I haven't come across anything in my current studies yet [that] requires me to visit the library."*

5.6.1.7 Requiring training first

Participants' need for training on how to access the Unisa library website was also given as a reason for not using the website: *"I don't know how exactly to access the Unisa library, it's too complicated"*; *"Do not know where to locate it online"*; *"Didn't know about it – and can you get electronic books?"*; *"You must come train us'"*; *"No training"*; *"Not trained"*; *"Never trained"*; *Please offer training to rural students too"*; *"Where can I go check training?"* Participants claimed that they were never invited to attend training. Participants also raised concern and laid blame: "*You only train the Pretoria and other towns' students, but you do not come to us and our parents have no money to give us to come for training so please do something."*

5.6.1.8 Impression that one must visit the library first before obtaining access

Participants had the impression that they could only access the internet when they visited one of the Unisa libraries. Distance students should be well informed that accessing the Unisa library is in the palm of their hand, and does not depend on a physical visit. Students can download the Unisa library App from Google Play Store or Apple Store, available at: http://www.libanywhere.com/m/917, to gain easy access to the Unisa website. Some participants highlighted that: "*The distance to the Unisa library or any other library is far"*; *"No time to go the Unisa library"*; *"I have never been to a library as I am in Zimbabwe"*; *"I'm staying far from Polokwane Unisa Region"*; *"I am in Botswana so have never physically been to the library"*; *"I have never visited the library because I am staying far in KZN"*; *"I am staying far from training centres"*; *"Yet again, distance, no time by the time I get to the library it will be closing since I'm working"*; *"No time by the time I get to the library will be closing since I'm working and where is the training?"*; *"I'm staying in Midlands where can I go for training?"*

5.6.1.9 Not recognising the usefulness of the library website

Some participants indicated that they did not recognise the usefulness of the library website. Some of the responses are stated below: "*I have no need of it*"; *"I do not even understand what is it and have not been told about it"*; *"I have not seen it even when I log on to [3]myopias but only E-Solutions which has not been very helpful either"*; *"I understand IT enough, through my own self-taught trials and errors, to figure it out for myself without assistance or training"*; *"Through this survey, I am now made aware, but will likely continue without it regardless".*

5.6.1.10 Lack of awareness

Participants indicated lack of awareness of online library resources. Their responses included: *"Wasn't aware that there were online library resources apart from the material provided directly to you on myUnisa"*; *"Heard about it but have not attempted using it because I haven't come across anything in my current studies yet [that] requires me to visit the library"*; *"Not aware of such services"*; *"No one told me about it"*; *"I do not know where to attend training, please tell me"*; *"Please offer training to rural students too"*; *"Never invited to be trained"*; *"Never tried yet"*; *"Where is the training? I'm staying in Midlands, where can I go for training?"*; *"I was never invited to the training, where can I go check training?"*

5.7 BRIEF DISCUSSION OF KEY FINDINGS

The study's findings showed that first year distance students' at Unisa have poor access to ICT and the internet. Many do not have a dedicated computers connected to the internet. Many students have never participated in IL training programmes and hence lack the skills to access the library website and the skills to use electronic resources such as books, articles, databases, reference sources, newspapers and citation or reference management software. More importantly, many students are unaware of the library website and have the misperception that the only way to get access to the library and its branches is by visiting the physical premises. The value of the library and library resources for students (at least on first-year level) is also not always clear. Furthermore,

[3] The student presumably wanted to say myUnisa instead of myopias

students are not aware that they can access the online library resources using their smart phones. Library e-resources can now be accessed from the palm of one's hand by using mobile devices such as smartphones (e.g. iPhone, BlackBerry, Android) or tablets (e.g. iPad). Distance students should be well informed that accessing the Unisa library is in the palm of their hands, and does not depend on a physical visit. Students can download the Unisa library App from Google Play Store or Apple Store, available at: http://www.libanywhere.com/m/917, to gain easy access to the Unisa website. Chapter 6 triangulates findings from the literature, quantitative and qualitative data, and interprets the findings.

5.8 CONCLUSION

It was disappointing to get such a low response rate for this study, but other studies involving distance students as subjects reported similarly low response rates. Thompson (2007) reported that the online survey was sent to 181 students and only 19 responses were received. (For this study a larger number of students were sent a link to the questionnaire). This study's findings cannot be generalised to all first-year students at Unisa, owing to the low response rate. However, the study highlights the key issues to focus on in planning an online IL training programme for distance students, as well as the issues to include in extending the survey to other first-year students and students on other levels of study.

CHAPTER SIX
INTERPRETATION OF FINDINGS

6.1. INTRODUCTION

The purpose of this chapter is to triangulate findings from the literature, quantitative and qualitative data, and to interpret the findings presented in Chapter 5. The discussion is based on the study's purpose, research question and sub-questions related to the empirical component.

Chapter 5 covered all data and responses from participants. Therefore, this chapter will only interpret the data emanating from responses of "never" and "poor", as these represent the students in a critical position who need to be targeted in IL training programmes. Where necessary, information from Chapter 5 is briefly repeated to contextualise the discussion and interpretations.

Based on the main sections of the online questionnaire (see Appendix D) this chapter has been organised into four main sub-headings:

- Registration profile information of participating first-year students in the Unisa School of Accountancy;
- Access to ICT and internet skills;
- Information seeking and preferences; and
- Awareness and understanding of electronic resources.

Triangulation of findings will be done under each sub-heading for section 6.2 as detailed below.

6.2 REITERATION OF THE STUDY PURPOSE, RESEARCH QUESTION AND SUB-QUESTIONS

The purpose of this study was to "determine the information-seeking behaviour of first-year students in the School of Accountancy at Unisa and their readiness for using online information resources available through the library". The research question was: "*What*

are the information-seeking behaviour and the readiness of Unisa distance students in using and accessing the library online resources?" The sub-questions addressed by the empirical component were:

- What has been reported on IL and IL programmes for distance students, with special reference to online programmes?
- What has been reported on virtual learning environments with specific reference to distance education?
- What are the students' self-rated perceptions of their IL skills?
- What are the students' information-seeking behaviour and preferences in using online information resources?
- What are the students' self-reported readiness in using an online learning management system in a virtual learning environment?

6.3. TRIANGULATION AND INTERPRETATION OF FINDINGS

6.3.1 Registration profiles of students

The highest percentage of responses was from the Department of Financial Accounting, which yielded most responses (262/520, 50.38%). Differences noted from the empirical findings are that the number of responses from the Department of Financial Accounting was higher than that of the rest of the departments, such as Auditing (41/528, 77%); Management Accounting (71/528, 13.45%) and Taxation (10/528, 1.89%).

6.3.2 Access to ICT and internet skills

Access to ICT and the internet is very important in distance education. It can make academic information accessible, fast and easily available. The issue of massification (reaching many more students who are scattered all over the globe more quickly) becomes more manageable, and the issue of time and space becomes irrelevant. The five closed questions on access to ICT and internet skills generated descriptive data that helped to achieve the research objective "*to determine undergraduate distance students' level of access to the internet and Unisa library website via online learning management systems such as the myUnisa".* The findings are triangulated with the literature and

comments from the qualitative data (comments on open questions) in the following sub-sections.

6.3.2.1 Personally using the internet to find information

Of all 487 responses, only 42 reported that they could not personally use the internet to find information. Although most students did have computers (174/443, 39.28%) and internet access (152/368, 41.30%), and could personally use the internet to find information (445/487, 91.38%), they still experienced substantial problems in using the Unisa library website and its information resources (explained in section 5.5.2).

Students residing in Gauteng, the Western Cape and KwaZulu-Natal (in this order) reported the highest percentages of access to the internet (50.38%, 10.19% and 10.58%). The small number of students who reported that they did not have access to the internet and computers was predominantly from more rural provinces, namely Limpopo, Mpumalanga and the Eastern Cape. This raised the issue of a digital divide among the students, which was also noted in the literature analysis. Chetty *et al.* (2011:1889), Block (2010:5), Horrigan (2008:13) and Shapiro (2007:46) report on the digital divide as a gap between those who have access to technology and those who do not. The existence of a digital divide between Unisa students should be explored in more depth in future, especially if such a gap is seen as not only a gap in access to the appropriate technology (internet and computers), but also a gap in experience and skills. Disciplinary differences should also be explored.

6.4. WHERE INTERNET ACCESS IS GAINED

Participants had to respond to each of the different means of accessing the internet and could also indicate if they used other means. Regarding internet access, 39.28% reported access from home, 31.40% from work, and 10% from the Unisa library. There were further participants who indicated that they accessed the internet using other options, such as public libraries (2.92%), internet cafés (1.51%), and Unisa mobile buses (2.62%). Another 5.95% indicated that they accessed the internet using other options than those mentioned.

In contrast, 25.28% had never accessed the internet from home, 26.09% had never accessed it from work, 68.88% had never accessed the internet from an internet café, 93.92% had never accessed the internet from a telecentre, 80% had never accessed the internet from a public library, 89.51% had never accessed the internet from a Unisa library mobile bus and 66.26% had never accessed the internet from the Unisa library.

Overall, the majority of students reported they had a means of accessing the internet. However, a very small percentage, 8.62%, reported that they never accessed the internet using any device, while 50/475 (10.53%) rated their skills in using the internet as poor.

From the results it is clear that the students' problem is not lack of access to the internet. (However, it would be necessary to extend the survey on this point to all Unisa students to reach a fully informed conclusion and subsequent decisions.) From the participating group of students there seems to be sufficient opportunity in terms of internet access to explore the development of online IL training. Sharifabadi (2006) notes that by using the internet, distance education libraries can put online training tutorials on the web to support learning so that distance students can have access to a universe of digital information. If internet access is in place, the value of online IL training, as noted by Ahorany and Bronstein (2014:103), Robertson and Jones (2009:259), and Li *et al.* (2007:531), can be fully exploited. Since most students do not access the internet from home or work, the viability of increasing access opportunities at regional, public and mobile libraries should be explored, and if successful, should be marketed. Lack of awareness of the library website and that it can be accessed without visiting the physical library came out very strongly when qualitative data were collected (see Appendix H: Reasons for not accessing the library website.)

6.4.1 Device(s) students use to access the internet

Many students (41.30%) use laptops with 3G cards as their device of internet access. The percentage of those who indicated that they used tablets to access the internet was 28.21%. A further 39.25% used their smart phones, while 25.41% indicated that they used home computers and 36.53% used a workplace computer to access the internet.

The finding that high percentages of students get access to the internet from a number of possible places, and through a number of potential devices, strengthens the case for the Unisa library to explore the development of online IL training in line with the value of IL for independent study (Dadzie 2009:165; Rockman 2004:4; Sacchanand 2002:3).

6.4.2 Internet skills

Respondents rated themselves on their internet skills and the findings indicated that 39.58% believed they were excellent, 37.37% rated themselves as good and 12.42% as fair, whereas 10.53% indicated that they had poor internet skills. According to Dadzie (2009:165), Rockman (2004:4) and Kavulya (2003:3), students may rate their skills highly, but they might not have learned how to search the internet effectively and efficiently to find information for their studies, use subject-specific databases for relevant information to write assignments and for research purposes. Respondents may be able to send e-mails, search Google for information that is not study-related, chat, download music, etc, and this influences their confidence in their internet skills, as explained by Dadzie (2009:165), Rockman (2004:4) and Kavulya (2003:216). Comba (2011:59) also notes that confidence in internet skills does not mean that today's young people have the competencies they need to apply in learning activities, where they are required to use information effectively, efficiently and ethically.

6.4.3 Skills in accessing online library resources

Although there are differences between accessing the library electronic resources and the typical functions of a learning management system, the details noted for accessing the library electronic resources included (explained in more detail in section 5.5) confidence in their skills (i.e. skills to access the library catalogue, searching for a specific author of a book, searching for a specific book title, searching according to selected keywords, conducting an online request and viewing their "My library" status and renew books). The ratings of fair and poor were combined to give an overall percentage of lack of skills in using the library's electronic resources. The findings were that 70.57% lacked skills in accessing the catalogue, 64.77% indicated that they lacked skills in searching for a specific author of a book, 63.45% did not have skills in searching for specific book titles,

66.25% did not have skills in searching according to selected keywords and 70.56% indicated that they lacked skills in conducting an online request, while 72.28% did not have the skills to renew books. The responses showed that a considerable number of students rated themselves as poor at using the library electronic resources. Although students have access to the internet through various means, and although overall they are positive about their skills, it is clear that there is a considerable need for support and training in the use of specific library resources and accessing these.

6.4.4 Skills in using an online learning management system such as myUnisa to access online library resources

Although students indicated that they had skills in using an online learning management system such as myUnisa to access the online library resources, it is clear that there is a considerable need for support and training in the use of specific library resources and accessing these. If a virtual learning environment is used for IL training, there is also a strong need for support, as indicated by the numbers of students reporting poor perceptions of their skills. The respondents were requested to rate their skills on the level of excellent, good, fair and poor in using an online management system such as myUnisa when accessing information such as the various electronic library resources, previous examination papers, prescribed books, recommended reading and e-reserves, as well as submitting assignments and interacting with lecturers. As explained in more detail in section 5.5, the findings indicated that overall (i.e. combining ratings of poor and fair) students lacked confidence in skills when using the learning management system's functionalities to access the library's online resources, such as accessing various electronic resources (47.46%), accessing previous examination papers (29.4%), accessing the prescribed books (36.56%), accessing the recommended reading (38.68%), accessing e-reserves (55.07%), submitting assignments (20.96%) and interacting with lecturers (59.95%). The trend is for e-learning to become an integral part of contemporary education. Authors such as Clayton (2011:3), Brown (2010:1), Leese (2009:72), Crook and Cluley (2009:200), and Bach *et al.* (2007:71) mentioned that it was important to have online learning spaces in an educational environment. However students lacked skills to use them.

6.5 SECTION C: TRAINING IN INFORMATION SEEKING AND PREFERENCES WITH REGARD TO INFORMATION SEEKING

6.5.1 Access to the Unisa library website

Access to the Unisa library website as a point of access to the use of the electronic information resources and services of the library is a problem. Only 46.78% of the respondents could access the Unisa library website, while 53.22% could not access the library website. These issues are dealt with in section 5.4 and section C of the questionnaire (see Appendix E). Findings indicated that 53.22% of respondents had never accessed the Unisa library, compared to 46.78% who had. A follow-up question on how often participants used the Unisa library was asked and an overall response (when combining "fair" and "never") indicated that 75.98% never visited the Unisa library through an online platform, while 84.31% never visited the Unisa library as walk-in visitors (physically visiting the library). Sacchanand (2004) also found that distance students rarely visited the campus library.

6.5.2 Reasons why some students cannot use the Unisa library website

As a follow-up question, the respondents who answered "no" were asked to state their reasons for not being able to access the Unisa library website. They posted 145 reasons, but when these reasons are classified according to common meanings, one reason is dominant: that they were never trained on how to access or use the library website. The reasons posted were, for example, "*I do not know how to access the Unisa library website", "I do not know the library website*", and *"I was never trained*".

6.5.3 Training in accessing and using the Unisa library resources when physically visiting the library

A large majority (81.56%) indicated that they were never trained in accessing and using the available library resources when physically visiting the library or seeking information. This is explained in more detail in section 5.4.3. Authors such as Lamond and White (2008) and Kakai, Ikoja-Odongo and Kingogo-Bukenya (2006:14) note the importance of training to distance students, and that distance students should be taught IL as at contact

universities. Owusu-Ansah and Bubuama (2015:2) also emphasises that library services to distance students are important and should consider the information-seeking behaviour of distance students. Findings from this study are thus in line with opinions expressed in the subject literature on the need for training.

6.5.4 Reasons for not being trained to use the library resources

The reasons listed for not having been trained were more or less the same as the reasons stated in section 6.3.2, such as "*I was never trained", "I cannot attend training because I am staying far away", "My parents do not have money to give me to attend training",* etc. Some respondents went to the extent of asking that librarians must come to their areas to train them.

6.5.5 Training in accessing and using Unisa library resources, using the library website and internet

As explained in more detail in section 5.4.3, 83.44% of the reasons for not using the library website actually came down to the fact that they were never trained on how to access and use the library resources to find information by using the library website. This again emphasises the importance of distance students being taught IL skills, as at contact universities.

6.5.6 Institutions where training was conducted

Information literacy at higher education institutions is more advanced than in any other type of library. Section 5.4.5 deals in more detail with where IL training was conducted and what type of training students received. Respondents noted high school, college and public libraries and the National Library, as well as the Unisa library. Most received training at the Unisa library (44.55%).

6.5.7 Personally preferred method to use when requesting assignment-related information

Since participants were distance students, it was not a surprise that most students never physically visited the library. It is, however, of concern that many (73.68%) did not visit

the library online through the website either. (Responses are addressed in more detail in section 5.4.6). When requesting assignment-related information, 73.68% indicated that they never personally visited the library, 90.83% never used the Ask-a-Librarian platform, 57.07% never used online requests and a further 81.22% never used e-mail to the librarian to request information related to assignments.

6.6 SECTION D: AWARENESS AND UNDERSTANDING OF ELECTRONIC RESOURCES

Robertson and Jones (2009:259), Li *et al*. (2007:531), Hufford (2004:153), Sacchanand and Jaroenpuntaruk (2004:501) and Sacchanand (2000:22) highlight the importance of distance students understanding technology for the benefit of their studies. If distance students are aware of online resources, they will be able to use their library resources optimally from a distance. Hence the authors emphasise web-based IL instruction. It has many advantages, especially at distance education institutions where such programmes can enable distance students to learn by themselves. Such programmes can encourage self-directed learning, self-reflection and a learner-centred approach for distance students anywhere, any time at any pace. The following section will interpret responses focusing on the awareness and understanding of library resources.

6.6.1 Awareness of library e-resources

Section 5.4.6 gives detail on the finding that although 52.97% of respondents asserted that they were aware of the library's e-resources, there were still 47.03% who were not aware of the library's e-resources, which is a serious concern. This also raises the question of how students who are not aware of the library website and use of its services manage their studies, and whether a high percentage of second- and third- year students and postgraduate students are aware of the library website and services. Dadzie (2009) and Rockman (2004) mention that students entering a college or university have limited knowledge of library resources, fundamental research and information competency skills. They mention that in order to determine the information-seeking behaviour of students, one should determine whether they are aware of the various library e-resources.

6.6.2 Self-rated skills in using the library's e-resources

Section 5.5.2 gives detail on students' self-rating of their skills. A large percentage of students' report lack of skills. Those reporting poor and fair skills in using the library's e-resources were 69.35%, while 71.70% lacked skills in using electronic databases, 76.54% lacked skills in using electronic bibliographic and full-text databases, 71.46% lacked skills in using electronic books, 73.28% lacked skills in using electronic reference sources and 73.67% lacked skills in using electronic newspapers. Tury, Robinson and Bawden (2015), Oladokun (2014) and Thorsteindottir (2005) reported on the information-seeking behaviour of students. They mention that in order to determine the information-seeking behaviour of students, one should investigate their skills in using the library e-resources. The case study at Unisa met this requirement.

6.6.3 Self-rated skills in using the Unisa library catalogue

Skills in using the Unisa library catalogue were dealt with in section 5.5.3 and Appendix E. Students reported that they lacked skills in using various functions of the catalogue. While 70.57% of respondents indicated that they could not use the Unisa library catalogue, 64.77% lacked skills in using the Unisa library catalogue, 63.54% indicated they could not search for a book title on the Unisa library catalogue, 66.23% indicated that they lacked skills in searching according to selected keywords, 43.56% lacked skills to conduct an online request, 68.08% could not view "My library status" and 72.28% indicated that they could not renew books. Robinson and Bawden (2015) and Oladokun (2014) reported on the information-seeking behaviour of students. They mentioned that in order to determine the information-seeking behaviour of students, one should investigate their skills in using the library catalogue.

6.6.4 Self-rated skills in using electronic bibliographic and full-text databases

(This question was addressed in section 5.5.4 and discussed further in Appendix E, question 22). Various skills in using electronic bibliographic and full-text databases were listed for the students to easily understand the question. Skills listed were accessing electronic bibliographic and full-text databases, choosing appropriate databases, getting access to the full text of documents and exporting to a reference or citation manager (e.g.

Refworks). This question sought clarity on the skills listed when using electronic bibliographic and full-text databases. “Never” and “fair” were added to give an overall picture of those who lacked skills in using electronic bibliographic and full-text databases. Overall, 75.58% lacked skills in using electronic bibliographic and full-text databases, 75.52% did not have skills in choosing appropriate databases, 75% had poor skills in getting access to the full text of documents and 77.31% lacked skills in exporting references to a reference or citation manager. Nickel and Mulvihill (2010:68) and Sacchanand (2004:2) mention that distance students lack skills in accessing and using the library resources. The authors further mention that these students have inadequate knowledge and experience in library research, electronic information resources and technology in general.

6.7 Conclusion

This chapter presented triangulation and interpretation of the findings discussed in Chapter 5. The results of the survey showed that first-year students in the School of Accountancy lacked IL skills. Furthermore, many Unisa students still could not use the library resources yet, either in person or online. Many students indicated that they could not use or access the internet to find information for assignments. Many indicated they lacked skills to use an online learning management system such as myUnisa (the student platform that can be used to access online library resources). Students indicated that they were not aware of the library’s e-resources and could not use the Unisa library catalogue and all its functionalities. When asked about the various methods available for requesting information for their assignments, students indicated that they lacked skills in using the available electronic bibliographic and full-text databases and all the functionalities to search articles, let alone use a reference or citation manager such as Refworks. These issues all point to the need for an online training programme in IL, meeting with the needs of distance students.

CHAPTER 7
SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

7.1 INTRODUCTION

The purpose of this chapter is to revisit the research objectives, the problem statement, the main research question and the sub-questions. A synopsis is given of the research design and research participation, in addition to a summary of the key findings for each sub-question. Recommendations are made for theory and practice and for further research.

7.2 PURPOSE, AIMS AND OBJECTIVES RECONSIDERED

Overall the purpose of this study was to determine undergraduate Unisa distance students' information seeking behaviour and self-reported levels of readiness to use the Unisa library's online information resources and a virtual learning environment system.

7.2.1 Aims reconsidered

To achieve the purpose of the study, it set out to:

- Reflect on the literature reports on IL and standards for IL programmes in academic libraries, the characteristics of an information-literate student and online IL programmes;
- Determine the criteria for IL programmes in general;
- Determine the generic profile of Unisa students;
- Determine the criteria with which an online IL programme should comply (basing these on the criteria for an IL programme);
- Investigate the use of technology for online teaching of IL, specifically in a virtual learning environment;
- Determine undergraduate distance students' self-rated perceptions of their IL skills;
- Determine undergraduate distance students' preferences in using online information resources and the library website;

- Determine undergraduate distance students' level of access to the internet and Unisa library website; and
- Determine undergraduate distance students' preferences in using the electronic learning management system (i.e. myUnisa).

The literature analysis covered in Chapter 2 and 3 and the findings of the empirical study reported in Chapter 5, together with the triangulation of data in Chapter 6, made it possible to meet the study's specific aims. Findings from the literature review also shaped the survey questions, specifically questions 8-10. Based on the responses received from the online survey, specifically section B, C and D, the study was able to determine the readiness for an online IL programme for Unisa first-year students in the School of Accountancy.

7.2.2 Objectives reconsidered

The objectives of the study, with specific regard to the empirical component as explained in section 1.5, were:

- To determine undergraduate distance students' self-rated perceptions of their IL skills;
- To determine undergraduate distance students' preferences in using online information resources;
- To determine undergraduate distance students' level of access to the internet and the Unisa library website; and
- To determine undergraduate distance students' preferences in using the electronic learning management system (i.e. myUnisa).

As shown in the report on the findings of the empirical component (Chapter 5) and specifically section 5.3, the objectives of the study were all achieved. This is confirmed by the triangulation of findings in Chapter 6.

7.3 PROBLEM STATEMENT, MAIN RESEARCH QUESTION AND SUB-QUESTIONS RECONSIDERED

7.3.1 Problem statement reconsidered

At the time of starting the study (2010) the Unisa library did not offer an online IL programme for distance students. Although staff had started looking into this issue, the project was placed on hold from 2014. At present (August 2016) the library is investigating the use of an internal instructional designer to develop an IL programme. As indicated in section 1.1, the training offered by the Unisa library at the time of writing did not cater for students who could not visit the library or its branches. This study therefore formulated a main research question, which led to the formulation of research sub-questions. The main research question and sub-questions are reconsidered in this section.

As stated in section 1.4, the Unisa library is one of the support departments of the university. It plays an important role in assisting the university to meet its institutional goals, which are education and training of distance students and research. The library is expected to see that all registered undergraduate students know how to use the library and information resources to their benefit. Considering the geographic separation between the library and the students, and the challenges of distance education, IL training needs to be tailored to the needs of Unisa students.

7.3.2 Main research question and sub-questions reconsidered

The main research question of the study was developed from the problem statement, namely: *"What is the readiness of first-year distance students at Unisa regarding the use of online information resources available through the Unisa library?"*

In order to answer the main research question, several sub-questions were formulated (section 1.4.2). The sub-questions follow:

(a) What has been reported on IL and IL programmes for distance students, with special reference to online programmes?

This sub-question was answered from the literature analysis reported in Chapter 2, specifically section 2.5. Findings from the review shaped the questions for the online questionnaire survey, specifically questions 11-17. Findings from the literature review are also reflected in the summary of findings in section 5.4, and sections 6.4.1-6.4.9 discuss the findings of the study and relate them to the existing body of research.

(b) What has been reported on virtual learning environments with specific reference to distance education?

This sub-question was addressed by the literature analysis reported in Chapter 3. Findings from the review shaped the online survey questions, specifically questions 8-10. Findings from the literature review are also reflected in the summary of findings in section 5.3.2.5 and section 6.3.5 discussing the findings of the study and relating them to the existing body of research.

(c) What are the students' self-rated perceptions of their IL skills?

This sub-question was addressed by means of the empirical online survey, specifically section D (question 18-22) of the questionnaire (see Annexure D), which addressed students' awareness and understanding of electronic resources. The findings are reported in section 5.5 and section 6.5.

(d) What are students' self-rated perceptions of preferences in using online information resources?

This sub-question was addressed by means of the empirical online survey, specifically section D (question 18-22) of the questionnaire (see Annexure D), which addressed students' awareness and understanding of electronic resources. The findings are reported in section 5.5 and section 6.5.

(e) What are undergraduate distance students' levels of access to the internet and Unisa library website?

This sub-question was addressed by means of the empirical online survey, specifically section B (questions 4-7) of the questionnaire (see Annexure E), which addressed students' awareness and understanding of ICT and internet skills. The findings are reported in section 5.3 and in sections 6.2.2 and 6.3.2-6.3.4.

(f) What are the distance students' awareness and understanding of electronic resources?

The findings are reported in section 5.5 and section 6.5, and a summary of key findings from Section D (questionnaire questions18-22) of the empirical survey is provided in Chapter 5 in answer to this question.

7.4 SUMMARY OF THE RESEARCH DESIGN

Table 7.1 below offers an overview of the research design used by the study including the research methodology, research methods and data collection methods.

Table 7.1: Overview of the research design

Research design	Descriptive quantitative research method, supplemented by qualitative research questions, which used thematic analysis
Research approach employed	Case study, survey
Target group	2015 first-year students, who had registered for second semester in the School of Accountancy at Unisa, Pretoria
Data collection method used	Online Survey Monkey questionnaire
Online questionnaire link sent	26 680 undergraduate second-semester first-year students
Rate of responses	Total number of questionnaires returned was 587 (2.2%)
Total number of questions that could be used	525/587 (89.44%)
Spoiled questionnaires	62/587 (10.56%)
Number of questions asked	21 main questions (with sub-questions, 52)
Appropriate time taken to answer the online questionnaire	15 minutes
Software used to analyse the data statistically	SAS JMP Version 12, with the help of a Unisa statistician
Ethical clearance was requested as stated and approval was granted	Department of Information Science Research Committee, and EBIT Research Ethics Committee at the University of Pretoria, UREC approval from Unisa, Unisa gatekeeper permission and Unisa Research Permission Subcommittee of SRIHDC.
Time frame for data collection	July 2015 – August 2015
Confidentiality	The electronic cover letter and informed consent form explained how confidentiality would be guaranteed. All participants had to submit the informed consent form agreeing to participate willingly; all responses were

	anonymous since no personal detail was requested in the questionnaires and all responses were reported in aggregate format.
Reliability and validity	The data collection instrument (questionnaire) and questions were based on the literature analysis. Triangulation was applied to data collected by different means and from quantitative and qualitative perspectives.

7.5 BRIEF SUMMARY OF FINDINGS

A summary of key findings from this study is presented below, including literature findings and findings from the empirical data. The summary uses the sub-research questions as sub-headings.

7.5.1 Findings from the literature on information literacy and information literacy programmes for distance students

In reflecting on literature on IL and standards for IL programmes in academic libraries, it was found that an IL programme should meet the recognised criteria set by the ACRL (2008), which highlights that an information-literate student has a set of abilities or skills to recognise when information is needed, and must have the ability to locate, evaluate and use the needed information effectively. These skills were outlined in Chapter 2. The need to ensure that distance students have the same level of access and support was stressed. The study also reflected on various initiatives by South African universities reported in the literature at the time when the study started (2010). Such IL programmes were reported in Chapter 2. The reports affected the questions for data collection for this study. The importance of acknowledging the digital divide and the possibility that it might feature among Unisa students were also noted.

7.5.2 Findings on virtual learning environments with specific reference to distance education

The literature on virtual learning environments reveals that they are an important platform that libraries can use to reach out to students. A number of libraries are using virtual learning environments to make their training available to distance students, by placing IL tutorials there. Libraries can explore various supporting technologies, such as podcasts,

for their IL programmes. The virtual learning environment has benefits, such as providing a shared space for all students to interact, regardless of their physical location, on condition that they have access to a computer connected to the internet, and facilitating communication between students and tutors. However, there are also challenges, such as distance students lacking IT skills and skills in using virtual learning environments, systems not being robust enough, system downtimes, and the issue of the digital divide.

7.5.3 Findings from empirical component: online survey

The empirical study focused on self-rated perceptions of IL skills, use of e-resources, use of the Unisa library website, catalogue, etc. and readiness to use an electronic learning management system in a virtual learning environment. It was found that a high percentage of students (91.38%) did have access to computers and 77.05% to the internet. The study, however, reported various problems in accessing and using the Unisa library website and information resources. These are explored in more detail in the sub-section below.

7.5.3.1 Findings from on students' self-rated perceptions of their information literacy skills

Information literacy skills are crucial to both distance and on-campus students. These include skills in accessing and using the library catalogue to search for books and articles, and electronic databases to access articles, e-books, e-reference sources and e-newspapers.

The study found that 53.22% could not use the Unisa library website and a majority of students (50.39%) lacked skills on how to access the library catalogue (51.59%), while 56.27% indicated that they lacked skills to access bibliographic and full-text databases. A further 53.40% lacked skills to access e-reference sources, while 52.94% lacked skills to access electronic newspapers. Apart from lacking IL skills, participants highlighted other barriers such as lack of training on IL programmes. If the Unisa library does not offer online or distance programmes to its students, then there are no opportunities for

them to learn the skills. Furthermore, students should not be able to claim that they do not know about the library's website.

7.5.3.2 Findings literature on information seeking behaviour and preferences in using online information sources

Students reported on their information-seeking behaviour and preferences in using online information sources, such as the library catalogue, for the purpose of searching for a specific author or book title, searching according to selected keywords, conducting online requests, viewing their library record and renewing books. The students were also asked if they had ever accessed the Unisa library website, and if they did, how often they used it. More than half of the students (53.22%) had never used the Unisa library, while 51.30% had neither visited the library through the website or as walk-in clients (physically) (70.34%). The study further found that 81.58% of students had never received training in accessing and using the available library resources when physically visiting the library and/or seeking information when in the library. Furthermore, the majority of students (83.44%) had never received training on how to access and use the library resources to find information via the library website and the internet. It was also found that students preferred to use different methods when requesting assignment-related information from the library. However, most of them (56.51%) never personally visited the Unisa library, 74.01% never used the Ask-the-Librarian platform to request assignment information, 41.69% never made an online request and 69.70% never sent an e-mail to a librarian to request assignment information.

7.5.3.3 Findings on self-rated skills in using an online learning management system

A minority of students (29.03%) could not access various electronic library resources when using the myUnisa platform. More specifically, 22.06% of students could not use the myUnisa platform to access previous examination papers, while 20.73% could not access recommended reading material from the myUnisa virtual learning environment. A further 34.14% reported that they could not use the learning management system to access e-reserves, and 15.98% could not submit assignments using the myUnisa platform, while 36.38% could not interact with the lecturers. There seems to be a need

for training in using an online learning management system, but awareness of the library website and how it can be accessed and used remotely should be addressed first. Readiness to use an online learning management system should also be addressed.

7.6 VALUE OF THIS STUDY

A distance academic library such as Unisa can use the findings to design a suitable IL training programme for distance students. The findings provide an indication of the types of problems to address in terms of the IL skills students lack and the skills that need to be addressed in terms of their readiness to complete an online IL programme presented through an online electronic management system. The findings can be supplemented through extended surveys among wider groups of students before embarking on the instructional design of an online IL programme. In a similar way other distance teaching libraries can benefit from the findings of this study, with specific reference to the need to conduct such a study as part of the situation analysis in designing a programme.

7.7 LIMITATIONS

Only one group of students from one of the schools at Unisa was included. The response rate was low (587/29680; 2%). The findings can thus not be generalised to Unisa or other distance students. The findings do, however, meet the study's objectives in giving direction for further work.

7.8 RECOMMENDATIONS

7.8.1 Recommendations for practice

The recommendations are specific to the Unisa library, which served as the case study, but can also be considered by other distance libraries. Recommendations include:

- Extending the study to all students on all levels (undergraduate and postgraduate) to determine how many students do not have access to computers and internet connections;
- Implementing an IL programme based on the ACRL standards and addressing the concerns noted as problematic to students in this study; an extended survey

covering a wider selection of disciplines and study levels should be conducted first;

- Launching a marketing campaign that will ensure that students are aware that they can access and use the library resources and services without visiting the campus or physical building;
- Exploring mobile or tablet access to the library website, e-resources and services;
- Ensuring enhanced access and internet connection, e.g. through mobile library services, and signed memorandums of understanding between the library and public libraries; and
- Negotiating with faculty to include an online IL programme in course curricula.

7.8.2 Recommendations for theory

The following recommendations for theory are suggested:

- Aligning findings on information-seeking behaviour to decisions taken in the design of an online IL programme; and
- Exploring how theories of distance teaching, such as Holmberg's guided conversation (Holmberg 1983), Keegan's theory of distance education (Keegan, 1996), Moore's theory of transactional distance (Moore 1997) and Knowles's theory of adult learning (andragogy) (Knowles 1950), should be considered for the development of an online IL programme.

7.9 SUGGESTIONS FOR FURTHER RESEARCH

The following suggestions are made for further projects:

- A participatory action research project involving students at various levels of study and staff, getting their input and buy-in;
- Actual information-seeking behaviour of distance students using a virtual learning environment, applying appropriate theoretical lenses such as self-efficacy and affordance theory in addition to transaction log analysis;
- The digital divide affecting distance students in terms of skills and opportunities to gain skills in IL – thus not just the digital divide as the gap

between those who have access to ICT and the internet, and those who do not have access;

- Students' emotional information-seeking experiences and how to incorporate this in the design, content and assessment a of distance online IL programme;
- Generational differences in preferences regarding IL training: NET generation vs. older adults (e.g. older than 45); and
- Disciplinary differences in needs and preferences for online IL training.

7.9 THE IMPLICATION OF THE LIMITATIONS RESULTING FROM THE SAMPLE

Limitations resulting from the sample of the study reflects that the intention is not to generalise the findings to all Unisa undergraduate distance students due to the implication of the limitations resulting from the sample, that the response rate from participants was thus 587/29 685 = 2% which seems to be a lower response. However, 587 respondents were considered sufficient, as the number yields 2% which is recommended for the various statistical analyses.

Further, the study was limited to the undergraduate distance students in the School of Accountancy registered for first-year studies in 2015. The findings and recommendations from the study should, however, hold value for distance education libraries in general and libraries offering or planning to offer online teaching of IL.

7.10 CONCLUSION

In conclusion, this study's findings cannot be generalised to all first-year students at Unisa; the study was limited to the School of Accountancy. Findings might be different on other levels of study, and according to discipline or field of study. The value of the study, however, lies in taking note of students' access to ICT and the internet, their lack of awareness of the library and library resources, as well as of methods to access resources from a distance, for example e-books, articles, databases, reference sources, newspapers and reference management software.

In order to help students to meet academic requirements and develop into critical thinkers, librarians need to explore the design of an appropriate online IL programme that specifically satisfies the requirements of distance students (set out in sections 1.6.5 and 7.5.1) and addresses the shortcomings and concerns noted in this study.

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ANNEXURE A: EBIT APPROVAL

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Reference number: EBIT/74/2014

24 October 2014

Ms LB Rantla
PO Box 524
Bronkhorspruit
1020

Dear Ms Rantla,

FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

Your recent application to the EBIT Ethics Committee refers.

1 I hereby wish to inform you that the research project titled "Distance students' readiness for an online information literacy programme: Unisa as a case study" has been approved by the Committee.

This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Codes of Research Ethics of the University of Pretoria, if action is taken beyond the approved proposal.

2 According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of any member of the Faculty Committee who will deal with the matter.

3 The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

Prof JJ Hanekom
Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY

ANNEXURE B: UREC APPROVAL

UNISA university of south africa

UNISA RESEARCH ETHICS REVIEW COMMITTEE

1 April 2015

Ref #: 2014_URERC_002_FA (RS)
Ms. L. B. Rantlha
Student #:90162919

Dear Ms. L. B. Rantlha,

Decision: Ethics Approval

Name: Ms. L. B. Rantlha, Unisa Library, Muckleneuk, rantllb@unisa.ac.za, (012) 429-3501/0722851118

Supervisor: Prof. Ina Fourie, ina.fourie@up.ac.za

Proposal: Distance students' readiness for an online information literacy programme: Unisa as a case study

Qualification: M. Bibl. University of Pretoria, Pretoria.

Thank you for the application for research ethics clearance by the Unisa Research Ethics Review Committee (URERC) for the above mentioned research. Final approval is granted for the period 1 April 2015 till 1 April 2016.

The application was reviewed in compliance with the Unisa Policy on Research Ethics by the Unisa Research Ethics Review Committee - URERC - on 27 March 2015.

The proposed research may now commence with the proviso that:

1) *The researcher will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*
2) *Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the Unisa Research Ethics Review Committee (URERC). An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.*

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
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3) *The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.*
4) *Add to the cover letter to respondents – Appendix 1 – that the study was approved by the Unisa Research Ethics Review Committee on 27 March 2015 and that fieldwork will not commence prior to obtaining permission from the UNISA Research Permission Subcommittee of the Senate Research and Innovation and Higher Degrees Committee.*

Note:
The reference number 2014_URERC_002_FA(RS) should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the URERC.

Kind regards,

Dr. Retha Visagie *(pp. Prof Les Labuschagne – Chairperson: URERC)*
E-mail: visagrg@unisa.ac.za
Tel: (012) 429-2478

ANNEXURE C: UNISA GATEKEEPER PERMISSION

PERMISSION TO CONDUCT RESEARCH INVOLVING UNISA STAFF/STUDENTS OR DATA

Ref nr: 2014_GKP_002

To: Rantla Legobole Boquin. Student Number 94004448,
Email address: Rantllb@unisa.ac.za and 012 429 3501)

Supervisor: Prof Ina Fourie. University of Pretoria, Department of Information Science, IT Building, Office 6-65, Pretoria, 0001, 012 420 4216

From: Dr Retha Visagie, Manager: Research Integrity, Directorate: Research Management

Contact details: visagrg@unisa.ac.za; +27 12 429 2478

Date: 2014-09-19

This is to confirm that Dr Retha Visagie, acting on behalf of the Executive Director: Research and Innovation of Unisa, Prof Lessing Labuschagne, has granted Ms Rantla Legobole Boquin **permission** to undertake research involving Unisa staff and students, towards a Master's Degree in Library and Information Science, entitled:

"Distance students' readiness for an online information literacy programme: Unisa as a case study".

The permission provides the principle researcher principal permission to conduct research at Unisa. However, from a research ethics perspective, the application for ethics clearance will be reviewed on merit, after which the Unisa Research Sub-committee of the Senate Research and Innovation and Higher Degrees Committee will consider granting final permission, based on the merits of an application in that regard, to include Unisa staff and students in field work activities. The latter permission is not to be confused with permission and is dependent on criteria that are contained in the Unisa Policy for Conducting Research Involving Unisa Staff, Students or Data.

Regards

_____

RG Visagie (PhD)
Manager: Research Integrity
Research Management Directorate, Theo van Wijk, *Room 10-53*

Office +27 12 429 2478; Email: visagrg@unisa.ac.za

ANNEXURE D: Research permission subcommittee of SRIHDC

UNISA university of south africa

RESEARCH PERMISSION SUB-COMMITTEE OF SRIHDC

22 May 2015

Ref #: 2015_RPSC_034
Ms L. B. Rantlha
Student #:
Staff #: 90182919

Dear Ms L. B. Rantlha.

Decision: Research Permission
Approval for the period **May 2015 to 31 July 2015**

Principal Investigator:
Ms L. B. Rantlha
UNISA Library
UNISA
rantlb@unisa.ac.za
(012) 429-3501/082 285 1118

Supervisor: Prof Ina Fourie
University of Pretoria
Ina.fourie@up.ac.za
(012) 420-5216/082 707 8082

A study titled: "Distance students' readiness for an online information literacy programme: Unisa School of Accountancy as a case study."

Your application regarding permission to conduct research involving UNISA students in respect of the above study has been received and was considered by the Research Permission Subcommittee (RPSC) of the UNISA Senate Research and Innovation and Higher Degrees Committee (SRIHDC) on 15 May 2015.

It is my pleasure to inform you that permission has been granted for the study to:

1. Upload an informed consent letter on MyUnisa, clearly explaining the purpose and the benefits of the study to proposed participants, and explaining why they have been chosen as prospective participants in the study.

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
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ANNEXURE E: ONLINE ANONYMOUS WEB BASED SURVEY

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Pretoria 0002 Republic of South Africa http://www.up.ac.za

COVER LETTER TO INTRODUCE AN ONLINE ANONYMOUS WEB-BASED SURVEY

Dear prospective participant,

You are invited to participate in a survey conducted by Ms Legobole Boquin Rantla under the supervision of Prof. Ina Fourie, professor in the Department of Information Science, University of Pretoria, to fulfil part of the requirements for a Magister Information Scientiae (MIS) degree at the University of Pretoria, South Africa.

The survey you have received has been designed to study first-year undergraduate distance students' readiness to use the Unisa library's online information resources, as well as their information-seeking behaviour. You were selected to participate in this survey because you have registered for first-year modules in the School of Accountancy for the first semester of 2015. You will not be eligible to complete the survey if you are not registered for any such modules. By completing this survey, you agree that the information you provide may be used for research purposes, including dissemination through peer-reviewed publications and conference proceedings.

It is anticipated that the information the researcher gains from this survey will help the Unisa library to determine first-year distance students' level of readiness to use the library's online information resources, as well as their information-seeking behaviour. You are, however, under no obligation to complete the survey and you may decline to take part in the study. The survey is developed to be anonymous, meaning that the researcher will have no way of connecting the information that you provide to you personally. Consequently, you will not be able to withdraw from the study once you have clicked the send button, because of the anonymous nature of the survey. If you choose to participate in this survey, it will take no more than 10-15 min of your time. You will not benefit from your participation as an individual; however, it is envisioned that the findings of this study will help librarians to develop a suitable online programme for distance students. The researcher does not foresee that you will experience any negative consequences

by completing the survey. The researcher undertakes to keep any information you provide confidential, not to let it out of her possession and to report on the findings from the perspective of the participating group and not from the perspective of an individual.

The records will be kept for five years for audit purposes, where after they will be permanently destroyed and electronic versions will be permanently deleted from the hard drive of the computer. You will not be reimbursed or receive any incentives for your participation in the survey.

The research was reviewed and approved by the Engineering, Built Environment and Information Technology (EBIT) Ethics Review Committee at the University of Pretoria. The primary researcher, Legobole Boquin Rantlha, can be contacted during office hours at +27 (12) 429 3501/+27 722851118. The study leader, Prof. Ina Fourie, can be contacted during office hours at +27 (12) 420 5216. Should you have any questions regarding the ethical aspects of the study, you can contact the chairperson of the Ethics Review Committee of the Faculty of EBIT at the University of Pretoria, Prof. J.J. Hannekom, at +27 (12) 420 3736. Alternatively, you can report any serious unethical behaviour at Unisa's Toll-free Hotline 080086963.

You are making a decision whether or not to participate by continuing to the next page. You are free to withdraw from the study at any time prior to clicking the send button.

Kind Regards

Ms Legobole Boquin Rantla

Instructions:

Please read the questionnaire carefully.

SECTION A: REGISTRATION DETAILS

NB. Please make a cross in the box that best describes your response.

1. Are you registered for 2015 first and semester modules for your first year of study in the School of Accountancy? If **No**, please do not continue with the survey.

1	Yes	
2	No	

2. Which department presents the first year modules for which you are registered? Tick the relevant answer.

1	Department of Auditing	
2	Department of Financial Accounting	
3	Department of Management Accounting	
4	Department of Taxation	

3. To which regional centre do you belong? Please choose one.

1	Gauteng	
2	Limpopo	
3	Mpumalanga sub-region	
4	Eastern Cape sub-region	
5	Midlands	
6	Western Cape	
7	KwaZulu-Natal	
8	Ethiopia	

SECTION B: ACCESS TO ICT AND INTERNET SKILLS

4. Do you ever personally use the internet to find information?

Yes	No

5. If **Yes**, where do you access the internet? (You may choose more than one option).

	Never 1	**Seldom 2**	**Frequently 3**	**Always 4**
Home				
Work				
Internet café				
Telecentre				
Public library				
Mobile bus				
Unisa library				

Other (please specify):

6. If **Yes**, which device do you use to get access to the internet? (You may select more than one device.)

	Never 1	**Seldom 2**	**Often 3**	**Always 4**
Laptop with 3G				
Tablet (e.g. iPad)				
Smart phone (e.g. iPhone)				
Home computer				
Work computer				

Other (please specify):

7. Please rate your skills in using the internet.

Internet skills	**Poor 1**	**Fair 2**	**Good 3**	**Excellent 4**

8. Please rate your skills in using an online learning management system such as MyUnisa to access the online library resources.

	Poor 1	**Fair 2**	**Good 3**	**Excellent 4**
Accessing various electronic library resources				
Accessing previous examination papers				
Accessing prescribed books				
Accessing recommended reading				
Accessing e-reserves				
Submitting assignments				
Interacting with lecturers				

Other (please specify):

SECTION C: TRAINING IN INFORMATION SEEKING AND PREFERENCES WITH REGARD TO INFORMATION SEEKING

9. Do you ever access the Unisa library website?

Yes	**No**

10. If you answered **No**, please explain (use the box below).

11. How often do you use the Unisa library?

	Never 1	**Seldom 2**	**Frequently 3**	**Always 4**

Online through the website				
Walk-in (i.e. physically visiting the library)				

12. Have you ever received training in accessing and using the library resources available when physically visiting the library and/or seeking information when physically in the library?

Yes	No

13. If you answered **No**, please explain (use the box below).

14. Have you ever received training on how to access and use the library resources to find information by using the library website and the internet?

Yes	No

15. If you answered **No**, please explain (use the box below).

16. If you replied **Yes** to questions 12 and/or 14, please indicate where you received the training. (You may select more than one option)

Type of Library	
High school library	
College library	
Public library	
National library	
Unisa library	

Other (please specify):

16. Which method do you prefer to use when requesting assignment-related information from your library?

	Never 1	**Sometimes 2**	**Frequently 3**	**Always 4**
Personally visiting the library				
Ask-a-Librarian platform				
Online requests				
Sending e-mail to the librarian				

SECTION D: AWARENESS AND UNDERSTANDING OF ELECTRONIC RESOURCES

17. Are you aware of the library's e-resources?

Yes	No

18. If you answered No, please explain (use the box below).

19. Please rate your skills in using the library's e-resources.

	Poor 1	**Fair 2**	**Good 3**	**Excellent 4**
Library catalogue				
Electronic articles				
Electronic bibliographic and full-text databases				
Electronic books				
Electronic reference sources				
Electronic newspapers				

20. Please rate your skills in using the Unisa library catalogue for the following purposes:

	Poor 1	**Fair 2**	**Good 3**	**Excellent 4**
Accessing the catalogue				
Searching for a specific author of a book				
Searching for a specific book title				
Searching according to selected keyword(s)				
Conducting an online request				
Viewing your "My library" status				
Renewing books				

21. Please rate your skills in using electronic bibliographic and full-text databases.

	Poor 1	**Fair 2**	**Good 3**	**Excellent 4**
Accessing electronic bibliographic and full-text databases				
Choosing appropriate databases				
Getting access to the full text of documents				
Exporting references to a reference/citation manager (e.g. Refworks)				

Thank you for your participation in the survey.

Kind regards

Ms Legobole Boquin Rantla

ANNEXURE F: RESEARCHER'S DECLARATION

Hereby I Legobole Boquin Rantla in my capacity as researcher, declare that

1. Research subjects will be informed, information will be handled confidentially, research subject reserve the right to choose whether to participate and, where applicable, written permission will be obtained for the execution of the project (example of permission attached).

2. No conflict of interests or financial benefit, whether for the researcher, company or organization, that could materially affect the outcome of the investigation or jeopardize the name of the university is foreseen.

3. Inspection of the experiments in loco may take place at any time by the committee or its proxy.

4. The information I furnish in the application is correct to the best of my knowledge and I will abide by the stipulations of the committee as contained in the regulations.

5. Signed: Date: 10 / October / 2014

ANNEXURE G: UNISA STATISTICIAN CONFIDENTIAL AGREEMENT

UNISA university of south africa

05 March 2015

CONFIDENTIALITY AGREEMENT

TO WHOM IT MAY CONCERN

This letter serves to confirm my assistance of the research undertaken by Legobole Boquin Rantlha currently registered for the degree MAGISTER INFORMATIONIS SCIENTIAE, At the, Department of Information Science at the University of Pretoria. As a statistician, I the undersigned hereby agree as required for ethical clearance purpose to ensuring the confidentiality to all data and case participants information made available to me resulting from the study, whether during the study or after conclusion of the study.

Kindly contact me should you need to verify the contents of this letter, should it be required.

Hennie Gerber
Statistician
College of Graduate Studies
UNISA
hjgerber@gmail.com
083 229 9993

ANNEXURE H: REASONS FOR NOT ACCESSING THE LIBRARY WEBSITE

The study has identified 11 themes. The themes are reflected below with appropriate verbatim quotations from participants. This should be read in addition to the discussion in Section 5.6.1

No.	Description of the theme	Reasons given
1	Inability to give a reason	*"I do not know."* *"I really don't have a reason why."* *"I just don't use it."* *"Oasis cannot go on the Networks."*
2	Lack of knowledge on how to use the library website optimally	Participants indicated lack of knowledge on how to access the library website as well as on how to use it. *"I do not know how to use it."* *"I do not know how to use it optimally."* *"The library website is too complicated."* Some expressed the need for instruction and even training*:* *"I do not even understand what is it and have not been told about it."*
3	Lack of awareness of the library website and what it entails	Some participants were not aware of the existence of the library website. *"Not aware of such website."* Other participants associated the library website with the actual electronic resources to which the library provides access. *"I really do not know how use an online library."* *"I know that there are e-resources but do not know how they work."* Participants claimed lack of knowledge and understanding of electronic resources, and even said that they had no knowledge at all of such resources. *"Don't know anything about the library e-resources."*

4	Preference for Google	Participants indicated that they preferred Google rather than the library website. They found Google easier to use and adequate for meeting their information needs. *"Google, YouTube and other aides are more than sufficient and often easier to understand."* *"Although I do not make use of the e-resources, I am confident I would have zero difficulty in doing so."* *"I just choose not to use them."*
5	Satisfaction with additional resources	Participants indicated satisfaction from what they could get from other or additional resources and this was also given as a reason for not using the Unisa library website. *"I usually get what I need from the additional resources."* *"I am using study tutorials and the Unisa DVD is a good example."*
6	Not recognising or experiencing a need to use the library	Some participants felt that there was no need yet to use information resources. *"Heard about it but have not attempted using it because …"* *"I haven't come across anything in my current studies yet [that] requires me to visit the library."*
7	Requiring training first	Participants indicated that they needed training first on how to access the Unisa library website and this was also given as a reason for not using the Unisa library website. *"I don't know how exactly to access the Unisa library it's too complicated."* *"Do not know where to locate it online."* *"Didn't know about it - and can you get electronic books?"* *"You must come train us."* *"No training", "Not trained", 'Never trained."* *"Please tell me."* *"Not trained - please offer training to rural students too."*

		"Where can I go check training?" Participants claimed that they were never invited to attend training. They raised their concerns and also pointed fingers: *"You only train the Pretoria and other towns" students but you do not come to us and our parents have no money to give us to come for training so please do something."*
8	Perceptions that they must visit the library first before they can get access	*"The distance to the Unisa library or any other library is far."* *"No time to go the Unisa library."* *"I have never been to a library as I am in Zimbabwe."* *"I'm staying far from Polokwane Unisa Region."*
9	Distance to the library	*"The distance to the UNISA library or any other library is far."* *"No time to go the Unisa library."* *"I have never been to a library as I am in Zimbabwe."* *"I'm staying far from Polokwane Unisa Region."* *"I am in Botswana so have never physically been to the library."* *"I have never visited the library because I am staying far in KZN."* *"I am staying far from training centres."* *"Yet again, distance, no time by the time I get to the library it will be closing since I'm working."* *"No time by the time I get to the library it will be closing since I'm working and where is the training?"* *"I'm staying in Midlands where can I go for training?."*
10	Not recognising the usefulness of training	*"I have no need of it."* *"I do not even understand what is it and have not been told about it."* *"I have not seen it even when I log on to myopias but only E-Solutions which has not been very helpful either."* *"I understand IT enough, through my own self-taught trials and errors, to figure*

		it out for myself without assistance or training." *"Through this survey, I am now made aware, but will likely continue without it regardless."*
11	Lack of awareness	*"Wasn't aware that there were online library resources apart from the material provided directly to you on myUnisa."* *"Heard about it but have not attempted using it because I haven't come across anything in my current studies yet [that] requires me to visit the library."* *"Not aware of such services."* *"No one told me about it."* *"I do not know where to attend training please tell me."* *"Not trained - please offer training to rural students too."* *"Never invited to be trained."* *"Never tried yet."* *'Where is the training?"* *"I'm staying in Midlands where can I go for training?."* *"I was never invited to the training."* *"where can I go check training?."*