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**AN EVALUATION OF INFORMATION LITERACY OF
POSTGRADUATE STUDENTS OF THE
NATIONAL UNIVERSITY OF LESOTHO (NUL)**

By

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DECLARATION

I declare that “An evaluation of information literacy of postgraduate students of the National University of Lesotho (NUL)” is my own work, which has not been submitted before for any degree or examination in any other university. All sources I have used in this study have been indicated and acknowledged as complete references.

Lineo Mary Mariti

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ABSTRACT

In this global information age many technological advances have changed approaches to education and the way libraries are managed. The massive increase of unfiltered information has resulted in high demands for information literacy programmes. Therefore, students need to be assisted throughout their learning process. The result of this change is the shift from teacher-centered type of learning to student-centered learning. The gap between the library and the classroom needs to be bridged by insisting on the use of information literacy skills and by promoting cooperation and collaboration of efforts between the teaching staff and the library. The learning organizations need to realize the need to embed information literacy within their curriculum to enhance quality education. The transformation requires libraries to embark on student learning and empower students with necessary information literacy skills. This issue of empowering students with necessary skills had become a motivating factor that drove me to carry out this research in order to find out the status and level of information literacy for postgraduate students of NUL. Information literacy standards were used as a measure. The study used a combination of both qualitative and quantitative research methods. A questionnaire was used as a main data collection instrument and the results were measured against the American Library Association (ALA) information literacy standards. Interviews were also conducted at NUL to supplement the main data collection instrument. Findings reflect a moderate to poor performance of a group of postgraduate and senior Law students who participated in this survey study. Findings from interviews provided evidence that NUL is aware of the concept of information literacy.

CHAPTER ONE

BACKGROUND TO THE STUDY

1.1 Introduction

The use of technological tools for storage, information management, and communication has enormously improved the accessibility of data (Bundy, 2004a). These developments have created a problem of not knowing where and how to find information in all its different formats. This difficulty would be solved by acquiring and using information literacy skills, which encompasses skills such as information handling skills, Information and Communication Technology (ICT) skills, and library skills including locating, finding, organizing, evaluating and critical thinking in using the information accessed. The manner in which information is stored and retrieved using technological tools differs greatly from the traditional use card catalogues. Information obtained from using technological tools requires evaluation as it may come in an unfiltered form. The advent of the Internet has highlighted the issue of information literacy skills to deal with the massive increase of information. This has raised questions about information's authenticity, validity and reliability (Sayed, 1998: x and Bundy, 2004a).

The information available through the Internet from various media, such as graphical, audio, and textual, requires information users to acquire specific information literacy skills in order to be able to evaluate and understand it. The need for evaluation is due to the uncertain quality and expanding quantity of information that pose large challenges for organizations and the information society (Sayed, 1998: x).

1.2 Information literacy

The notion of information literacy, which first appeared in the literature in the early 1970s, was prompted by the advent of new information technologies and has grown, taken shape and strengthened to become recognized as a critical literacy for the twenty-first century. Information literacy is common to all disciplines, to all learning environments and to all levels of education. It enables learners to master content and become more self-directed and assume greater control over their own learning. Further developments in access to information have caused the concept 'information literacy' to gain popularity and international recognition (De Jager & Nassimbeni, 2002:167-168).

Worldwide definitions of information literacy emphasize access to sources of information, skills to locate information, and critical evaluation of information. These concepts are included in the American Library Association's (ALA) definition, which is widely accepted and used by the Association of College and Research Libraries, which reads: "Information literacy is a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information" (ALA, 1989; ACRL, 2003:1). Also of importance are definitions by the Council of Australian University Librarians (CAUL) Standards in 2001 and the Standing Council of National and University Libraries (SCONUL) in 1999 (Bruce, 1997:163).

All definitions of information literacy including, for example, Keenan and Johnson (2000:135); Armstrong et al. (2005:24) and Bundy (2004a) emphasize the need to become information-literate by acquiring information skills such as knowing how to access, evaluate and use various information sources. These include, for example, the

ability to utilize a library, a computer, and the Internet to search for relevant information (Sayed, 1998: 2-3). It is further proposed that information literacy embraces all other information problem solving skills, and prepares individuals to take advantage of the opportunities within the information world (McClure, 1994:117) and hence is the basis of lifelong learning.

Information literacy is concerned with knowledge abilities such as knowing when and knowing why information is needed, knowing where to find relevant information, knowing how to evaluate, use and communicate it fairly (Sayed, 1998:13-14). As indicated by Williams, (2001:388), knowledge therefore, can be categorized as indicated below:

- *Know-what knowledge* refers to knowledge about facts. This type of knowledge is close to what is normally called information in that it can be broken down into bits
- *Know-why knowledge* refers to scientific knowledge of principles and laws of motion in nature, in the human mind and in society. Such knowledge is largely produced and reproduced through institutions such as Universities and research institutes or research and development departments. Access to such knowledge can speed-up the rate of innovation
- *Know-how knowledge* refers to the skills or the capability to do many types of activities. Therefore in the learning environment this type of knowledge could be gained through learning by doing and interacting. Both know-what and know-why types of knowledge are mastered through the channels of codified knowledge such as books, databases, etc.
- *Know-who knowledge* refers to a mix of largely social skills that enable an individual to know who knows what, and how to access these experts, and then use their knowledge effectively. Such knowledge is learned through social practice, and communities of interest
- *Know-when knowledge* refers to a sense of timing and rhythm
- *Know-where knowledge* refers to a sense of place, where it is best to do something. For example, a library is a place for research (Williams, 2001: 388).

Knowledge abilities are concerned with the proper use of information and when understanding is applied to information usage information becomes knowledge, which then promotes information literacy skills acquisition, and refers to competencies in carrying out different tasks. All these knowledge abilities are involved in information literacy skills.* These knowledge abilities need to be assessed to ensure that skills have been learned and that skills could be applied in a different situation.

A wealth of information will not automatically create knowledgeable students without a thorough understanding of it, which presupposes the ability to use it. Information users need to go through the processes of information seeking, gathering, accessing, evaluating, critical thinking, using, communicating and organizing information in order to be considered information literate. All these processes entail knowledge skills.

Information literacy as viewed by different scholars seems to consist of a number of interconnected abilities related to the effective use of information. Curran (1993:258) identified the abilities below as characterizing information literacy:

- The ability to know what information would help
- The ability to know where to go to get information
- The ability to know how to interpret, evaluate, and organize information
- The ability to know how to use and communicate information.

Information literacy, therefore, can be achieved when there is understanding and knowledge of the structure and sources of information. In this age of universal information economy, critical understanding of how to find information efficiently and use it effectively is vital to professional and personal survival. Currently information literacy is becoming a crucial part of any educational process. Higher education

institutions throughout the world are developing new teaching and learning methods to accommodate these changing patterns. The gap between the traditional way of teaching and the current patterns of learning can be bridged through implementation of information literacy programmes (Sayed, 1998: xiv).

1.3 Information literacy learning and teaching

Information literacy education is defined by Boon (1990:2) as cited by Boekhorst and Britz (2004:65) as a process that includes coaching in the use of information sources and resources, whereby the necessary knowledge, attitudes and skills are acquired. In higher education it has proved itself to be more effective when embedded into subject teaching and taught in cooperation between the faculty and the library. Information literacy education, therefore, helps learners to access, evaluate and use information easily and so to study effectively. It aims to inculcate an understanding of:

- The concept of information
- Information awareness
- Skills and competencies to access and use information
- To create an information culture (Boekhorst and Britz, 2004:65).

Julien (2000:514) warns that information literacy education is not a synonym for either bibliographic instruction or library orientation, both of which are linked more closely than information literacy instruction with the use of library resources.

Information literacy education plays an important role in preparing the students for the present and future by developing skills essential for lifelong learning in an information rich environment.

Webb and Powis (2005:50-51) emphasize the need for motivating students to learn by encouraging independent learning and by encouraging teachers to make:

- Students aware of the need to learn
- Students learn through practice
- Students learn from feedback
- Students demonstrate understanding of what has been learned.

Students need to exploit the range of sources available to advance their studies and pursue their research. Therefore, they need to acquire a number of related skills to be able to address the issue of provenance, accuracy and reliability of the material (De Jager and Nassimbeni, 2002:167-168). There are links in the chain of abilities that connect to information literacy. Some of the most distinctive links as indicated by McClure (1994:118) are: knowing how to read and write (traditional literacy), knowing the library and understanding library instruction (library literacy), being able to operate the computer (computer literacy), being able to use audio-visual resources (media literacy), being able to use the Internet and the World Wide Web (computer network literacy) and being able to apply all other information literacies for the effective use of information (information literacy). It is worth noting that students are best served when the information literacy skills are taught in collaboration and cooperation between the different disciplines and the library and when they are integrated into the curriculum.

According to the Association of College and Research Libraries (ACRL) Standards for Higher Education, the information literate student:

- Determines the nature and extent of the information needed
- Accesses needed information effectively and efficiently
- Evaluates information and its sources critically and incorporates selected information into his/her knowledge base and value system
- Individually, or as a member of a group, uses information effectively to accomplish a specific purpose
- Understands many of the economic, legal and social issues surrounding the use of information and accesses and uses information ethically and legally (ACRL, 2003:1-6).

These standards of information literacy are meant to foster independent, student-centred, resource-based and lifelong learning. As part of the information literacy education, standards may be used as an instrument for assessing the level or extent of information literacy and are also useful for curriculum design and motivate learners in their process of learning. In order to achieve quality education, information literacy standards should be embedded into the working curriculum. A wealth of information will not in itself create a more informed community without a complementary set of abilities necessary to use information effectively (Sayed, 1998: xiv).

1.4 Statement of the problem

The researcher's experience as a librarian at the National University of Lesotho (NUL) library showed that the majority of students entering NUL come from greatly disadvantaged communities and that many of them are not sufficiently prepared for the demands of the higher education academic environment. Some of these students did not have libraries in high schools, and have never accessed electronic resources. As a result

they waste much of their time trying to cope with the fear of using these electronic resources, and in most cases their conceptual and search skills are severely lacking by the time they reach postgraduate level. This led the researcher to question whether senior students had adequate skills to make effective use of the information sources provided by the NUL Library. Since the ability to find and use information critically is an important requirement in postgraduate studies, the question of information literacy among these students seemed most acute. This also prompted the researcher to explore whether information literacy standards could be used to assess information literacy of NUL students.

1.5 Purpose of the study

The purpose of this study was to attempt to evaluate the information literacy of postgraduate and senior students of NUL guided by information literacy standards to assess students' information literacy status and to make recommendations based on the findings.

1.6 Objectives of the study

The following objectives, arising from the purpose of the study, were formulated:

1. To establish how information literate postgraduate students of NUL have become
2. To investigate whether postgraduate students have problems with finding and using information available in the library effectively and efficiently

3. To find out the extent to which NUL has integrated information literacy education into its curriculum.

1.7 Scope of the study

This study focused on a group of postgraduate and senior students. The researcher's aim was to survey the level of information literacy of NUL postgraduate students but due to their limited number the researcher was compelled to include senior students who voluntarily participated in the study. Senior students with reference to NUL go beyond fourth year and do not go further than the honours degree. That is how the fifth year law students were incorporated in the study. The total student population for the academic year 2004/5 was 7, 285 of which 64 were postgraduate and senior students (NUL Statistics Office, 2004/5). Postgraduate and research students were preferred to undergraduate students because of their assumed experience in library and information use. They are therefore expected to have gained some skills required for the use of the library and sources of information and to have the ability to reflect on their learning experiences. This study was limited to the main University campus and did not extend to branch libraries in Maseru and Leribe.

1.8 Significance of the study

The significance of this study is that it will add to the understanding of postgraduate and senior students' information literacy skills and the library's role in their acquisition. The researcher attempted to test information literacy against the Association of College

and Research Libraries (ACRL) Standards. Some of the outcomes were used to assess postgraduate and senior students' level of information literacy.

1.9 Research questions

The research questions, derived from the purpose and objectives of the study, are outlined below:

1. Were postgraduate and senior students for the academic year 2004/5 able to recognize a need for information?
2. Were postgraduate and senior students able to access required information effectively and efficiently?
3. Were postgraduate and senior students able to evaluate information and its sources critically?
4. Were postgraduate and senior students able to use information effectively to accomplish a specific purpose?
5. Did postgraduate and senior students have the ability to understand economic, legal and social concerns surrounding the ethical and legal use of information?
6. Did postgraduate and senior students use diverse sources of information to inform decisions?
7. Was it possible to assess the information literacy of postgraduate and senior students at NUL by constructing instruments informed by published information literacy standards?

1.10 Discussion of related concepts

User education

Fleming (1990) as cited by Fidzani (1995:2) defines user education as various programmes of instruction, education and exploration provided by libraries to users to enable them to make more effective, efficient and independent use of information sources and services to which these libraries provide access.

Library orientation

Library orientation is that part of user education, which refers to the basic introduction of new library users to the library, provided by librarians to enable users to function more efficiently and independently in using library's holdings and services. This includes library tours, library guides on the layout of the library, lectures, exercises, provision of support materials and library registration (Fidzani, 1995:4). Library orientation familiarizes new library users with the library setup and paves the way towards the bibliographic instruction.

Bibliographic instruction

Bibliographic instruction, also referred to as user education, is linked with training in the use of library resources, which includes services that the library offer such as introduction to the use of catalogues, abstracts, indexes, bibliographies and reference books, regardless of whether they are in print or electronic form (Feather and Sturges, 1997:29). Bibliographic instruction extends library orientation. The most desired

outcome of all bibliographic instruction and user training is the information literate learner. Therefore, bibliographic instruction is identified by Maughan (2001:74) as a baseline for information literacy.

Library skills and information literacy

Information literacy as defined in 1.2 necessitates successful use of required skills for critical thinking, problem-solving, independent and lifelong learning. Information literacy extends library skills, and goes beyond library use as it focuses on the effective use of information presented in all formats from the entire world (McClure, 1994:118). It is promoted by resource-based learning.

Resource-based learning

Resource-based learning is a fundamental component of curriculum delivery. It is a planned educational opportunity that actively involves students in the important use of a variety of resources such as text, audio-visual, Internet, information and communication technologies (ICTs), and others, which are linked to an organizational centre. Both subject and information literacy objectives are attained through resource-based learning. The strength of resource-based education is in its flexibility, and in a number of options it offers to both the student and teacher who are striving to achieve educational objectives (Teacher-Librarians supporting student learning, 2005).

Lifelong learning

Lifelong learning is the continuum of the learning process that occurs at any time throughout one's lifetime within and beyond the formal structure of an educational institution (Bundy, 2004a). Information literacy has proved itself an asset for lifelong learning and through proper use of technology by information society information literacy starts, maintains, and extends lifelong learning.

1.11 Summary

The notion of information literacy demands knowledge skills which could be applied in the economic world. Information literacy skills motivate learners to learn how to learn. Technology accelerates information literacy and facilitates learning. It has also been indicated that it is essential to integrate information literacy skills into subject curricula so that they could be easily assessed. A clear understanding and application of information literacy skills opens up opportunities for lifelong learning.

1.12 Outline of the study

This part of the study indicates contents of each chapter. **Chapter One: Background to the study** provides an overview of the study. It covers the introduction to the study based on information literacy and information literacy education, the statement of the problem, the purpose of the study, scope of the study, the significance of the study, research questions, discussion of related concepts, outline of the study and a conclusion. **Chapter Two: Literature review** includes a literature review of the concept of

information literacy, information literacy and information communication technologies (ICTs), information literacy education and programmes, information literacy competency standards, use of standards in the assessment of students, assessment of students' information literacy in the United States of America, Australia and United Kingdom, information literacy initiatives in African universities, an investigation into information literacy initiatives in South African higher education, information literacy in South Africa, and a conclusion. **Chapter Three: Teaching and learning at the National University of Lesotho (NUL).** This chapter provides background information about NUL, student learning, lifelong learning, information literacy programmes, the impact of learning on NUL library, and partnerships at NUL. **Chapter Four: Research methodology** provides details of research design and methodology. For example, students used in this study, and means of collecting data, process of data analysis, limitations, ethical considerations and the conclusions. **Chapter Five: Findings and Interpretation of data.** This chapter provides in detail the data analysis and relevant discussions of results obtained from data analysis based on the questionnaire and interviews. **Chapter Six: Conclusions and recommendations.** These are presented based on the findings in this study. Lastly there will be provision for **References and Appendices.**

1.13 Conclusion

Arising from an extensive examination of information literacy and its importance in university education, the research problem was outlined. The focus on postgraduate and senior students at NUL was explained and the purpose and objectives were presented.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter introduces the current state of education that requires students to graduate with the lifelong skills. This has led universities to find ways of restructuring their curricula offerings to bring them in line with current societal and economic needs, in such a way that they accommodate the required information literacy skills as part of the teaching and learning process, with the focus being on the learner. Such restructuring:

- Emphasises information literacy as an active learning process
- Motivates students to learn how to learn
- Promotes the importance of lifelong learning
- Makes students responsible for their learning by demonstrating creative and critical thinking and the effective use of information using ICTs (Rockman, 2002:187).

2.2 Information literacy and information communication technologies (ICTs)

Technology expertise is not all that is required for information literacy, but it plays a major role in enhancing and highlighting the importance of information literacy. Technology makes work in industries and educational enterprises manageable and that is how it came to be known as a major component of economic, social and educational development on which users of information rely (Rader, 2001a:1).

The 21st century has been dominated by an information explosion, caused by the rapid development of information technologies, which currently calls for further development of information skills (Boekhorst and Britz, 2004:63; Rader, 2001b:1). It is through proper searching that quality and relevant information can be accessed. Hart's point, based on

Kuhlthau's Information Search Process (ISP) and other models, is that the different phases of information seeking demand different skills and that the phases are interdependent and this is the "process" approach to information literacy education. It means that skills have always to be taught in the context of the phase and the "why" and the "when" of the specific skill are crucial for broadening knowledge (Hart, 1999:52). Students are helped to recognize the transferability of the processes involved to every day life, community and workplace contexts, thereby addressing the issue of lifelong learning and accelerating information literacy (Bruce, 2002:1).

The electronic environment makes possible the improved use of information resources, which are increasingly available online. Flexible use of online resources requires the advancement of information literacy skills of the learner. Through proper use of the electronic environment, information literacy starts, maintains, and extends lifelong learning (ACRL, 2003).

The focus of many academic libraries is to become electronic information resource providers. This accelerates students' need for access to online resources and requires computer skills, which are mostly acquired through practical learning and user training sessions such as the bibliographic instruction (Webb and Powis, 2005:50-53).

Online searching requires students to use a number of technological and information handling skills, as a result, information literacy education should include transferable skills that will enable students to function well in handling information technology tools and for the evaluation of such tools so as to make correct choices in their selection (Eisenberg and Brown, 1992:103). The critical evaluation and effective use of information accessed, is what counts most towards being considered information literate.

The advent of the Internet along with various other electronic and digital resources has highlighted the notion of information literacy skills and students' competencies in using these resources. The electronic environment requires competence in ICT skills, which for example, require a learner to make sense of what is found on the Web and to cope with:

- Problems of content
- Consistency of what is found
- Problems evaluating what is found
- Problems of omission of what is not accessible on the web (Hyams, 2005:26).

Many students at universities tend to search the World Wide Web for all their information needs, while unaware that library databases provide current and authoritative information for an academic task. This practice needs to be curbed by directing them to the use of library-provided resources and online resources (Dewald, 2005:209).

Information literacy has become a necessity that affects all users of information. Institutions aim at developing learners who are not only technologically literate but also information literate as students need to know how to use technology in order to solve information problems (Spitzer, 1998:208-209). People depend on ICTs to access information in its different formats. Examples include the online public access catalogue (OPAC) for provision of the bibliographic records, CD-ROMs for provision of databases and the World Wide Web through the Internet for provision of web pages. The information skills that are basic to the use of technology are computer skills, network skills, and media skills (SCONUL, 1999:1-2).

According to Bruce (1997) and Sayed (1998:7) ICTs make it easier to locate, retrieve and manage resources, but Hyams (2005:26) has argued that there is a possibility of retrieving too much information that is decontextualized. Bruce (1997) emphasized that students should be able to process and control information in all formats using technology.

The use of ICTs has brought about changes in the way students engage with information resources in study in their institutes (Arp and Woodard, 2005:296). Therefore, a well-equipped and properly managed learning environment should provide for the required ICTs knowledge skills. This emphasizes particular challenges for libraries that are increasingly operating in the electronic environments.

2.3 Information literacy education

Learning and teaching in higher education today have changed partly due to ICTs, which expand access to information and call for application of information skills (Boekhorst and Britz, 2004:64-65). Successful information literacy education includes teaching of skills within the context of students' learning (Hart, 1999:52). Learning, therefore, should encourage students to take full responsibility for their own learning instead of absorbing and reproducing everything conveyed by their subject teachers. Students should be responsible for learning how to learn, learning to become information seekers, learning from their experiences and being motivated to learn. The following shifts in teaching and learning highlight developments in education today:

- From teacher-centred learning to student-centred learning
- From direct instruction to discovery

- From dependent learner to independent self-reliant learner
- From classroom learning to resource-based learning
- From narrow-focused learning to lifelong learning
- From standardized learning to modified learning
- From learning as a cause of pain to learning as fun
- From teacher as source of knowledge to teacher as a facilitator
- From course related instruction to course integrated instruction
- From static knowledge to transferable cognitive skills
- From bibliographic instruction to information literacy instruction (Bridgeland and Whitehead, 2005:54).

These shifts are embedded in resource based learning. As an effect of change these shifts cause lecturers to examine subject-area requirements closely as today's learning and teaching demands skills for a knowledgeable, productive use of information (Bridgeland and Whitehead, 2005:54). Computing and networking play important roles in teaching and learning, therefore students' success comes from finding what is essential and optimizing its effectiveness. This age is dominated by vast amounts of information and rapid change of events which necessitate these shifts in learning and that aim at building considerable independence in students and their knowledge of how to use ICTs to gain access, retrieve, and manage information (Kuhlthau, 1994: x).

Information literacy teaching is a fundamental part of any educational development which requires acquisition of the essential knowledge, attitudes and skills. Higher educational institutions globally are developing new teaching and learning methods to accommodate these changing patterns impinging on every aspect of learning (Sayed, 1998:1). Information literacy education aims:

- To make students aware of the notion of information literacy
- To create information awareness

- To empower individuals with skills and competencies to access and use information effectively
- To establish an information culture that will provide for creative and effective use of information in society (Boon, 1990:2, as cited by Boekhorst and Britz, 2004:65).

It is therefore necessary in higher learning to integrate information literacy skills into course curricula to promote independent, self-assured learners who could effectively interact with potential sources of information, evaluate what is found for accuracy and reliability, organize information and apply information in a new situation (De Jager and Nassimbeni, 2003:112). Implementation of these skills will enable them to function well in the working environment after graduating from the university.

Kirby, Liddiard, and More (1998: viii, 2-3) argue that many of the core skills required in learning, relate to information and the ability to utilize information technologies, which need to be taught by information specialists. They further argue that providing access is in itself ineffective unless the user has been empowered with skills to be able to find and exploit the information. In conveying relevant information skills to the user, the information professional should be able to instil a lifelong understanding of how information is produced, stored, disseminated and retrieved. Essentially lifelong learning contributes significantly to both the human development and well being of individuals in society. In the long run it contributes to the socio-economic development of different countries due to the availability of required skills (Bundy, 2004a). In order to emphasize the need for learning and the role of information literacy as a product of learning and to prepare students for successful lives in the global information age, libraries and university departments should work in cooperation and collaboration (Boekhorst and Britz, 2004:64).

Cooperation and collaboration between the academic staff and librarians is an important factor in the successful achievement of educational goals and essential to promote the role of information literacy in learning. Students should be prepared in advance and be empowered with the relevant skills so that they are able to leave the university fully equipped with the necessary transferable skills to enable them to cope well with challenges in an information-based society (De Jager and Nassimbeni, 2003:112).

2.4 Information literacy programmes

Information literacy programmes should form the foundation in learning as they foster a culture of independent and student-centred learning (Andretta and Sinikara, 2003:34).

Incorporating information literacy in subject curricula, and in all programs and services, requires the collaborative efforts of academics, staff developers, teaching advisers, librarians and administrators (CAUL, 2001:1-3). This can be achieved as indicated below:

- Through course materials lectures and by leading face-to-face or online discussions, academics set up the framework for learning. They also motivate students to explore the unknown, give direction on how best to fulfil information needs, and monitor student progress.
- Librarians organize the evaluation and selection of scholarly resources for programs and services; organize, and maintain collections and points of access to information; and provide advice and coaching to students and academic staff who seek information.
- Learning advisers develop general and course specific materials to maintain student learning and provide a variety of services related to transition to university, and academic literacy, i.e. reading, writing, listening and speaking in a university setting, time and task management, and learning in an online environment.

- Administrators and staff developers facilitate opportunities for cooperation and staff development among academics, teaching advisers, librarians, and other professionals who provide students with opportunities to develop their information literacy according to their developmental level, mode of study and information needs (CAUL, 2001:1-3).

It is therefore desirable that information literacy programmes should be a focal point in addressing the problem of information literacy in learning. The impact of information literacy programmes is further enhanced if they are assessed, as will be discussed below.

2.5 Information Literacy Competency Standards

In response to rapid developments in the field of ICT, the information and library profession began to note the growing need for information literacy skills and acknowledged the need for standards and benchmarks with which to gauge competencies in the 1990s (Davidson and McMillan and Maughan, 2002). Bundy (2004a) added that standards are supportive of information literacy education in all learning environments.

In 1999 the Standing Council of National and University Libraries (SCONUL) in the United Kingdom published the Seven Pillars model of information literacy, which details the seven major information skills essential for all students (SCONUL, 1999). In 2000 the Association of College and Research Libraries (ACRL) published a set of five information literacy standards for higher education for the United States (ACRL, 2003:1). In 2001 the Council of Australian University Librarians (CAUL) published their information literacy standards adapted from those of the ACRL intended primarily for higher education (Bruce, 1997:163).

These established Standards suggest themselves as possible instruments for assessment of information literacy as they detail the competencies to measure students' acquisition of generic skills of information literacy. Standards are used:

- To establish a baseline of students' skills around which an information literacy programme might be built
- To assess the effectiveness of particular library instruction session or approaches to instruction
- To determine the impact of library instruction programmes on students' information literacy skills and academic success
- To generate data with which to communicate with faculty (Fourie and Niekerk, 2001:74).

Information literacy standards are essential elements of learning, because they may be used to measure students' information literacy competencies. They may also be very helpful in curriculum design. Standards could as well be used for motivating students' learning because students are motivated to know how they progress by learning from teachers' remarks.

The information literacy competency standards for higher education consist of performance indicators and outcomes. As a result, they have become a tool for assessing information literacy skills (O'Connor, Radcliff and Gideon, 2001:164). These standards provide an academic structure for the development and delivery of information literacy programmes; raise understanding of the value of information in the community in cooperation with the education sector; and measure progress over several years, towards the aim of becoming an information society (Larraine, 2003).

In order for a person to be considered information literate, basic information literacy skills have to be mastered and there must be awareness of information need, which in turn calls for a number of different skills. Sayed (1998:13) and Maughan (2001:73) have

argued that there are lower and higher order cognitive skills, while De Jager and Nassimbeni (2002:167-168) indicate that other literacies such as information handling skills, computer literacy, information and communication technology skills are subsumed under information literacy and have become elements of information literacy. In higher education all students are expected to demonstrate information competency even though not at the same time or to the same level. For this reason, one may assume that tertiary institutions should incorporate information literacy standards into their subject curricula to provide a measure for assessing information literacy in higher education (Bundy, 2004b).

The AASL and AECT (1998: vi) and Bundy (2004b) stated clearly that standards are supportive of information literacy education because they focus upon the needs of students in higher education at all levels and could be tailored to meet the needs of the institution towards learning. This approach enables students to know what is expected of them and lecturers to motivate students through feedback and know which approaches to teaching to follow (ALA, 2003:1).

Bundy (2004b) pointed out that the competencies and skills required for effective information handling are best taught when they are fully integrated into subject curricula and taught jointly from classroom to the library and vice versa. The adoption of standards is not yet an overall practice within most higher education institutions. As a result much work is still to be done in convincing institutions of the important role of information literacy standards as part of their curriculum (Maughan, 2001:72).

Information literacy standards make available a structure for embedding information literacy in the design and teaching of educational programs, and for assessing the

information literate individual. This provides higher education with a chance to articulate the standards with those of the other education sectors so that a continuum of expectation can be developed for students at all levels. The standards outline the process by which lecturers, librarians, and researchers, pinpoint specific indicators which identify a student as information literate (CAUL, 2001:1-2).

Maughan (2001:73) indicates that information skills and library instruction engage a range of lower order competencies, while information literacy instruction involves both lower and higher order abilities which could be assessed using standards from any of the three models discussed. Other approaches to assessment which may prove very time consuming in assessing information literacy, are portfolios of work, self and peer assessment, questionnaires and assignments. For reasons given above, the researcher will be using some of the internationally well-established standards as a yardstick for assessing information competencies of students from the National University of Lesotho (NUL).

2.6 Using standards in the assessment of students

Rockman (2002:185) indicated that it is profitable for academic librarians to collaborate with discipline-based faculty members to advance the mission and goals of the library and to include the area of information literacy as a foundation skill for academic success and a key component of independent and lifelong learning. This section shows how standards have been used in countries like the United States of America (USA), United Kingdom (UK) and Australia to assess students' information literacy. These countries have been selected because of their published information

literacy standards. The Association of College and Research Libraries (ACRL) published the Information Competency Standards for Higher Education in 2000 (Rockman, 2002:185). The Council of Australian University Librarians (CAUL) published the first edition of the Australian version in 2001 and the Australian and New Zealand information literacy framework edition in 2004. The Society of College, National and University Libraries (SCONUL) published the Seven Pillars of Information Skills in 1999 (SCONUL, 1999).

From 1990 to date, libraries have experienced a change from library instruction to information literacy instruction to enable students to function adequately in this information age. This change has caused some universities to restructure their curricula. Many researchers proposed that assessment of information literacy in institutions of higher education should be outcomes-based, the focus being on the learner (Pausch and Popp, 1997). Assessment in higher education according to Pauch and Popp (1997) is based on nine principles:

- The assessment of students learning begins with educational values
- Assessment is most effective when it reflects on understanding of learning as multidimensional, integrated and revealed in performance over time
- Assessment works best when the programmes it seeks to improve have clear stated intentions
- Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes
- Assessment works best when it is ongoing and not interrupted
- Assessment fosters wider improvement when representatives from across the educational community form part of the structure
- Assessment makes a difference when it begins with issues of use and simplifies questions that people really care about
- Assessment is most likely to lead to improvement when it is part of a set of conditions that promote change
- Through assessment educators meet responsibilities towards students.

A number of examples have been selected from the USA, Australia and UK to show how students' information literacy has been assessed. Assessment of information competencies is carried out to find out if student will be able to function adequately as independent lifelong learner (Rockman, 2002:187).

2.6.1 Assessing students' information literacy in USA

The works by Cornell University, California-Berkeley, California State University, James Madison University, and Pierce College in Washington as viewed by the researcher, are examples of good practice in developing an information literacy strategy, in which information literacy is integrated into curricula, and is being a shared responsibility of all information providers and teachers.

Pausch and Popp (1997) discuss a formal evaluation that was carried out at Cornell, with a group of students in the Agricultural Economics course, which covered the information literacy instruction offered throughout the four years of undergraduate study. The programme was aimed at increasing information literacy for the students. Librarians worked in cooperation with faculty to design the programme as part of their curriculum, and assessment was done using two surveys. One survey was done of graduates of the library's instruction programme to determine which skills were retained by the students and which proved to be useful in their careers after graduation. The other survey was of employers of Cornell graduates to identify which information skills and knowledge were desirable for an entry position.

In order to ensure an effective contextualization of information literacy, Andretta (2005) in citing Snaveley (2001) supports collaboration between library and faculty to make assessment policies for information literacy that are appropriate to subject specific contexts.

Maughan (2001) and Fiegen, Cherry and Watson (2002) focused on collaboration between faculty and library staff in dealing with information literacy assessment. Maughan (2001) focused on how California-Berkeley has conducted an ongoing survey of information literacy competencies in selected information literacy departments to measure the lower-order information literacy skills of graduating seniors. The conclusion, based on a questionnaire which had been used to assess students, was that students thought they were more information competent than they could demonstrate when put to the test. It was found through library surveys that the information literacy measured by the teaching library's surveys of graduating seniors fell within the sphere of lower order skills.

Fiegen, Cherry and Watson (2002) dealt with the California State University and their study sought to develop a model whereby information literacy competencies are formally adopted as learning outcomes for an undergraduate business curriculum. They found that the information competencies developed by a College of Business Administration at a regional university were in keeping with the association to advance Collegiate Schools of Business standards. In one class an assessment instrument was developed to measure students learning of information literacy competencies tied to the course objectives. The performance measures and learning outcomes in the Association of College and Research Libraries' Information Competency Standards for Higher Education were used to plan an

information literacy curriculum a senior programme. It provides an example of how the learning outcomes could offer guidance to lecturers when formulating activities and assignments that try to measure information competence in business.

Another example given by Rockman (2002) was of James Madison University, where a competency-based general education curriculum was introduced in an attempt to make every student accountable for learning specific objectives, such as formulating and conducting effective search strategies and evaluating information sources in terms of accuracy, authority, bias, and relevance. Students were required to pass information seeking skills test as a form of assessment before end of the beginners' academic year.

It has also been a concern of many researchers to promote faculty-library partnerships within higher education institutions for successful development of assessment strategies. Pausch and Popp (1997) showed that Pierce College in Washington has established goals and objectives by which to measure the effectiveness of information literacy programmes. There was library and faculty cooperation in assessment activities aimed at providing instruction in information literacy within the curriculum. The user education librarians in Pierce College were making every effort to integrate information skills with the curriculum, with other complementary skills and with the learning environment always building on the good practice that has been achieved.

The researcher is of the opinion that the use of ACRL information literacy competency standards for higher education (ACRL, 2003) with clearly stated outcomes that are integral to the educational mission of the institution and focused on the learner, seem to be the best available solution towards providing guidance in assessing students'

state of information literacy. ACRL standards provide outcomes which give students a form of empowerment and increased confidence in their abilities to use information effectively.

2.6.2 Assessing students' information literacy in Australia

The work by Swinburne University of Technology in Lilydale Campus, East of Melbourne, and the University of Southern Australia, as viewed by the researcher, is an example of good practice in developing an information literacy strategy, in which information literacy is integrated into curricula, and is being a shared responsibility of all information providers and teachers in transforming learning structures and promoting self-assessment by students of their information literacy.

An example has been selected by Badger and Roberts (2001) from Swinburne University of Technology in Lilydale campus east of Melbourne to show how students' information literacy competencies have been assessed. The information literacy module has been linked to the Information Methods course which was compulsory for all first year higher education students. Badger and Roberts (2001) point out that in Swinburne University of Technology, first-year students enrolling for information methods have been required to sit a placement test to assess their entry level skills in computer literacy. The first year students were expected to complete four core subjects and the Swinburne University information staff conducted user education sessions in all four subjects with more emphasis on information methods, which includes a module on critical and creative information literacy. Students were also expected to gain skills essential for learning and for their future careers.

Results obtained from this example show diverse levels of information technology knowledge and literacy among first year students. All first year students with little or no computer literacy were enrolled in Module A of information methods, which focused on gaining confidence in the use of information technology, particularly computers and Internet to be able to use resources in a virtual library with electronic delivery of information resources. That is why students were expected to develop information technology skills before progressing towards information literacy.

Library staff set two assignments for information methods, namely: a self-paced assignment that develops and assesses skills in the OPAC and the second one covers advanced catalogue searching, creating search strategies, using CD-ROM and web-based databases and searching the Internet critically and effectively. Librarians at Swinburne University emphasized that testing methods must be matched with learning objectives and desired educational outcomes (Badger and Roberts, 2001).

The second example given by Bundy (2004b) who went through different readings on information literacy to support his point of developing and assessing information literacy in Australia. This showed his concern towards the creation of partnerships between teachers and librarians and the integration of information literacy into higher education curriculum. Bundy (2004b) proposed that curricula, pedagogy, and assessment should no longer be regarded the sole responsibility of individual academic teachers, but university teaching should become a joint responsibility between academic librarians and teachers to foster information literacy. Bundy (2004b) in citing Reid (1999), Lynch (2004) and Lupton (2002) further indicated that the teacher-librarian partnerships could help in dealing with the unsatisfactory outcomes of programmes and pedagogies which

assume that students are naturally information literate. In citing Roe, professor of education at the University of Queensland, Bundy (2004b) pointed out that there is a general tendency of providing information resources with no effort to ensure the efficient use of such resources, bearing in mind that the fundamental concern of academic librarians is with learning outcomes not information supply or access.

In trying to emphasize the importance of transforming the educational strategy toward teaching and learning, Bundy (2004b) cited a number of authors including Twigg (2002), Breivik (1993) and Kirkpatrick (2001) who shared the same opinion. They emphasized the imperatives for change from the traditional lecture method to student centred, skills-based learning. Bundy pointed out that the educational curriculum should be made flexible to align with current changes that affect learning. In citing Bradley (2003) and Reid (1999) and Line (1997), Bundy (2004b) further indicated that through student-centred learning, teaching and learning are being redefined paying more attention to producing quality outcomes. The quality of graduates is assessed through the student's competency for learning how to learn. Bundy (2004b) in citing Peacock (2004) showed that higher education in Australia, New Zealand and elsewhere is undergoing change driven by new information developments, amongst which, is the growing emphasis on assessing the learning outcomes of courses which demands a more comprehensive view of course structures than the stand-alone course structures. Also of importance to Bundy (2004b) is an integrated approach in which professional competencies and generic skills are assessed in the context of all work tasks assigned to students.

In discussing the Australian contribution to information literacy Bundy (2004b) indicated that there has been uneven spread of information literacy development on

teaching and learning in Australian secondary and tertiary institutions. Bundy (2004b) further pointed out that other developments included the improved version of US Standards of 2000, the CAUL Standards first published in 2001 and the ANZIIL Standards published in 2004. The CAUL standards were endorsed by the academic and teaching and learning committees of a large number of universities and have been translated into two other languages (Spanish and Bahasa Indonesia) and are being used in Ireland. The ANZIIL edition has two distinctive papers, one is by Lupton entitled “Curriculum alignment and assessment of information literacy” and the other is “Standards, curriculum and learning: implications for professional development by Peacock (Bundy, 2004b). The ANZIIL edition inspires universities to embed information literacy within the total education process (Bundy, 2004b).

Bundy (2004b), citing Catts (2003) indicated that a pilot study was also carried out in 2003 at the University of Southern Australia on the development of a methodology for self-assessment by students of their information literacy. The law and education disciplines were used. The study was completed in the same year and an administration manual was also published in 2003. This manual enables the institutions to examine the implementation across programmes of teaching and learning strategies meant to improve information literacy outcomes. Bundy (2004b), citing Lupton (2002) from a June 2002 journal article in *Australian academic and research libraries*, argued that information literacy development requires faculty and library partnerships to embed information literacy into course content and view the work of students to assess whether information literacy goals are being reached. Finally Bundy indicated that Australian university libraries are in the process of teaching other teaching and learning development centres to

adopt the new methods of assessing student's competencies using the published standards.

2.6.3 Assessing students' information literacy in the UK

The work by the the University of Strathclyde, as viewed by the researcher is an example of good practice in developing an information literacy strategy, in which information literacy is embedded into course curricula and is being a shared responsibility of library and faculty. An Example has been selected from the UK to show how students' information literacy has been assessed. Emde and Emmett (2005) indicated that assessing information literacy is not an easy task as there are obstacles to overcome, such as a shortage of time, inappropriate methodologies and lack of sufficient study participants. They argued that irrespective of the barriers, assessment projects are essential for the development and sustainability of information literacy programmes on university campuses.

In developing an instrument that would address the research objectives the ACRL list of competencies were considered the best assessment tool. In the example given by Webber and Johnston (2000) of business students at the University of Strathclyde, the two authors described the business students' response to a one semester credit-bearing class in information and relate it to two models of information literacy and carried on to discuss the two models in the light of previous developments and their own research. The results showed progress in information skills of trained students over untrained ones. They concluded by identifying further areas for research and recommending that information scientists should lead the way in defining that growing area.

2.7 Information literacy initiatives in African universities

In 2004 the Standing Conference of African National and University Libraries in Eastern, Central and Southern Africa (SCANUL-ECS) librarians submitted case studies to describe ways and the extent to which member university libraries in the Region are embracing information literacy as part of their core activities, and also to learn from experience of others. These case studies were compiled and published in 2005 under the heading "User information literacy: case studies from university library programmes in the SCANUL-ECS region" edited by Kiondo and Msuya (2005).

African university libraries such as the University of Botswana, the University of Nairobi, and the University of Zimbabwe have already, or are in different stages of integrating information literacy into their curriculum as an extension of user education. This is done to address the issue of the economically deprived African students with limited information skills (Selematsela and Krooden, 2005:167).

These university libraries are engaged in computerization, which makes possible training in ICTs skills to learners in order to enable them compete at all economic levels. It necessitates a shift from bibliographic instruction to information literacy instruction (Makhubela, 1995:14-15). It is also necessary for industrialized and developing countries to work together to widen electronic access in rural areas and to learn from them how to use ICTs to further develop information literacy (Johnson, 2002:388). ICTs enrich the student experience because they enable them to access information beyond the boundary of the university campus. In this regard the Universities of Botswana, Nairobi, and Namibia have stated their plans to recruit more staff to provide normal library services and training in information literacy. This contributes towards shifting from a teacher-

centred learning approach to independent student-centred approach. Usiu Library in Kenya started information literacy initiatives with the expansion of the student population and library resources (Msuya, 2005:16). The expansion of students' enrolment created need for information literacy programmes.

Information literacy had become a major issue in African libraries, since the profession saw it as a possible way through which its members could make a contribution towards a society of lifelong learners and make possible the use of standards as an assessment tool for learning (Behrens, 1994:317). African universities are increasingly becoming focal points for infrastructure, investment and information provision with a view to improving education through the use of ICTs (Johnson, 2002:384, 387). The University of Botswana has the development of infrastructure as one of its plans and in Tanzania different libraries joined hands in staff training to develop information literacy (Msuya, 2005:16).

2.8 An investigation into information literacy initiatives in South African higher education

This section considers the rethinking and reorientation of the South African education system in order to ensure economic and human resource development and the role played by the South African higher education libraries to address the issue of implementing information literacy standards into their curriculum (Sayed, 1998:15). The Cape Library Cooperative established in 1992 was the first library consortium in South Africa. Its mission at inception was to promote information literacy and economic development of the region by providing information to users in the form they want, where and when

needed at a reasonable price. The Cape Library Cooperative adjusted its vision and mission statement in 2004 and changed its name to Cape Library Consortium (Cape Higher Education Consortium, 2003).

Gauteng and Environs Library Consortium (GAELIC) was founded in April 1996 and its mission is to fully utilise and develop the information resources in the region in order to promote education, research and lifelong learning which is the aim of information literacy. The GAELIC vision is to create a virtual library with a common library software package installed at member sites, with local interfaces, to form part of a global information community (GAELIC, 2003).

The Coalition of South African Library Consortia (COSALC) was established in July 1999 and focuses on access to information training and capacity building, thus providing developmental opportunities for academic, research libraries and workers to enhance their ability to provide superior service to improve national access to information and the level of information literacy (Coalition of South African Library Consortia, 2003).

“Before you start” is an information fluency course developed in 2001 for the Cape Higher Education Consortium (CHEC) by Janine Lockhart and Adrian Coetzee of the Cape Technikon. It sets out to teach the most commonly needed information concepts in higher education learning at all levels but it emphasises the skills needed for first-time entry-level study. The course was based on a Cape Technikon sample which was subsequently workshopped with librarians and academic support specialists at the University of Cape Town, Peninsula Technikon, the University of Western Cape, Cape Technikon and the University of Stellenbosch (Lockhart and Coetzee, 2001). These are the member institutions of CHEC and the course is owned by CHEC. It is provided to

the CHEC member institutions for any appropriate use. It may also be altered and located within each institution's information resources infrastructure in any desirable manner that meets the unique institutional requirements and needs (CHEC, 2005).

Since 1990 information literacy training in UNISA library has progressed to the point of meeting the South African Legislative requirements of the National Qualifications Framework (NQF) and the South African Quality Assurance (SAQA) standards and the ALA standards and outcomes. In November 2003, UNISA library collaborated with the Institute for Curriculum and Learning Development (ICLD) which assigned a project leader and quality assurer to assist with the design, content, and quality assurance of the information literacy modules (Selematsela and Krooden, 2005:152).

In responding to rapid changes in technology, various library associations and institutions in South Africa have been focusing on ways to achieve the integration of information literacy into the curriculum and some progress has been made for a partnership between libraries and academics in the teaching and learning process. Part of the progress is seen as reflected in Sayed (1998) and De Jager and Nassimbeni (2005). Progress in information literacy education at universities has been charted in a series of papers by De Jager and Nassimbeni (2002; 2003).

Information literacy education in higher education has developed to the point where researchers such as De Jager and Nassimbeni have started to address the role of standards in a South African context. They conducted research into the following areas:

- Whether the internationally well-established ACRL Standards would be suitable as benchmarks for information literacy teaching and assessment in South Africa.
- To what extent higher education librarians' practice has been informed by policy developments in higher education and the extent to which

they have been successful in locating information literacy education in the graduate skills discourse (De Jager and Nassimbeni, 2005:34).

Workshops and surveys were used in the investigations. In September 2003, at the national Library and Information Association of South Africa (LIASA) conference a consultative workshop on information literacy was presented in order to establish if librarians would be able to work with the ACRL Information Literacy Competency Standards. Delegates from South African academic libraries and a few from school libraries expressed a general interest in the standards and all decided that the ACRL Standards would be suitable for South Africa. It was agreed that they should be integrated into curriculum for higher education (De Jager and Nassimbeni, 2003:34).

De Jager and Nassimbeni (2005:35) proposed that a sixth standard, taken from the CAUL standard seven, be considered as an appropriate standard for South Africa. The consensus was that information is a social responsibility and as such the standard was found suitable. All participants agreed that it should be included as a sixth standard. This prompted the researcher to explore whether the six Standards workshopped by De Jager and Nassimbeni could be used to assess information literacy at NUL.

Findings from the Library and Information Associations of South Africa (LIASA) workshop in 2003 show that when participants were asked how they would assess information competencies of students their responses showed that assessment remains a difficult issue. Their approaches to assessment varied considerably, and suggestions that reflect awareness of student-centred assessment included portfolios of work, self and peer assessments, questionnaires, assignments and games (De Jager and Nassimbeni, 2003:35). Outcomes for assessment were based on what was to be learned, how well

students learned and how to inform the institution on students' progress. There was evidence of an increasing awareness of student-centred assessment and willingness to work with quality standards. Collaboration between academics and librarians was becoming more established, and the importance of credit-bearing courses was realised together with the integration of information literacy into curriculum (De Jager and Nassimbeni, 2003:35).

These information literacy standards do not signify a linear development from one standard to another. That is why ACRL comments that the need for assessment and critical thinking is implied in all stages of research (ACRL, 2003:3). In educational institutions, assessment is required to try to establish whether what has been taught has been understood. Educational institutions want to know what standards of learning their graduates have achieved and how efficient their system is in terms of throughput rates. The outcomes of the five ACRL standards and one CAUL standard have been clearly stipulated to help students understand what is expected of them, how they progress and how they will be judged. They also help lecturers to know whether their students are mastering key concepts and skills, whether their teaching is effective and whether their assessments are comparable to their peers (De Jager and Nassimbeni, 2003).

The University of South Africa (UNISA) is also using the American Library Association information literacy competency standards and the Australian information literacy standards for assessing students' competencies. Continuous assessment is used for all information literacy modules. The integrated assessment is intended to collect evidence to show that the purpose of the programme as a whole has been achieved, and students are provided with assessment criteria before undertaking the assessment of

certain modules. The final assessment is conducted by the project leader using the focus group method to re-evaluate the module. Feedback received from the assessments is used to plan the future sessions (Selematsela and Krooden, 2005:155-156).

2.9 Information literacy assessment in South Africa

The South African Qualifications Authority (SAQA) manages the whole system of quality assurance in support of the National Qualifications Framework (NQF), which is a framework on which standards and qualifications agreed to by education and training stakeholders throughout South Africa are registered. The NQF refers to a number of generic outcomes including: collecting, analysing and critical evaluating, which reflects the concept of information literacy and calls to mind the global search for graduate attributes as well as assessing all critical outcomes (De Jager and Nassimbeni, 2001).

In 2001 the Council of Higher Education (CHE) enumerated the graduate competencies required in the 21st century by South African graduates, including: computer literacy, knowledge reconfiguration skills, information skills, problem solving, team working, Mediation skills, and social sensitivity (De Jager & Nassimbeni, 2001 in citing UNESCO, 1998). The main concern in this instance is to reflect students' competence in disciplinary content, thinking and critical skills. This is based on what the student knows, what students can do, and their confidence in carrying assigned tasks.

An electronic survey of 26 South African academic institutions aimed at assessing the extent of institutional support for information literacy and existing related activities was completed in 2001 by CHE through Library and Information Association of South Africa

(LIASA). Indications from that survey are that only one institution placed emphasis on educating for life. This indicates that in most academic institutions information literacy has not yet been integrated into curricula (Rader, 2002). South African academic librarians are recognizing that information literacy instruction should be integrated into curricula to be most effective through shared responsibilities between library and faculty and that assessment of how information literate students are should be formalized (De Jager and Nassimbeni, 2003).

The issue of information literacy standards concerning the assessment of students' information literacy is still on the agenda of higher education librarians. A study of the literature has shown that South African librarians are concerned with information literacy standards and assessment.

2.10 Summary

This chapter has provided a review of literature based on different perception from various researchers including ACRL (2003) covering different facets of information literacy such as the notion of information literacy, the role played by ICTs in teaching and learning, the use of information literacy programmes to promote learning and the importance of information literacy standards as a method used for assessing the level of information literacy in higher education. It has been found from the examples given above, that many higher education institutions are aware of the fact that information literacy is best taught when integrated into curricula (CHE, 1995:10 cited by Andretta, 2005:5). Andretta (2005:10) indicated that CHE considers the importance of integrating information literacy within higher education curriculum as a joint responsibility that

needs to be shared within disciplines by the entire institution. That is why CHE questioned the validity of information literacy as a stand-alone course, as information literacy transcends discipline and enables students to transfer gained skills from one specific subject to another. CHE (1995) as cited by Andretta (2005) argued that SCONUL'S interpretation of the knowledge-creation process is too linear to reflect fully the learner's experience which does not follow a sequential progression from the lowest level of learning to the highest level of the learning process. The information literacy standards do not signify a linear development from one standard to another. That is why ACRL comments that the need for assessment and critical thinking is implied in all stages of learning (ACRL, 2003:3). The works selected as examples show that higher education institutions are becoming aware of the significant role of collaborative partnering of library and faculty as crucial to ensure development of coherent information literacy policy in their institutions, and this is fully promoted by the three published information literacy models in USA, UK and Australia.

2.11 Conclusion

The issue of placing information literacy into educational curricula has caused many institutions to transform from traditional way of teaching and learning to independent student-centred and resource-based learning that promotes competency-based curricula. The literature review shows the possibility for assessing the information literacy of the students by constructing instruments informed by published information literacy standards. ICT is used as a means towards total success for retrieving the information sought. The following chapter will discuss teaching and learning at NUL.

CHAPTER THREE

TEACHING AND LEARNING AT NUL

3.1 Introduction

The 21st century, which is known as the information age due to the massive increase of information has witnessed tremendous changes and challenges in higher education. Higher learning institutes world-wide are engaged in new teaching and learning approaches to accommodate changing patterns in information, storage, retrieval and access in all formats (Sayed, 1998: xiv). There has been progress to provide for staff and students in African universities to access the increasing quantity of electronic information but developments towards a totally digital library environment have been uneven (INASP, 2005).

This chapter discusses the situation at NUL and considers the educational programmes that foster information literacy, the role of the management body, teaching staff and the library towards improving teaching and learning. It also considers the way in which students are engaged in processes of access, evaluation, and use of information and how students are being helped to find a wealth of resources for appropriate independent or group work, and lifelong learning. The historical and contextual background of NUL is provided.

3.2 The geographical background of NUL

Lesotho is a small mountainous country, covering an area of about 30, 355 square kilometres. It is completely land-locked by the Republic of South Africa. Lesotho is a

developing county, reflected by the fact that it has only one University. The National University of Lesotho is located at Roma, 35 km away from Maseru, the capital city of Lesotho. Roma valley is wide open and is surrounded by a barrier of ragged mountains, which provide wonderful scenery. The University enjoys a temperate climate with four distinctive seasons (NUL Information Office: 2001:5-6).

3.3 Teaching and learning at NUL

NUL offers an integrated university education in which classroom, community life and related educational practices merge to address the interests and needs of individual students. As a result, NUL cannot only be regarded as a place of learning, but a field for developing the human, social, and cultural characteristics for its students (NUL Information Office, 2001:6). According to INASP (2005) universities are gradually becoming focal points for infrastructure, investment and information provision with a view to developing education through the use of ICTs and NUL is no exception. NUL is currently faced with information technology challenges and strives to build a student community that will be self-reliant and capable of utilizing resources available to them (NUL Information Office, 2001).

NUL serves a community of researchers, students and academics and through its library provides various information resources to address the needs of NUL community. NUL offers four-year junior degree programmes, senior degree, as well as a two-year master's degree and doctoral degree. There is no formal policy that relates to information literacy in any of these programmes. As indicated by Moshoeshoe-Chadzingwa (2005:95-96) an office was identified within the library and was configured into an

information literacy laboratory, after the library's submission to the transformation process and the approval of the strategy by the University Council in August 2003. The library was then encouraged by the structural developments to formalize a policy on information literacy but in May 2004, when the Council reversed the transformation process on technical and legal grounds, the information literacy policy lost its status.

Teaching at NUL is used as a basis for independent learning. There has been a shift from a teacher-centred approach to that of combining both student-centred and teacher-related approaches, so that what students practise in learning can be reflected in their future lives. Teachers highlight the importance of independent resource-based learning.

Students are encouraged as much as possible to make use of the resources available in the library. NUL Information Office (2001:5-6) states that learning should be learner-centred. In addition it is noted that learning should fuse all students' activities together to give them the foundation on which to develop their plans and careers. NUL also allows academic and non-academic staff members with full time appointments to undertake consultancy and commissioned research applicable to professional needs in order to contribute to the academic work of the university, thereby improving the quality of learning (NUL Bureau of Research Projects, 2001).

3.4 The promotion of lifelong learning at NUL

Since independence 1966, Lesotho has always placed education and training at the top of her agenda as a tool for economic development and a means for empowerment of her community. The biggest challenge has been opening access at all levels of education

and providing opportunity for excellence. The curriculum and assessment policy framework development is oriented towards approaches emphasizing the importance of survival skills for learners, not only in their schooling routine, but in the local and global community (Ministry of Education and Training Lesotho, 2005). This together with the ICTs policy draft formulated by the ministry of Communications Science and Technology (2004) and its approval in March 2005 had created an awareness of information literacy in Lesotho even though there is no formal policy by the name information literacy (Ministry of Education Lesotho, 2005).

The aim of NUL is to produce competent graduates and professionals for careers in the public sector, private sector, and for self-employment (NUL Information Office, 2001:6). This aim is achievable through lifelong learning because life is not static but a dynamic process, therefore entrepreneurs should also adopt to change. As a result, being a student at NUL is regarded as an incentive towards further learning. Those who have attended classes at NUL have been given a steady foundation on which to develop their careers and future life. Therefore, it may be recognized that information literacy is an asset for lifelong learning. Currently the NUL is a growing institution, striving to meet the needs of the nation, by producing competent and highly skilled graduates, who could take-up a call for further development of their country (NUL Information Office, 2001:9).

3.5 Partnerships and learning at NUL

NUL has formed bonds of friendship with other universities, most particularly in the Southern African Development Community (SADC). The administrative body at NUL promotes cooperation and collaboration between and within faculties and other university

sectors. That is how it works towards achieving its aims and towards creating the environment conducive to learning. NUL's aim in taking part in partnerships is to promote the human, social, and cultural aspects of its community. In response to the request to work in partnerships, the University library made an effort to bring together the local tertiary institutions' libraries to form a consortium currently known as Lesotho Libraries Consortium (LELICO) that aims among other things to develop skills in the use of information mostly in the electronic learning environments. The focus of LELICO is student-based in that learners are empowered with relevant information and computer skills to facilitate access to resources. LELICO plays a major role in training students in information handling skills. LELICO has provided a computer-training lab for Internet purposes at NUL mainly used by postgraduate research students. Through LELICO the electronic information for libraries is made possible by eIFL.net, which is an international consortium of libraries consortia that directs, sustains, and advocates for the wide availability of information by library clients in member countries (Moshoeshoe-Chadzingwa et al., 2003:12).

The African Technology Policy Studies (ATPS) Steering Committee in Lesotho is housed at NUL. ATPS is a network of African and Sub-Saharan technology policy decision makers whose aim is to improve the quality of technology policy making as well as strengthening the region's institutional capacity for managing technological developments. ATPS also provides training workshops for academic researchers. This is how ATPS contributes towards achievement of information literacy aims (Mats'ela, 2001:1-2).

3.6 NUL library organization

The University library, the Thomas Mofolo library named after a late Mosotho writer of the 19th century, operates under the authority of NUL. It has fully computerized all its housekeeping routines, including automation of the card catalogue to machine-readable format, which has provided users with an instrument for locating resources. The automation of the card catalogue was accomplished in 1996 when the integrated library system, "STYLIS" was first used. This system did not last long; it was soon replaced by another library system called "ITS" (Integrated Tertiary Software) in 1999. The ITS library system is currently being used to provide the bibliographic records (Hundie, 2001:149-150).

Thomas Mofolo Library is currently operating under three divisions: First, **Technical services division:** made up of acquisitions, cataloguing, serials, electronic resources, and bindery and automation sections. Second, **Client access and extension services division:** is made up of access (circulation and stacks), subject specialization and inter-library loan sections. Third, **Archives, records management, museum and documentation division:** comprise of archives and records management, documentation of grey literature and the United Nations (UN) or World Bank (WB) and museum collection sections. All these sectional divisions are responsible for the smooth running of the entire library therefore there is workflow from one division to another.

There is a total of 36 senior and junior library staff. Most of the junior staff members are engaged in stacks and the issue desk. While senior staff members are responsible for ordering, processing library materials, conducting library sessions, such as library orientation and giving library instruction, involved in faculty-library cooperation. Heads

of divisions are responsible for the proper functioning of their sectional divisions. Each section has a coordinator who from time to time consults with the head of division on issues related to work development.

3.6.1 Library collections for students' use at NUL

The library provides audio-visual materials, microforms, bibliographic and full-text CD-ROM databases and online databases like the EBSCO-host database. The NUL students are exposed as much as possible to working in the electronic environment. The library has 35 computers, 12 of which are housed in the Information Literacy Laboratory that still maintains its name and function after the information literacy programme was reversed. It also has nine printers. The library also provides books, journals, and newspapers. The estimated student population using NUL library in 2004/5 was 7, 285. With the increasing student population there is a need for more computers in order to increase the number of workstations within the library.

3.6.2 Services offered to students by NUL library

Thomas Mofolo Library serves as a hub, and the level of connectivity as well as the number of access points for computers and printers is essential to the bibliographic instruction programme. The level of connectivity and the number of access points of computers had increased significantly with the increasing user population of 7,221 undergraduates, 64 postgraduates, and 386 academic staff from the time the library was first automated. The South African-based tertiary education network (TENET) is the

Internet service provider for NUL main campus at Roma (NUL Statistics Office, 2004/05; NUL, 2005).

There are a number of services offered to students at Thomas Mofolo library. The most significant is orientation, which is normally done for new students at the beginning of the first semester of every academic year. The orientation programme is intended to familiarize students with library holdings and the notion of what, where, how and when to access them. The time allocated to the orientation programme training is very short, as this does not form part of subject curricula. Since its conception, the library orientation programme training had gradually developed with the increasing skills of library staff. The library also arranges for bibliographic instruction teaching to assist students to use library resources. Library instruction covers all forms of assistance offered by the library to its clients. In 2002 Thomas Mofolo library also began to introduce new academic staff to library sessions. This was regarded as an incentive towards a better utilization of library holdings by staff.

Through the circulations desk, students are allowed to borrow a certain number of books. Postgraduate students are allowed to borrow ten books for a period of one month. They are more privileged in this instance because it is understood that they need a lot of readings to carry out their research. Therefore, students are exposed to the academic reading and writing culture. Professional librarians give more time to reference service and they attend to it on rotational time schedule.

Postgraduate students are given preference to use computers in the Information Literacy Lab with access to the Internet. All students stand a good chance of utilizing the electronic resources available to them in all formats. The electronic environment

therefore has a positive impact on student learning and accelerates time spent on library material. It makes possible for the use of computers for various library requirements, such as the use of the online catalogue for bibliographic records searching, surfing the Net, World Wide Web for database searching and media resources for provision of various needs to meet students demands.

Students are expected to access their library's holdings, and also access other libraries holdings in other South African university libraries through inter-library loan services. The Internet is used as a channel through which to access the World Wide Web.

There is no one course at NUL credited with the name of information literacy, but there were moves leading towards that before the transformation policy was reversed. The University has accredited a computer literacy course, which is currently offered by the Maths and Science departments. The English department offers a communication skills course, which is a semester course, for all first year students.

3.7 Conclusion

This chapter dealt with the role of teaching and learning at NUL. It touched on the geographical background of NUL. It highlights the need for information literacy programmes at NUL and also the notion of the electronic environment at NUL. It also gave emphasis on the role played by NUL library in promoting information literacy. Issues on partnerships and services offered by NUL in trying to improve the quality of NUL academic staff and develop lifelong learning were also highlighted. The next chapter will provide research methods employed in this study and the procedure followed

in collecting and analyzing data at NUL. Limitations to the study and ethical considerations will also be highlighted.

University of Cape Town

CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This section is intended to provide the reader with an outline to show how the research was conducted. The research design discusses the information collected, how and why information was collected (Babbie and Mouton, 2001: 72-75; Smit, 1995:32).

4.2 Research design

The purpose of this study was to explore the state of information literacy of postgraduate students of NUL, and whether it would be possible to use information literacy standards as an assessment tool to provide recommendations for improvement. This study utilized a combination of quantitative and qualitative methods. A survey was conducted among the 2004/5 postgraduate and senior students at NUL. The purpose of the questionnaire was to help the researcher assess the 2004/5 postgraduate students' information skills.

In addition, individual and group interviews with library and teaching staff were conducted. Three individual interviews and one group interview were held. A questionnaire was thus used as the main data collection instrument supplemented by semi-structured interviews, which were intended to provide information additional to that of the main data collection instrument.

4.3 Target population

This study focused on the total population of 2004/5 postgraduate students of NUL from the five faculties of which two faculties were represented. According to NUL postgraduate statistics, there were 19 postgraduate students from the Faculty of Social Sciences of which three participated in the study. From the Faculty of Law there were 37 senior law students who were studying LLB of which 22 participated. According to NUL statistics office (2004) one student had been enrolled in postgraduate studies from the Faculty of Agriculture, five from the Faculty of Humanities, two from the Faculty of Science none of whom participated in this study. The Faculty of Education had been excluded in this study because it had no postgraduate and senior students for the academic year 2004/5. Due to limited number of postgraduate students at NUL, the researcher was compelled to include senior students in her study. Therefore, the numbers given represent both Masters and senior students who voluntarily participated in this study. Fifth year law students are regarded at NUL as senior students as senior goes beyond fourth year up to the honours degree. Therefore, findings in this component of the study were derived from two faculties out of five and were based on 25 postgraduate and senior students (out of a possible 64) who attempted the questionnaire.

The intention to group the current postgraduate and senior students according to their disciplines did not succeed due to small numbers (64) of postgraduate and senior students at NUL for the academic year 2004/5. As a result the questionnaire was distributed to 25 participants who voluntarily participated. It is recognized that this was not a random sample making it impossible to generalize to the total postgraduate population.

For the interviews, which provided data supplementary to the main data collection instrument, the researcher used a sample of three library personnel who represented their sectional divisions and two law lecturers as well as the University Librarian for obtaining additional information and further clarification on issues pertaining to information literacy at NUL. Heads of divisions were chosen from the three sectional divisions of the library. Law lecturers were chosen to provide additional information to what had been obtained from their students' responses to the questionnaire. The University Librarian was chosen and interviewed as an administrator and a representative of the library in the University Council. It was believed that her experience would yield additional information about students' information literacy at NUL. These respondents were interviewed to provide a different perspective on the students' information literacy experiences.

This study was conducted during examination time in May 2005, at the time most inconvenient for the majority of the students as they were busy preparing for their examinations and for library staff because library use was higher than on normal working days. This time of the year was chosen because that was when the researcher's proposal was approved and it was the only time left before NUL students break for the end of their academic year, which starts in August and ends in May.

4.4 Designing the research instruments

A questionnaire was constructed, informed by the Association of College and Research Libraries (ACRL) Information Literacy Competency Standards and an additional CAUL standard for higher education with an additional Standard from the

CAUL Standard in an attempt to enable the researcher to interpret the findings against the standards to investigate how information literate the 2004/5 postgraduate students of NUL are.

The questionnaire was designed to enable the researcher to assess current postgraduate and senior students' competencies in information handling, library use, and the use of information technology. Therefore, the questionnaire incorporated the three areas of information literacy namely: the ability to use the library; information handling abilities; and computer skills, which are the essential elements of information literacy.

The concept of information literacy as defined and discussed in Chapter One, is the ability to recognize the need for information; how, when and where to locate, access, organize, evaluate, critically use and communicate information. This process is concerned with empowering students with skills for learning how to learn. Therefore, the survey instrument was designed and intended to test these abilities.

The questionnaire consisted of 27 closed questions and two open-ended questions; a total of 29 questions. Babbie and Mouton (2001:233) argue that closed questions provide a greater standardization of responses and ease processing, while open-ended questions are easy to set but difficult to assess. Open-ended questions allow respondents a chance to answer in their own words and to state any idea they think to be valid. No options or alternatives are provided. Therefore, open-ended questions are useful when seeking further clarification. On the other hand they may require a difficult and time-consuming tabulation of responses (Struwig and Stead, 2001: 92).

This questionnaire employed a number of different response formats for the closed questions. The formats included three point response scales (often, sometimes, never) for

questions one and 16; a four-point response scale (once a day or more, once a week or more, once a month or more, hardly ever) for question 29; a five point response scale (once per day or more, once per week or more, once per month or more, once per semester or more, never or hardly ever) for question six; categorical response scales (yes/no) for questions two, 24 and 25; and (Is/ is not) for question 28; (popular/scholarly) for question seven; (primary/secondary) for question nine; (agree/disagree) for question 14; and semantic differential scales, where students were asked to rate their responses to a scale of 1-4 and 1-6 for the remaining questions. The questionnaire is attached as Appendix C.

4.5 The process of collecting data

4.5.1 A questionnaire used as the main data collection instrument

The researcher approached the NUL Localization and Training Board (LTB) for their permission to administer the questionnaire. The researcher was introduced to the heads of social science and law departments and was allocated a venue to meet with those students who volunteered to participate.

Twenty-five students participated out of a possible total of 64. The researcher divided the data collection into two sessions. In the first session three out of 19 Social Science postgraduate students participated and in the second session, 22 out of 40 law students completed the survey. In each session the researcher explained her presence and asked students to complete the questionnaire under her supervision.

One hour was set aside for answering the questionnaire and the researcher monitored the process to ensure reliable individual responses. Upon completion of the questionnaires, the researcher collected them and made them ready for the process of analysis.

4.5.2 Interviews used to supplement the main data collection instrument

4.5.2.1 The interviews

An interview is an interaction between an interviewer and a respondent in which the interviewer has a predetermined plan of seeking for information from the interviewee. This plan of investigation is not necessarily based on a specific set of questions that must be asked in particular words or order. The manner in which the interviewer asks questions is determined by the way the interviewee responds to the questions (Babbie & Mouton, 2001:288-289).

In order to obtain good results in conducting interviews, one has to become a good listener, be interested and explore to get as much information as required and also to get answers in depth without prejudicing the later answers (Babbie & Mouton, 2001:289). If properly conducted, interviewees can provide an interviewer with desired information, insightful observation and their opinions of a subject (Leedy, 1989:148).

This study made use of semi-structured interviews, which supplemented the data obtained from the questionnaire and to compensate to some extent for issues that might otherwise have been overlooked. The interviews were carried out at the National University of Lesotho in the mother tongue and then translated into English by the

researcher. Extensive notes were taken for all interviews conducted. The interviewees chosen were the three heads of library divisions representing their sections, the two law lecturers whose students cooperated in answering the questionnaire and the University Librarian as an administrator.

The questions asked in the interviews were open semi-structured type of questions, which allow interviewees to expound on issues of their interest related to the questions by giving their own perceptions. One question was asked at a time, avoiding leading questions. The researcher tried to ask questions that respondents were able to answer, probing when necessary. The intention for asking such questions was to collect as much qualitative data as possible from experienced workers that related to the topic investigated. The researcher believed that the interviewees would provide a different perspective on students' information experiences.

4.5.2.2 Interview process

Permission for the interviews had been sought in advance and was granted by the concerned individuals. The three library personnel who represented their sections were approached and they decided to be interviewed as a team because the time chosen for interviews clashed with the examination time, when the library was very busy. An attempt was made to treat each respondent as an individual by allowing each a certain period of time to express his ideas. The interviews for this group were held on the 5th May 2005 between 9h00 and 11h00. The second group of people approached was that of two postgraduate law lecturers who were interviewed individually on the 12th May 2005 each for half an hour. Finally the university librarian was also approached and

interviewed on the 17th May 2005 and she allowed the researcher thirty minutes. The interview schedules have been attached as Appendices D, E, and F.

4.6 Limitations

Postgraduates were preferred to undergraduates as it was assumed that by then they should have acquired skills and experience in learning how to learn, which could be utilized by the researcher to determine their extent or level of information literacy. It is therefore not possible to draw any conclusions about levels of information literacy of undergraduate students from this study.

Another constraint was the inability to achieve the desired student population sample. The desired population was the total number of postgraduate research students of NUL for the academic year 2004/5. The researcher wished to survey the total population because she knew from experience that the overall percentage of postgraduate research students is low compared to undergraduates.

The low turn-out of postgraduate research students, who claimed to be busy preparing for their examinations, therefore was a problem. It is impossible to draw firm conclusions regarding the general state of information literacy for postgraduate students of NUL as all faculties who offer postgraduate degrees for the academic year 2004/05 were not represented in the survey.

An additional concern was that librarian interviewees insisted on group interviews due to time constraints, as the library was very busy flocked with students preparing for their examination. This might have been the reason why the responses were very similar.

4.7 Ethical considerations

A letter together with a research proposal was sent in advance to seek permission to conduct a research project at NUL and permission was granted. The anonymity of respondents was guaranteed. The researcher thanked all those who took part in preparing the venue and in answering the questionnaire and the interviewees for their time and cooperation.

4.8 Conclusion

This chapter reported on the qualitative and quantitative methods used in this study. A survey was conducted among a group of 2004/5 postgraduate students of NUL in order to assess their state or level of information literacy. A questionnaire was used as the main data collection instrument, supplemented by semi-structured interviews for four information specialists including the University Librarian, and two law lecturers. It was believed that their experience would yield additional information about students' information literacy at NUL. Permission to conduct a research project at NUL was sought in advance and granted.

CHAPTER FIVE

FINDINGS AND INTERPRETATION OF DATA

5.1 Introduction and purpose

The purpose of this chapter is to present and discuss findings of the investigation. The findings are based on the questionnaire and interviews conducted at NUL. The five ACRL Standards (Appendix A), the last CAUL Standard (Appendix B), the questionnaire (Appendix C), and the interview schedule (Appendix D) have been attached. As discussed in 4.6, the sample consisted of 25 respondents and 16 or more responses were regarded as significant in the consideration of the results that follows.

5.2 Findings and interpretation of data

5.2.1 Findings and interpretation from the questionnaire

Standard One

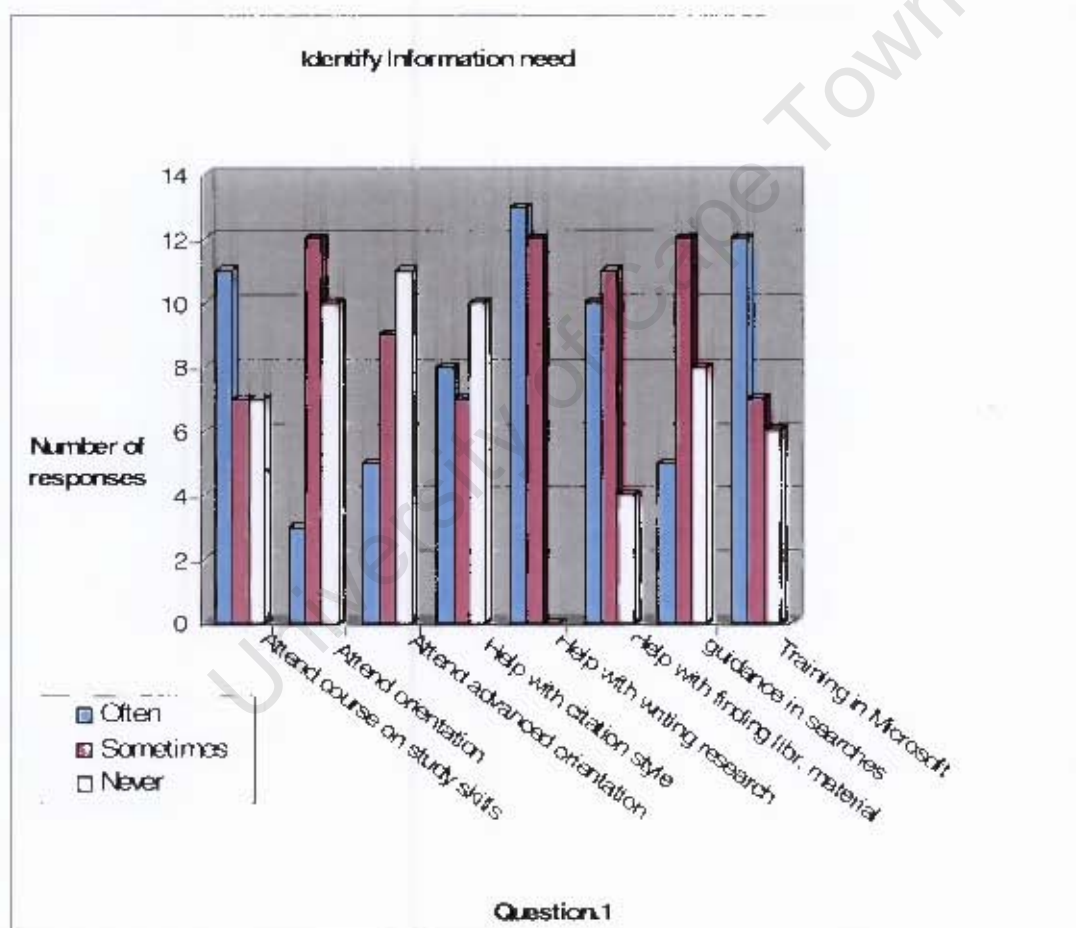
Questions 1-9 were informed by Standard One, which reads, “The information literate student determines the nature and extent of the information needed”.

Question 1

Standard One addresses a student’s awareness of information needs, that is, the student’s ability to recognize and express the need for information. Therefore, question one of the survey instrument aimed to assess whether respondents recognized a need for information. Students were asked whether they had needed help, guidance or training and sought assistance with an information need from the library.

Table 1: A student's ability to recognize a need for information. Question: Have individual students ever felt a need to do or obtain any of the following:

Q. NO.1	Often	Sometimes	Never	Respondents
Attend course on study skills	11	7	7	25
Attend library orientation	3	12	10	25
Attend advanced orientation	5	9	11	25
Help with citation style	8	7	10	25
Help with writing research	13	12	0	25
Help with finding library material	10	11	4	25
Guidance in searches	5	12	8	25
Training in Microsoft	12	7	6	25



All the students claimed that they felt a need for help with writing a research paper as 13 said "often" and the other 12 said "sometimes". This was the most frequently

expressed need. The next most frequently expressed need was to be helped with finding library materials with a total score of 21 who said that they often or sometimes did, followed by a need to attend course on study skills where 18 said they often or sometimes needed this. On the other hand there are less frequently expressed needs where 20 students said only sometimes or never needed to attend advanced orientation and only sometimes or never needed help with citation styles 17. These totals were achieved by collapsing two categories, as indicated.

At postgraduate level students are expected to write research papers and that may be one of the reasons why all 25 respondents showed a need for help with writing a research paper at least sometimes.

The results for question one confirmed that the majority of respondents are inclined to seek assistance with information needs at least sometimes. They are also expressing needs that fulfil one of the requirements of the information literacy standards in that information literate students should be able to recognize their information needs. In learning, recognition of an information need plays an important role.

Question 2

Question Two continues to explore Standard One. Students were asked whether they are able to formulate a research question based on a broad topic according to Outcome 1.1b of Standard One, which reads that the information literate student “develops a thesis statement and formulates questions based on the information need”. The question asked

or students' opinions only, with the intention of testing these opinions in question 3 and 4, which proceeded to ask for a qualitative response.

Table 2: A Student's opinion on his or her ability to formulate a research question.

Question: Suppose you have been asked to investigate a topic on "HIV/AIDS in Lesotho" would you be able to formulate a question suitable for research?

Q.2	Responses
Yes	21
No	4
Total no. of respondents	25

Table Two shows that 21 students thought they could formulate a research question. The following question was intended to determine whether their opinions were justified.

Question 3

A student's ability to formulate a research question. **Question: If your answer to question 2 above is "yes" please provide a research question based on "HIV/AIDS in Lesotho".**

This question, a follow-up to question 2, asked respondents to compose an answer of their own in order to find out if students could actually formulate a research question according to Outcome 1.1b of Standard One, which reads that the information literate student "develops a thesis statement and formulates questions based on the information need". Students were asked to formulate a question of their own choice based on the topic of "HIV/AIDS in Lesotho".

Eight students were able to formulate an actual research question, for example: *What is the microeconomic impact of HIV/AIDS in Lesotho? Or, how is prostitution connected with the escalating rate of HIV/AIDS in Lesotho?* Others identified topics for research, not research questions.

The findings show that 13 students misunderstood the question; that is they produced research topics rather than research questions. From this one can conclude that the importance of framing research questions might not be emphasized at NUL.

It is therefore clear that even though students claimed to have the ability to formulate a research question, responses to question three reflect that they still might not understand the importance of research questions. Postgraduate students are expected to understand the concept of a research question as opposed to a research topic.

Question 4

A student knows about different information sources and can match the source to the information need. Question: Suppose you have been diagnosed with cancer of the throat and your medical practitioner advises that you might require an operation. Give three steps you would take to find out about the condition and possible treatment.

This question attempts to assess whether students were able to find appropriate information according to Outcome 1.1b of Standard One, which reads that the information literate student “develops a thesis statement and formulates questions based on the information need”. A problem was posed and students were asked to give three

steps to find out more about the condition and possible treatment of cancer of the throat. This question, like question three, asked for qualitative data and respondents had to compose an answer of their own. The questionnaire stated that there were no wrong or right answers to this question. Questions three and four tested whether the students' opinions of their abilities (as expressed in question two) were well grounded.

The responses obtained from this question were that respondents said they would use the computer, read print materials, use online resources, and inquire from other medical and information specialists about the disease. Examples of responses were that they would:

- Consult pertinent information resources on the condition
- Read to find out about the causes of the condition
- Research with a view to finding out other possible treatment methods
- Ask for advice from the medical practitioner
- Research about the problem
- Identify possible solution
- Choose the best solution
- Go to the Internet to find more about the problem

Almost all the respondents were able to come up with three steps to find the information needed. This indicates that the respondents did have some idea of what kind of information is needed, where to find the required information and seek for answers to the problem at hand.

Question 5

In an attempt to assess whether respondents were actually able to select a resource that is most suitable for finding information on a specific topic according to Outcome 1.1c of Standard One, which reads that the information literate student “explores general information sources to increase familiarity with the topic”. Respondents were asked to choose from a number of sources the best place to look for a brief introduction to a topic such as “*Global warming*”. The options were: an encyclopedia, a periodical, the online library catalogue, and don’t know. The correct answer was an encyclopaedia.

Table 3: A student’s ability to select resources suitable for finding information on a specific topic. Question: Which would be the best place to look for a brief introduction to a topic such as global warming?

Q.5	Responses
Correct	7
Incorrect	18
Total no. of respondents	25

Table 3 shows that 18 out of 25 responses were incorrect. This is a surprising finding since postgraduate students can be assumed to be familiar with encyclopedias and their value in providing background information.

This shows that while postgraduate research students are expected to be able to select the most appropriate information sources, responses to question 5 reflect a lack of knowledge of the contents of various common information resources. Even though postgraduate and senior students should have gone through library orientation which

familiarizes beginners with library resources, it seems that the majority of respondents do not know the contents of these resources.

Question 6

Question 6 followed up on question 5 to see whether students actually used certain information resources in the library. Respondents were asked to indicate how frequently they had actually used sources from a list.

Table 4: *Whether students use general information sources in the library.*

Question: students were asked how often they have done or used the following at their library according to a suggested response scale.

Q.6	Daily	Weekly	Monthly	Semester	Never	Blank	Respond.
Special reference	5	3	6	4	7	0	25
Short loan	1	7	2	3	12	0	25
Periodical index	0	6	5	5	9	0	25
General reference	5	9	5	1	4	1	25
Special collection	8	6	4	4	3	0	25
Archival materials	5	9	6	2	3	0	25
Open shelves	10	9	4	1	1	0	25
Research papers	4	6	9	4	2	0	25
Online catalogue	5	6	3	5	6	0	25
Electro. Databases	7	7	2	4	5	0	25

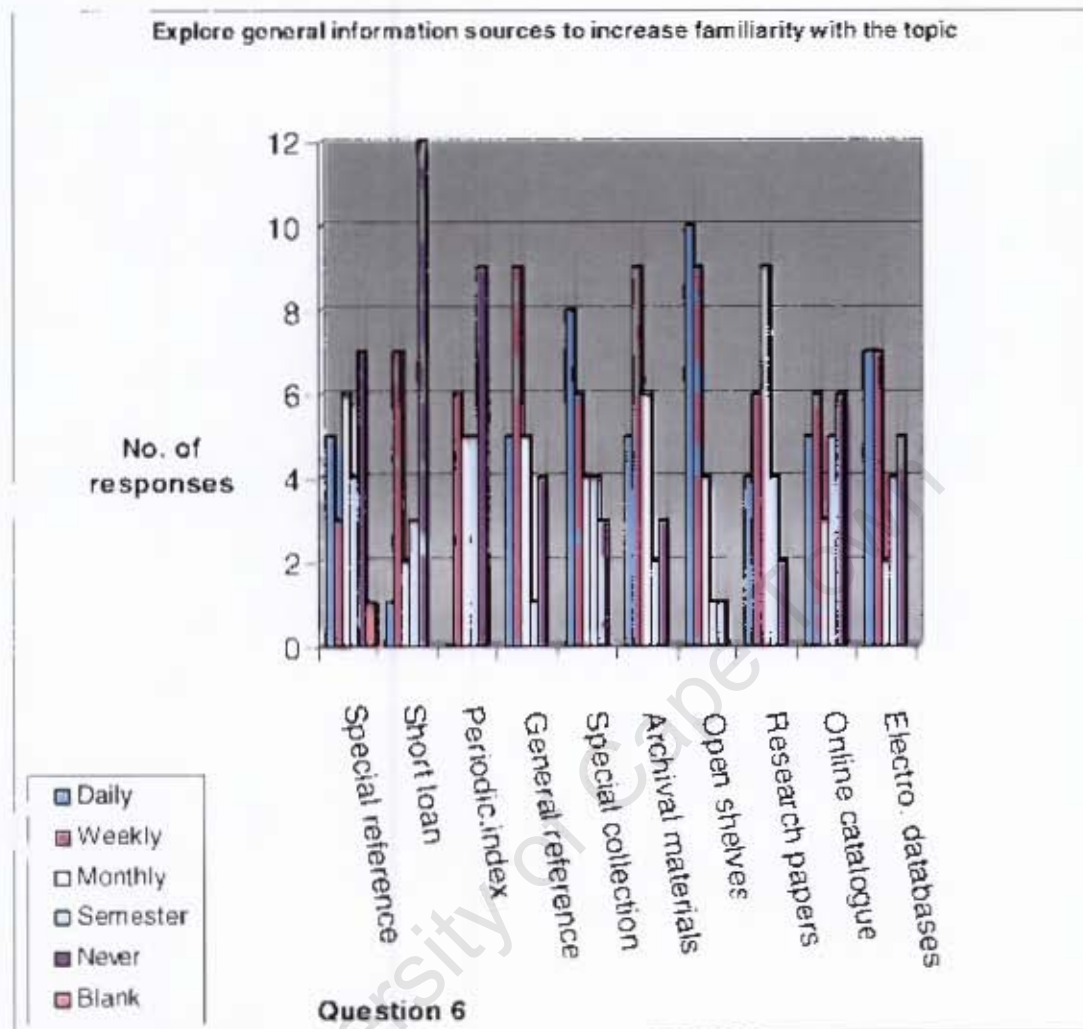


Fig. 2

Open shelves are most often used as a total of 19 use them daily or weekly. Generally, every section of the library is claimed to be used, even though some sections are more frequently used than others.

It is worth noting that this question is based on familiarity with collections and resources, which ought to have been covered in orientation or bibliographic instruction sessions. Postgraduate students are expected to have acquired basic information skills required for locating and using various library resources at undergraduate level. The

results show that while most respondents use the open shelves (only one ticked “never”), the other library resources do not seem to be used to any significant extent.

Question 7

In this question the researcher aimed to test whether respondents were able to distinguish between popular and scholarly journals according to Outcome 1.2d of Standard One, which reads that the information literate student “identifies the purpose and audience of potential resources (e.g. Popular vs. scholarly, current vs. historical)”. Students were asked to choose from a number of characteristics those which are popular and those which are scholarly.

Table 5: A student’s ability to distinguish between popular and scholarly journals.

Question: Which of the following are characteristics of popular or scholarly journals?

Q.7	Correct	Incorrect	Blank	Respondents
Availability by subscription only	21	3	1	25
Written by reporters and journalists	19	5	1	25
In-depth & current research	18	5	2	25
Adverts & glossy pictures	23	1	1	25
Unbroken passages of dense text	15	8	2	25

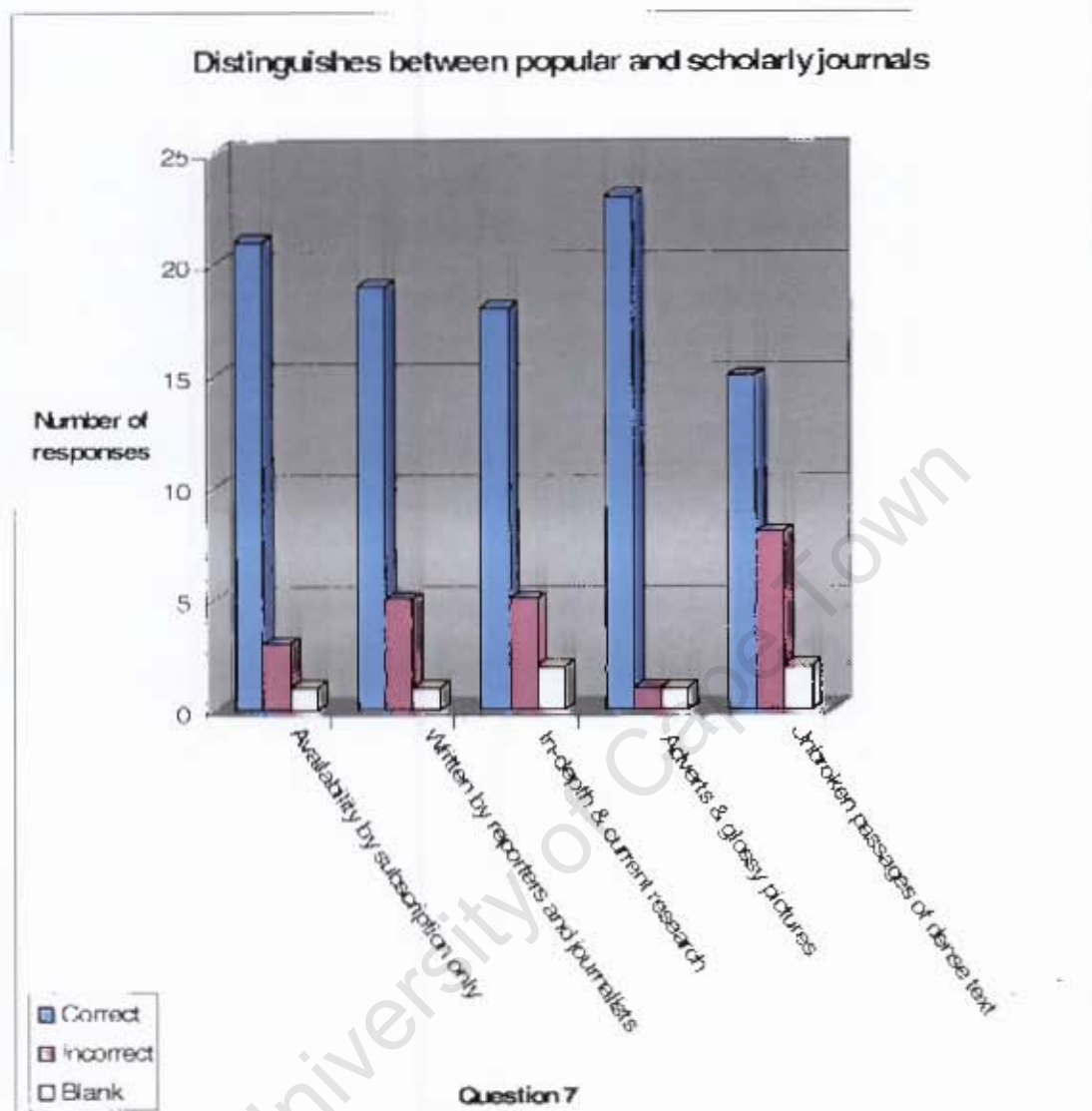


Fig.3

Results show that 23 respondents out of 25 correctly indicated that many advertisements and glossy pictures are characteristics of popular journals. Fifteen or more correct responses were achieved for all the questions. Therefore, respondents have shown the ability to distinguish popular from scholarly periodicals. This shows that they seem to be familiar with the characteristics of scholarly publications.

Question 8

This question tests a student's ability to differentiate between potential resources according to Outcome 1.2c of Standard One, which reads that the information literate student "identifies the value and differences of potential resources in a variety of formats". Students were expected to be able to recognize the best source for current and authoritative information for an academic task. The options given were:

- A library catalogue
- An encyclopedia
- Databases on library's website
- The World Wide Web

The correct answer was databases on library's website.

Table 6: *A student's ability to differentiate between potential resources.*

Question: Identify the best source for current and authoritative information for an academic task.

Q.8	Responses
Correct	3
Incorrect	22
Total no. of respondents	25

The results show that three out of 25 responses were correct. This is an unexpected finding since postgraduate students can be assumed to understand that databases on library's website provide current and authoritative information for an academic task.

This finding suggests that students do not distinguish clearly between sources of current and authoritative information and those that are not suitable.

The results suggest that students were unable to differentiate between resources. Before a student can use a resource, it will be best to know if a source is worth using for a particular task at hand, and in order to do so, one must be able to recognize its value.

Question 9

In this question the researcher aimed to test whether respondents were able to differentiate between primary and secondary sources according to Outcome 1.2e of Standard One, which reads that an information literate student “differentiates between primary and secondary sources”. Students were asked to identify primary and secondary sources of information from a list.

Table 7: A student’s ability to differentiate between primary and secondary sources.

Question: Which of the following are primary and which are secondary sources of information?

Q.9	Correct	Incorrect	Blank	Respondents
Encyclopedia	4	20	1	25
Letters	5	17	3	25
Diaries	7	15	3	25
Reports interviews	12	11	2	25
Index Journal articles	10	14	1	25
Research reports	14	9	2	25

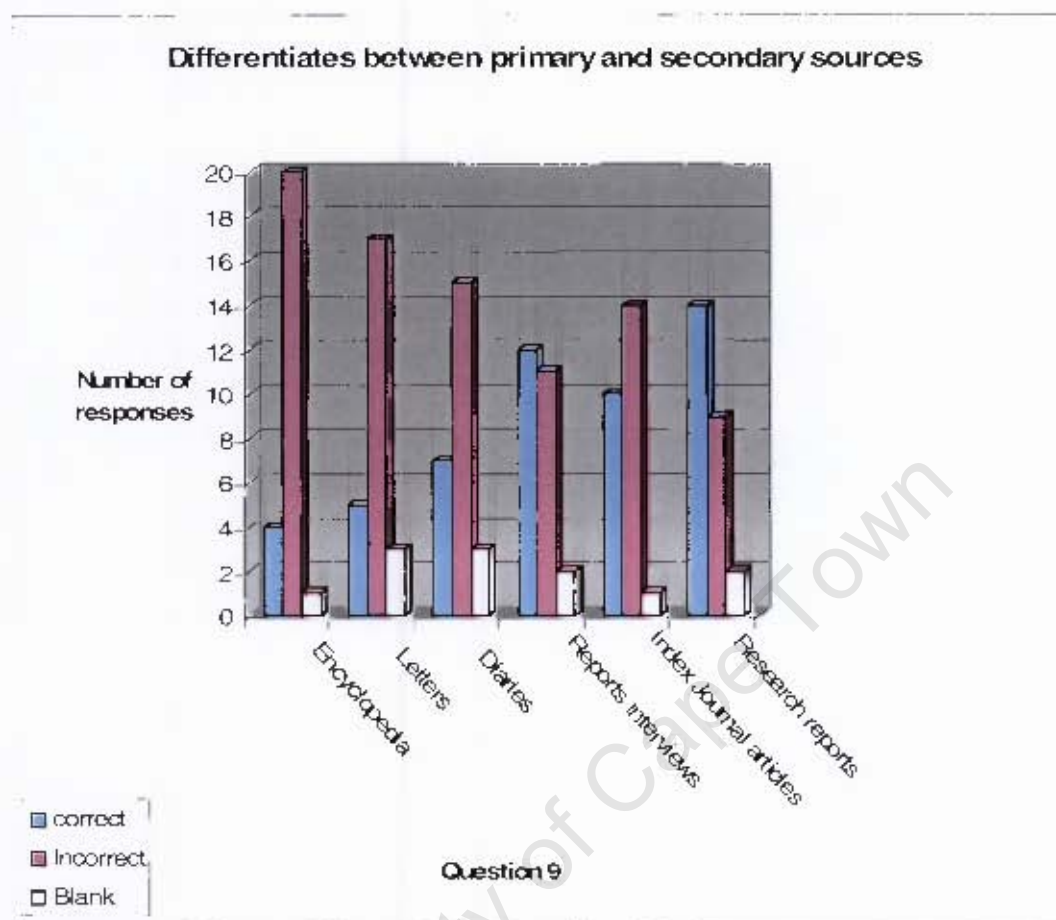


Fig. 4

Findings above show that only a small majority of 14 out of 25 responses correctly indicated that research reports are primary sources of information. This was the highest correct response obtained and the lowest was for encyclopedias, where four out of 25 responses correctly indicated that encyclopedias are secondary sources of information. Most students did not know that letters (20 out of 25) or diaries (18 out of 25) were primary sources of information and that an index to journal articles (15 out of 25) is a secondary source. These results show that the majority of the respondents lack knowledge of popular and scholarly information resources. At postgraduate level

students are expected to recognize the difference and to be familiar with how their use and importance differ with each discipline.

Reference sources like encyclopedias are commonly used in libraries; some provide general information while others provide specialized types of information. As a result postgraduate students are expected to have used them. Primary sources provide the original information while secondary sources use information from other sources. Therefore, students at NUL do not seem to know which sources will provide them with primary or secondary information for academic work.

Standard Two:

Questions 10-21 were based on Standard Two, which reads: “The information literate student accesses needed information effectively and efficiently”.

Question 10

The following six questions tested whether students were able to evaluate web resources according to Outcome 2.1c of Standard Two, which reads that the information literate student “investigates the scope, content, and organization of information retrieval systems”. Students were asked whether they could recognize that the site they found is a quality website or not. Question 10 aimed at testing the extent to which a student is able to evaluate websites.

Table 8: *A student’s ability to investigate the scope and content of websites.*

Question: How will you know that the document on a World Wide Web site you

have found includes information that is reliable and appropriate for an academic task?

Q.10	Correct	Incorrect	Respondents
Site includes citations	21	4	25
Site associated with Univ. or Govt.	10	15	25
Author from University	10	15	25
Site with colourful Advertisements	25	0	25

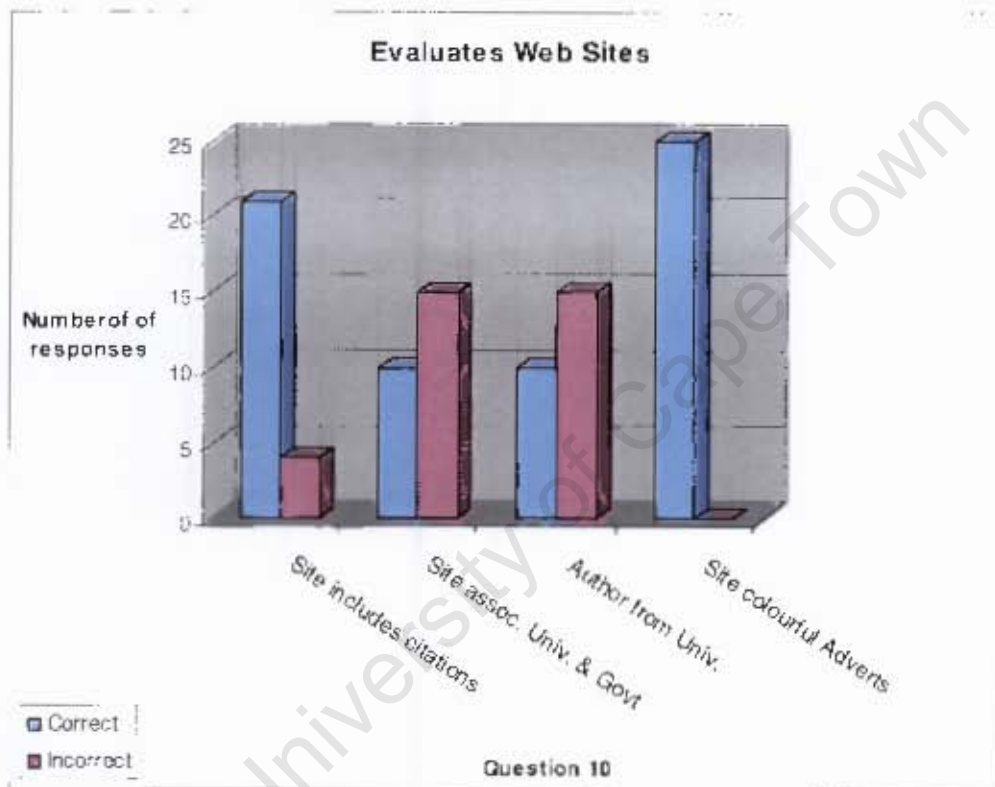


Fig. 5

All participants responded correctly by indicating that a site that had many colourful advertisements was unlikely to include reliable and appropriate information for academic tasks. The fewest correct responses (10) were obtained from the statement that associates the authority of the website with a university or government.

Respondents scored well across two dimensions and equally badly across two. This shows that students are to some extent familiar with use of the World Wide Web. The results show that respondents were able to recognize at least some of the characteristics of a reliable web site. Anybody can publish any form of information on the web. Therefore, it is essential for information literate students to be able to evaluate web sites for quality and reliable information.

Question 11

The next five questions were formulated in an attempt to find out how much students know about information on the World Wide Web according to Outcome 2.1c of Standard Two, which reads that the information literate student “investigates the scope, content and organization of information retrieval systems”. In question 11 they were asked to agree or disagree with a number of statements about the World Wide Web to see whether they understood the scope and content of web-based information.

Table 9: A student’s ability to understand the scope of information on the World

Wide Web. Question: Do you agree or disagree with the statements below:

Q.11	Correct	Incorrect	Blank	Respondents
WWW information is reliable	13	10	2	25
Internet information same as in libraries	16	7	2	25
Anybody can publish anything on WWW	17	3	5	25

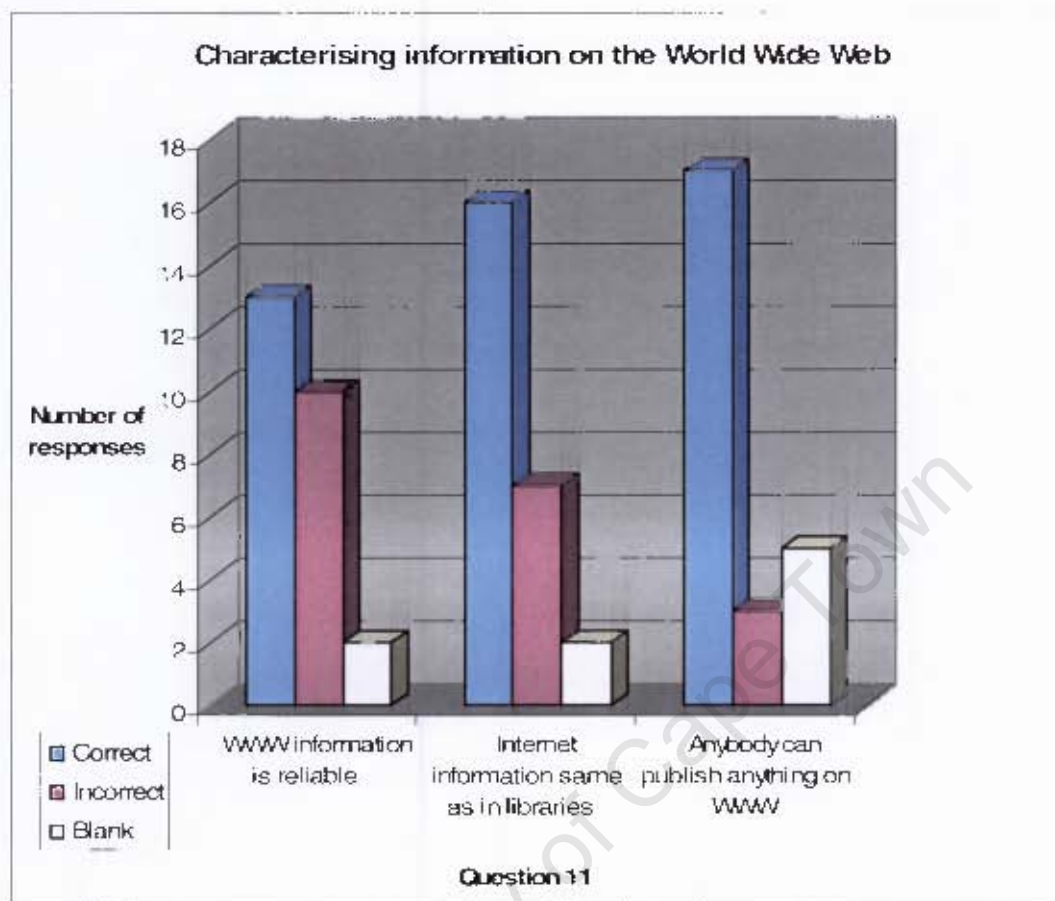


Fig. 6

The findings displayed above show that 17 out of 25 participants responded correctly, by indicating that anybody can publish anything on the World Wide Web.

Generally students did fairly well in this question and seemed to recognize characteristics of the World Wide Web, although 12 respondents did not know that web information is not necessarily reliable.

The results reflect that the majority of respondents seem to have some understanding of what constitutes quality information in web documents. In order for a student to be

considered information literate he or she must search a reliable source of information recommended for an academic use.

Question 12

Question 12, in a follow-up of question 11, attempted to assess how much students understand about how the Web works. Students were asked to give a reason why the second time of visiting a web page in an Internet session the page is usually faster to display on the screen than the first time. Options were:

- Because the Internet path has already been established
- Because the URL becomes compressed once you have visited a site
- Because files that make the page are cached on your computer
- It is not really faster the second time

The correct answer was because files that make the page are cached on your computer.

Table 10: A student's understanding of the Internet. Question: Students were asked to tell what happens when web pages are displayed for the second time on computer screens.

Q.12	Responses
Correct	4
Incorrect	20
Blank	1
Total no. of respondents	25

Results show that four of the 25 responses were correct, making it clear that respondents do not understand how web pages are displayed on computer screens. This is an unexpected finding since postgraduate students can be assumed to be familiar with the way in which files that make the page are stored and displayed on computer screens.

Question 13

Continuing to test whether students understand the organization of the web, they were asked whether they knew where one finds the uniform resource locator (URL). Four options were given, namely:

- Online catalogue
- The World Wide Web
- The computer
- A CD-ROM.

The correct answer was the World Wide Web.

Table 11: A student's understanding of the organization of the World Wide Web.

Question: Where do you find the uniform resource locator (URL)?

Ques.13	Responses
Correct	16
Incorrect	8
Blank	1
Total no. of respondents	25

Findings above show that 16 respondents know where one finds the URL and therefore that a majority has some understanding of the organization of the World Wide Web.

Question 14

This question asked respondents to agree or disagree with statements about the World Wide Web. It also queried students' knowledge of electronic resources available at NUL.

Table 12: A student's knowledge of available resources. Question: Indicate whether you agree or disagree with statements about the WWW and the software available at NUL. (Please refer to questionnaire for details).

Q.14	Correct	Incorrect	Blank	Total no. of respondents
Google is a search engine	24	1	0	25
Web has quality information	6	16	3	25
Library web databases good	18	5	2	25
Windows XP at NUL	17	5	3	25
Cataloguing system is ITS	16	6	3	25
MS-Word is a spreadsheet	6	14	5	25

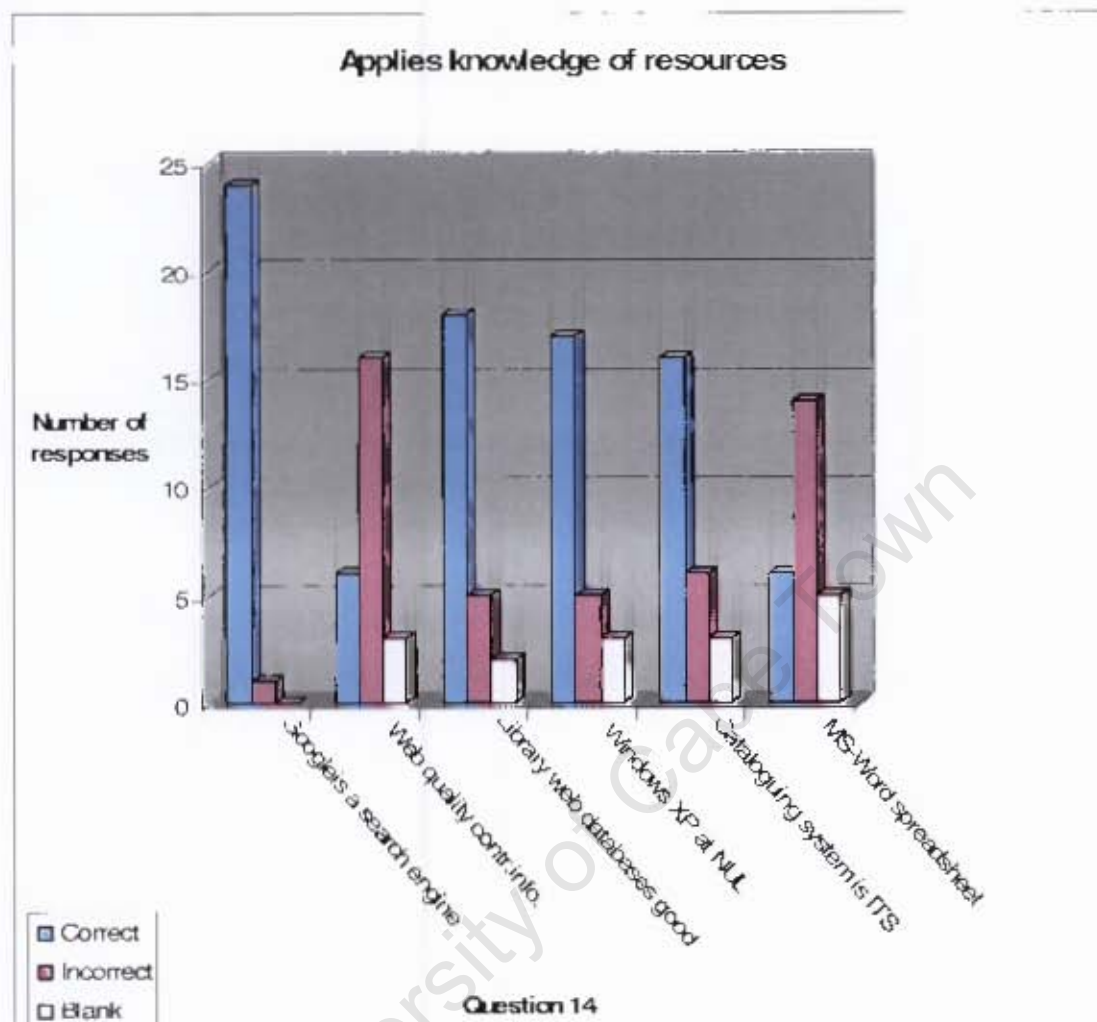


Fig. 7

Findings as reflected in Table 12 and Figure 7 chart above show that with 24 correct responses students knew that Google is a search engine. On the other hand only six respondents were aware of the fact that the web has no quality control mechanisms and that MS-Word is not a spreadsheet. Their answers show that they are to some extent familiar with some of the computer software used at NUL.

Question 15

Question 15 was the final in the series of questions relating to students' understanding of the Internet. Students were asked to choose from the following statements those that best describe the Internet:

- A collection of interconnected big computers managed by Universities, the government, and large organizations
- A huge number of computers of various sizes which are connected to each other and which can belong to anyone
- A big computer somewhere, which contains a large amount of information.

The correct answer was a huge number of computers of various sizes which are connected to each other and which could belong to anyone.

Table 13: A student's knowledge of the scope of the Internet. Question: Which of the statements above best describe the Internet?

Q.15	Responses
Correct	3
Incorrect	22
Blank	0
Total no. of respondents	25

The findings show that the majority of respondents do not know much about the scope of the Internet. Only three of the 25 responses were correct. This question reinforces what has been found in question twelve, where results reflected students' lack of understanding the working of the Internet and the kind of information available on the web and how to find it. On the other hand results from questions 10-11 and 13-14 show

some understanding of the kind of information available on the web and how to find it. This shows that their web knowledge is somewhat superficial, suggesting that students only have interest in using the Internet but they do not know much about its scope and configuration.

Question 16

In order to test whether postgraduate students of NUL could select efficient and effective approaches for accessing information needed according to Outcome 2.1d of Standard Two, which reads that the information literate student is able to “select efficient and effective approaches for accessing the information needed” they were asked to tell where they could start their search when given a topic to investigate. Students were given a number of statements to choose from as given in the table below.

Table 14: *Whether a student’s approaches to accessing information are efficient and effective.* Question: Having been given a topic to investigate, where will you start your search for additional information?

Q.16	Often	Sometimes	Never	Blank	Respondents
Asking a friend	6	14	2	3	25
Using online catalogue	5	10	5	5	25
Using Internet	19	4	0	2	25
Asking a librarian	3	9	8	5	25
Using search engine	18	2	2	3	25

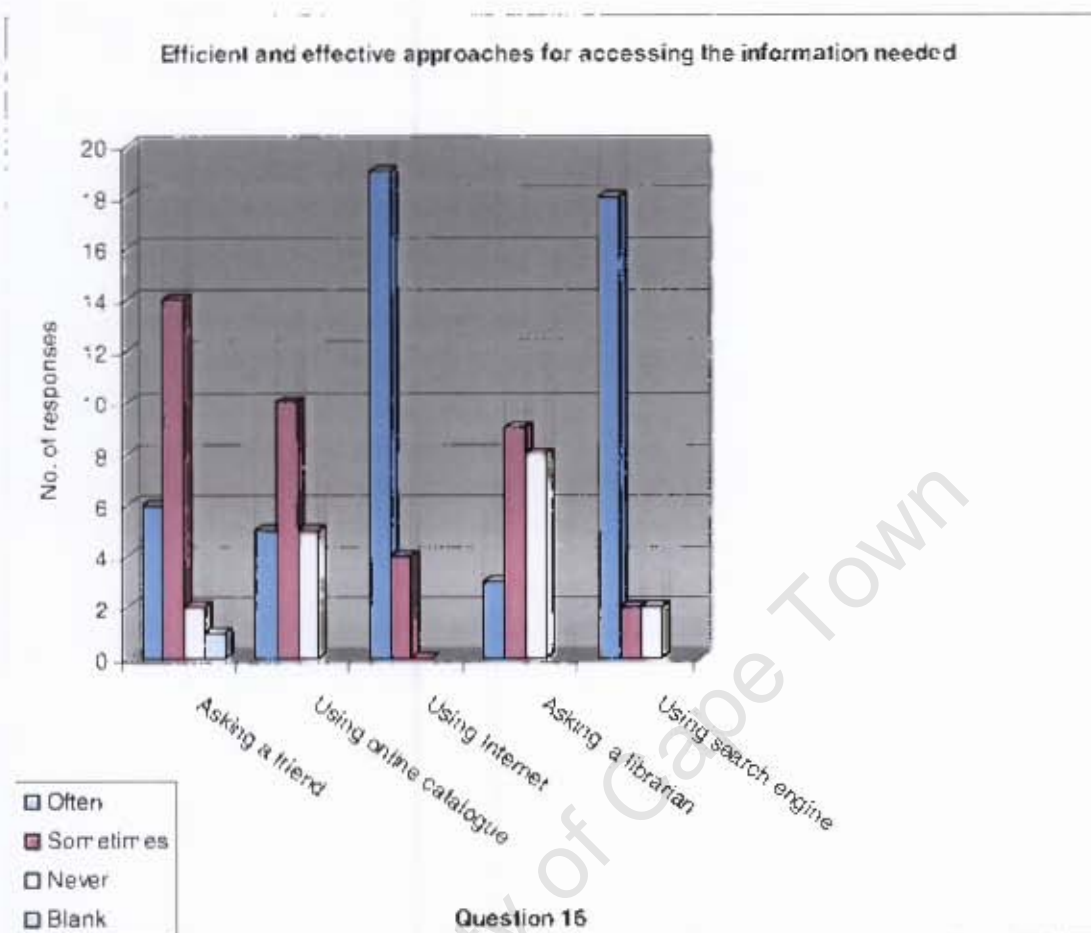


Fig. 8

Findings as reflected above confirm that the Internet is frequently the information source of choice. The results show that the majority preferred using the Internet and a search engine to asking a librarian or using the online catalogue as 19 respondents often used the Internet and 18 often used a search engine. This does not however imply that they know much about the web or how to evaluate information. It was observed in questions 8, 12 and 15 that the majority of respondents had difficulties in evaluating resources and understanding the web.

The majority of students opted for using the Internet when faced with an information need. This shows that students think that the Internet provides effective and efficient approaches for accessing information needed. In order for a student to be considered information literate, he or she should be able to search for and use appropriate search strategies to access information needed. Students who only use the Internet might be computer literate or information technology literate but not information literate. In order for them to be considered information literate they should be able to apply critical thinking in using the information obtained from the Internet and also be aware of the information resources available from the library.

Question 17

Findings from question one had shown that students frequently required assistance in seeking information. Therefore, in trying to find out whether respondents could recognize the most effective keyword combinations according to Outcome 2.2b of Standard Two, which reads that the information literate student “identifies keywords, synonyms and related terms for the information needed,” they were asked to select the best approach to search for a citation for a journal article in the library catalogue.

Students were given a citation and asked to choose from a number of statements:

- Search for the title of the article
- Search the title of the journal
- Search for one of the names of the authors
- Search for both of the authors.

The correct answer was to search for the title of the journal.

Table 15: *A student's ability to recognize the most effective approach to searching the library catalogue.* **Question:** When provided with the citation for journal article what would you search in the library catalogue to find out if your library owns it?

Q.17	Responses
Correct	5
Incorrect	20
Total no. of respondents	25

Findings above show that five out of 25 responses were correct and 20 students did not realise that one could only search for a journal title and not for article-specific information in the library catalogue.

Question 18

This question is a follow-up to question 17 and was intended to test whether students understand keywords according to Outcome 2.2b of Standard Two. Students were provided with a statement that required them to identify keywords that would retrieve the best results from a database search on a particular subject.

Table 16: *A student's ability to demonstrate understanding of keywords.* **Question:** Which of the following keywords would retrieve the best results in a database search: presentation, anti-apartheid; events, struggle; anti-apartheid, struggle; and events, anti-apartheid?

Q.18	Responses
Correct	6
Incorrect	19
Total no. of respondents	25

Results from this question show that six responses were correct and 19 responses were incorrect, reflecting an inability to recognize the most appropriate keywords combinations for an effective search.

The responses above reflect lack of understanding in constructing a search statement. Keyword searching is very important for effective searching, which results in access to relevant information. Students at NUL need more training in keyword searching.

Question 19

This question tests whether students are able to recognize and correct failures in their search strategies as recommended in Outcome 2.4b of Standard Two, which reads that the information literate student “identifies gaps in the information retrieved and determines if the search strategy should be revised”. Students were asked to tell what their conclusions would be if when performing a subject search on a specific topic in library’s online catalogue the computer retrieves zero results.

Students were provided with the following statements from which they were expected to select the most appropriate one:

- The library’s books on the topic are listed under different terms (correct)

- The library has no books on the subject
- Adding more terms to the search statement will retrieve books on the topic
- Do not know.

The correct answer was the library's books on the topic were listed under different terms.

Table 17: A student's ability to recognize and correct failures in search strategies.

Question: How will students deal with zero results when performing a subject search?

Q.19	Responses
Correct	2
Incorrect	23
Total number of respondents	25

The results show that two participants out of 25 responded correctly by indicating that library's books on the topic are listed under different terms. This reflects the respondents' inability to recognize and correct failures in a subject search. It happens at times that library books on similar topics could be entered in the OPAC under different terms from those used by the searcher.

Listing library books under different terms occurs when the library uses controlled vocabulary while some searchers use natural language for searching; in other words they use uncontrolled vocabulary. The results from this investigation show that generally online searching seems to be a problem. More effort should be applied in library instruction and students should be made to attend library orientation or bibliographic

instruction sessions. Students who do not search properly will not be able to access information required.

Question 20

In an attempt to test whether students understand the basics of Boolean logic as suggested in outcome 2.2d of Standard Two, which requires understanding of Boolean logic, they were asked to select from AND, OR, and NOT statements the one that will retrieve the most records.

Table 18: A student's ability to demonstrate understanding of the basics of Boolean logic. Question: which of the following Boolean operators (AND, OR, NOT) will retrieve most records?

Q.20	Responses
Correct	18
Incorrect	6
Blank	1
Total no. of respondents	25

Results show that 18 students correctly answered this question by indicating that cats OR dogs will retrieve most records. This count shows that the majority of students understand the basics of Boolean search.

The understanding of the basics of Boolean logic is necessary for more advanced and complex database searches. Therefore, it is important for students to be familiar with Boolean logic in search statements.

Question 21

In an attempt to assess whether students are able to apply Boolean logic in database searches according to Outcome 2.2d of Standard Two, which reads that the information literate student “constructs a search strategy using appropriate commands for the information retrieval system selected,” students were asked to select the best search statement from a combination of keywords and Boolean operators which will retrieve the best information from a database search in discussing “capital punishment as a deterrent to crime”. The choices were: capital punishment OR crime; deterrent AND crime; capital punishment AND crime. The correct answer was capital punishment AND crime.

Table 19: A student’s awareness of the proper use of Boolean logic. Question: Students were asked to select the best search statement for a particular topic as stated above.

Q.21	Responses
Correct	22
Incorrect	3
Blank	0
Total no. of respondents	25

The results shown above seem to support findings in question 20 because this question is a further question incorporating Boolean logic. Twenty-two responses out of 25 chose the correct statement that capital punishment AND crime will get the best information from a database search.

Standard Two stresses the notion of effective and efficient access to required information, which is supported by understanding of basics of Boolean logic. The

correct response count is high for both questions 20 and 21, which indicates an understanding of the basics of Boolean logic.

Standard Three:

Question 22 was based on Standard Three, which reads: “The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system”.

Question 22

Question 22 was designed to find out whether postgraduate students were able to deal with dubious information according to Outcome 3.2a of Standard Three, which puts emphasis on student’s ability to examine and compare information from various sources to assess reliability validity, accuracy, authority, and point of view or bias. Students were asked what they could do when faced with dubious information from a newspaper that claimed a 20% increase in tourism during 2004. Options were:

- Try to check the accuracy of the figure by asking someone who lives there
- Use data anyway
- check the statistics in a relevant source
- Do not know.

The correct answer was to check the newspaper information in a relevant source.

Table 20: A student's ability to recognize accuracy and relevance of information needed. Question: What ought to be done when faced with dubious information from a newspaper?

Q.22	Responses
Correct	24
Incorrect	1
Blank	0
Total no. of respondents	25

Findings show that 24 respondents opted for checking the newspaper information in an official source. The results reflect a high correct response count for this question and indicate an understanding of how to deal with dubious information.

The results show that the majority of respondents recognize that dubious information has to be checked in an independent source. An information literate student is the one who uses proven facts in dealing with an academic task. Students therefore, have to evaluate appropriateness of the information from a relevant source to incorporate it into his or her knowledge base for lifelong learning.

Standard Four:

Standard Four reads: "The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose".

According to ACRL (2003) Standard Four refers to the responsibility of the subject instructor or educator who works in collaboration with the librarian to instill information literacy competencies and to enable a student to accomplish a specific task with

information obtained. This Standard is not primarily the responsibility of the librarian. Standard Four was therefore not dealt within the main data collection instrument. This Standard was to some extent addressed during the interviews with the law lecturers, which will be discussed in section 5.2.2.1.

Standard Five:

Questions 23-28 were based on Standard Five, which reads: “The information literate student understands many of the ethical, legal and socio-economic issues surrounding information and information technology”.

Question 23

In an attempt to explore whether postgraduate students at NUL recognize parts of a citation in order to cite sources confidently, a skill implicitly required by Outcome 5.3a of Standard Five, which reads that the information literate student “selects an appropriate documentation style and uses it consistently to cite sources,” they were given a citation that they were expected to recognize as a chapter in a book. Options were: a chapter in a book; a journal; a conference paper; and the proceedings of a conference. The correct answer was a chapter in a book.

Table 21: *A student’s ability to recognize parts of citation.* Question: Students were asked what a given citation denotes and were expected to recognize it as a chapter in a book.

Q.23	Responses
Correct	7
Incorrect	17
Blank	1
Total no. of respondents	25

Findings reflect that the majority of students could not correctly recognize this citation. Only seven responses correctly indicated that the cited work is a chapter in a book. This fits well with what was found in question one of the survey instrument, which reflected that 15 out of 25 often or sometimes needed help with use of the recommended citation style at NUL.

Being familiar with parts of citations is essential in writing a research paper. All students doing research should be able to recognize parts of a citation. If students are not able to recognize a cited item it shows that they have little understanding of what a citation is. Findings from the interviews also confirmed that students have a problem with citations.

Question 24

This question is a follow-up to question 23. It aims to test whether students could recognize a correct citation according to Outcome 5.3a of Standard Five, which promotes correct and consistent citation style.

Table 22: A student's ability to effectively use information to recognize a complete and correct citation. Question: The question asks for student's own opinion on

whether the citation given in question 23 is a complete and correct citation according to the author-date style.

Q.24	Responses
Correct	14
Incorrect	11
Total no. of respondents	25

The findings above show small differences in counts. Nearly half of the respondents did not recognize elements of a complete and correct citation. In question 23, only seven out of 25 responses were correct. Proper citation is essential in research and other academic-related work. Students should be able to cite properly the sources that they have used for their academic work. This is done in order to acknowledge other people's work, and to apply a fair use of information.

Question 25

This question aimed to assess a student's awareness of copyright law according to Outcome 5.1d of Standard Five, which reads that the information literate student "demonstrates an understanding of intellectual property, copyright, and fair use of copyrighted material". Students were asked whether or not they are allowed to photocopy a whole book.

Table 23: A student's awareness of copyright law. Question: are students allowed to photocopy a whole book?

Q.25	Responses
Incorrect	1
Correct	24
Total no. of respondents	25

Findings above show that nearly all of the respondents are aware of copyright law. The reason for this is probably that the majority of respondents are law students who deal with legal issues such as copyright law and property law as part of their studies. Twenty-four out of 25 answered correctly.

This suggests that students are familiar with the fact that use of information is surrounded by ethical and legal issues which are meant to protect the owner and to facilitate fair use of copyright material. Copyright law applies to works in both paper and electronic format. Students are not allowed to photocopy a whole book in order to protect the interests of rights-holders. An information literate student should be expected to abide by the rules on proper use of information.

Question 26

This question is a follow-up to question 25 intended to test whether respondents understand copyright law according to Outcome 5.1d of Standard Five. Students were asked to give a reason of their own why they may or may not photocopy a whole book.

Table 24: *A student's ability to demonstrate understanding of copyright law.*

Students were asked to give a reason why they may or may not photocopy a whole book.

Q.26	Responses
Correct	22
Incorrect	3
Total no. of respondents	25

The results show that most students answered correctly. Results confirm the findings from question 25 and indicate that students understand copyright law, which is essential for fair use of other people's works. The results of question 25 and 26 showed that the majority of postgraduate students demonstrated an understanding of copyright law. This may be due to the fact that the majority of participants (22) were law students.

Question 27

Plagiarism is not allowed because it is not a fair use of information. This question is a follow-up to question 26 and it was aimed at assessing whether students recognized plagiarism according to Outcome 5.2f of Standard Five, which reads that the information literate student "demonstrates an understanding of what constitutes plagiarism and does not represent work attributable to others as his or her own". Students were asked to choose an example of plagiarism from the following statements:

- Using phrases and sentences of others as if they are your original work
- Reading a book written by someone you don't know

- Cutting down expenses
- Using the Internet.

It was expected that students would choose the first statement as the correct answer.

Table 25: A student's ability to recognize plagiarism. Question: Choose from a number of statements that which indicates plagiarism.

Q.27	Responses
Correct	24
Incorrect	0
Blank	1
Total no. of respondents	25

According to information presented above, it is clear that almost all the respondents seem to recognize plagiarism. That is, 24 out of 25 responses showed understanding and recognition of what plagiarism is. The results in question 26 and 27 confirm one another. This shows that almost all students recognize examples of plagiarism and are aware of copyright rules.

Question 28

In an attempt to test whether respondents could demonstrate an understanding of what constitutes plagiarism and correctly acknowledge the works and ideas of others according to outcome 5.2f of Standard Five, students were asked to read through a given passage and decide which instances constitute plagiarism and which do not. This question is a follow-up to question 27. (Please see full question in appendix C.)

Table 26: A student's ability to show understanding of what constitutes plagiarism.

Question: Read through the passages provided and decide which are instances of plagiarism and which are not.

Q.28	Correct	Incorrect	Blank	Respondents
Work copied, no quotation marks or credit	19	5	1	25
Correct use of quotation marks, work credited	13	10	2	25
Work and ideas of others acknowledged	16	7	2	25

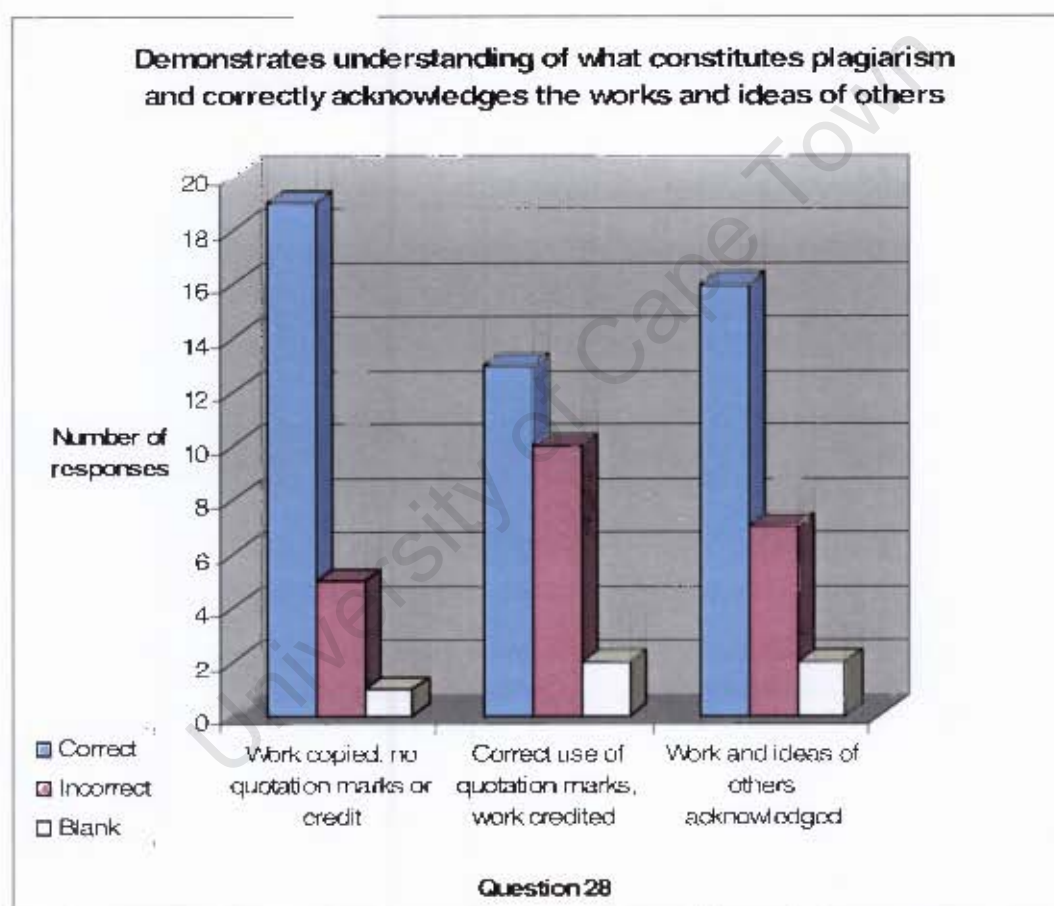


Fig. 9

Nineteen of the twenty-five responses recognized the plagiarized passage, but there was considerable doubt in recognizing that an author was cited correctly.

Standard Six:

Question 29 was based on Standard Seven of the CAUL Standards and not ACRL as was explained in section 4.4. Standard Seven reads: “The information literate student recognizes that lifelong learning and participative citizenship require information literacy” (CAUL Standards, 2001:19).

Question 29

Although lifelong learning is a continuous process and probably impossible to measure, the researcher wished to investigate whether students are regularly exposed to the media, which might be an indication of lifelong learning according to Outcome 6.1a of Standard Six, which reads that the information literate student “uses diverse sources of information to inform decisions”. Therefore, students were asked to indicate how often within the past six months had they used diverse sources of information in learning from outside the classroom.

Table 27: *A student’s ability to use diverse sources of information to inform decisions.* **Question:** How often have you used the following media as indicated in table below?

Q.29	Daily	Weekly	Monthly	Never	Blank	Total
Watched news on TV	8	7	5	4	1	25
Heard news on radio	14	7	0	4	0	25
Read news in newspapers	6	11	4	3	1	25
Heard news from public gathering	2	0	10	12	1	25

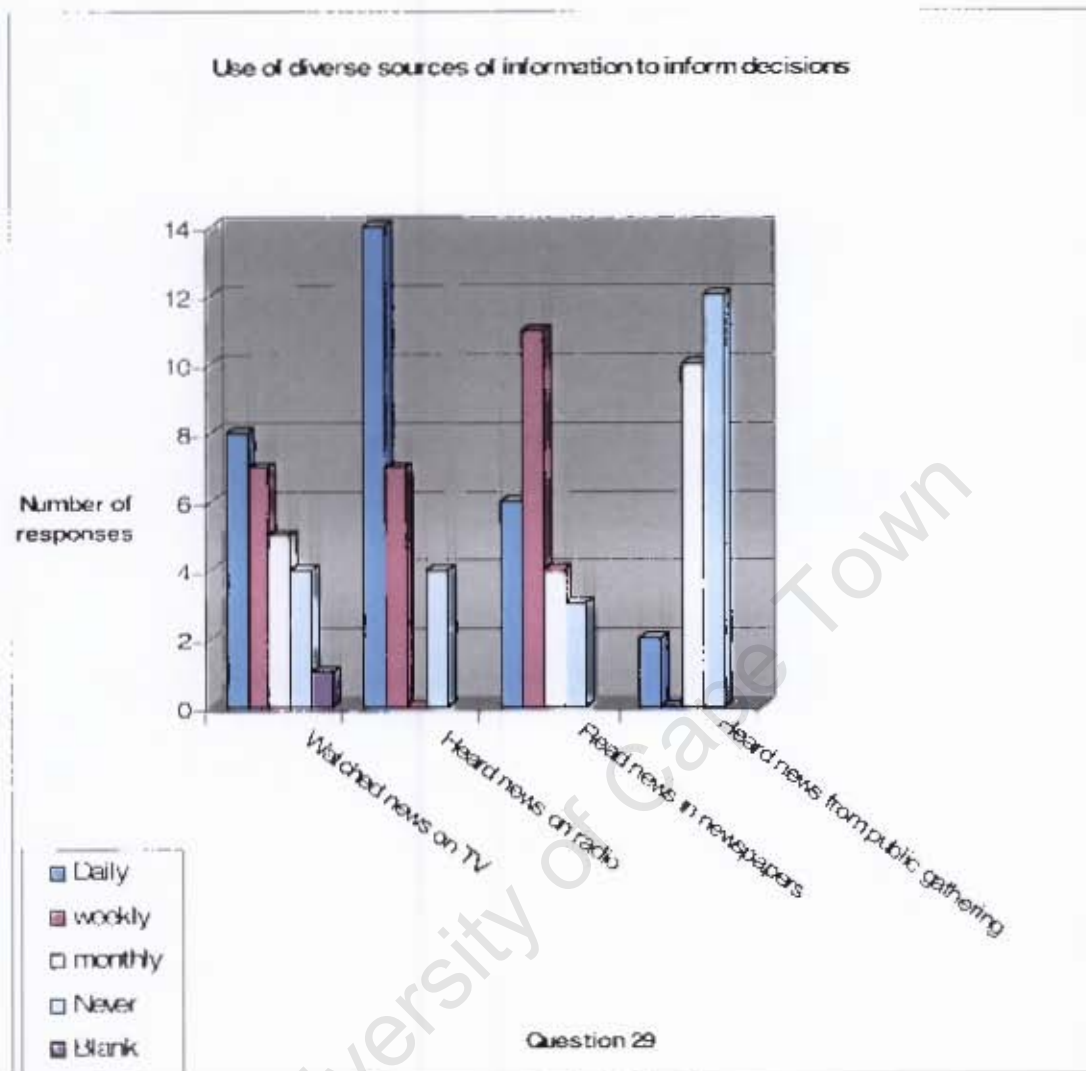


Fig.10

The results show fairly frequent use of media for lifelong learning. In almost every South African home there is a radio. Therefore 21 students listen to news on radio daily or weekly, while 17 read newspapers daily or weekly.

Radio and newspapers are generally used in African countries, as a result the majority of students have access to information from these media. Learning is an ongoing process and cannot be restricted to the classroom situation but can be experienced everywhere at

any time by anybody as formal, informal and non-formal learning throughout one's lifespan.

The results reflect the use of various information sources from outside the classroom. This could be an indicator of lifelong learning, whereby a student is expected to use the knowledge he or she has acquired from the classroom in a new situation. Lifelong learning furthers use of the other skills that is why information literacy is regarded as an asset of lifelong learning.

5.2.2. Findings from interviews

5.2.2.1 Discussions based on Standard Four

As indicated previously, Standard Four refers to the responsibilities of the educator who works in collaboration with the librarian to instil information literacy competencies. For this reason the researcher decided to explore whether Standard Four skills were being inculcated by educators and library personnel. Standard Four indicates that “the information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose”. The focus is therefore on the use of information and the outcome will reflect the student's ability to use information competently and effectively.

It was found from the interviews that lecturers ask students to work in groups, share ideas and communicate their knowledge to others in class presentations. One law lecturer indicated that students use tools such as charts, which reveal their creative thinking. It was also mentioned that students are required to use books, newspapers,

computers and media such as radio and T.V. for their presentations. Presentations may entail a lot of critical thinking, which is required for information literacy.

Students are at times required to compile different information materials and then sort them out according to type and to provide proper citations for each item collected. This helps students put into practice what they have learned in class and from library instruction. In order to bridge the gap between the classroom and the library, it is recommended that librarians and course instructors be encouraged to sit and plan together on how the instruction should be carried out (Spitzer, 1998:190). This will create a foundation for lifelong learning, which is the core of library instruction.

Teachers who are trying to inculcate information literacy according to Standard Four are expected to work in cooperation with faculty and incorporate information literacy into the curriculum and also seek the most effective method of assessing students' level of information literacy.

5.2.2.2 Interviewing library personnel

Three heads of library sections were interviewed on the 5th May 2005 at 09h00 in one of the offices in the library and the interview schedule has been attached as Appendix D. The researcher introduced herself and her topic of research to the respondents. The first question asked the interviewee to explain his own understanding of the term information literacy. His response closely resembled the ALA standards as he indicated that an information literate person should have the ability to locate, identify, access, organize, evaluate, communicate, use and disseminate information effectively in all formats. He

further indicated that information literacy has become even more necessary in the information society, which requires the ability to deal with massive volumes of information brought about by the emergence of the Internet and other electronic information resources. The other two interviewees concurred with the points raised by the first respondent. It was therefore clear that these librarians were familiar with the concept of information literacy.

The second question, addressed to the second respondent, was whether or not information literacy had been integrated into NUL curriculum. The second respondent indicated that information literacy has not yet been integrated into NUL curriculum. The other two interviewees were of the same opinion.

The third question directed to the third interviewee was to specify the user education programmes offered by NUL library. He indicated that there are programmes such as library orientation, which familiarizes new students with how the library works, and the library bibliographic instruction, which includes introduction to use of catalogues, indexes, abstracts and reference materials, which to some extent address issues of information literacy. The first respondent interrupted by emphasizing the importance of library orientation programmes for beginners and library instruction sessions for addressing the problem of inadequate skills in using information resources. The third interviewee agreed with the first two.

The interviewer then asked the fourth question seeking clarification on the role played by NUL in promoting information literacy. The third respondent indicated that the university had recently credited computer literacy course to provide students with basic

computer skills and the communication skills course intended to improve students' communication skills. The other two interviewees concurred with their counterpart.

The fifth question on whether there is cooperation between faculty and library was answered by the second respondent indicating that there is little cooperation between the library and the faculty. The other two interviewees agreed.

The sixth question was whether there is any form of assistance that the library offers to the students. The first respondent indicated that students are helped to acquire information seeking skills so that they are able to deal with information technology and related issues. The second respondent added that students are assisted in using the Internet, the online catalogue, CD-ROMs, reference materials, short-loan materials, periodical articles, research reports, monographs and audio-visual materials available in the library. He further pointed out that the advent of the Internet along with other electronic information resources has highlighted the importance of information literacy. The third respondent also added that students need to be taught information skills and there must be cooperation between the library and the university departments as information literacy touches on all aspects of life and advocates lifelong learning.

The interviewer then asked the last question about problems encountered by the library personnel in fostering information literacy. The third respondent indicated that they have insufficient professional staff to cope with the library workload. He also pointed out that there is insufficient time allocated for user education. The other two respondents concurred with what their counterpart said. The interviews for this particular group came to an end at 11h00. The interviewer thanked the participants for their time and cooperation.

5.2.2.3 Interviewing the first senior law lecturer at NUL

The interview was held on the 12th May 2005 in the lecturer's office (Appendix E.) The interviewer was allowed thirty minutes, from 11h30 to 12h00. The interviewer asked the interviewee what she understands by the term information literacy. She pointed out that even though she does not know much about it, what she could say was that it is an appropriate way of using information from various information resources in pursuing lifelong learning. She further indicated that at NUL only two courses which have been newly credited are partly involved with information literacy through acquisition of the required computer and communication skills.

The interviewer asked the second question, whether they practise student-centred or teacher-centred learning. The interviewee responded that they use a combination of both. She indicated that due to inadequate mastering of information technology skills, a large percentage of students is still unable to learn independently.

Thirdly, the researcher asked the respondent to indicate ways in which she improves her lessons. She responded that she uses resources such as newspapers, journals, reference materials, posters, books and tools such as T.V., radio, audio-recorder, multi-purpose projector and computer to improve her lessons and to ensure that students are involved in learning. At times students are asked to work in groups and to present their work in class, using some of these sources of information available to them in the library and from anywhere else to obtain relevant information. They use tools such as charts, books, radio, T.V., newspapers and computers. Therefore, students are exposed to processes associated with information need, searching, locating, handling, sharing and communicating to acquire relevant information and technology skills.

The fourth question was whether NUL offers information literacy courses. The response was that the university has recently credited the computer literacy course and the communication skills course for first year students.

A fifth question following on the previous one, was whether there is a need to integrate information literacy into NUL curriculum. The respondent replied that it would be of great help towards improving the required information skills.

The sixth question was whether or not they use a specific citation style at NUL. The response was that they use the Harvard citation style, but the respondent indicated that she had observed that most students seem to have problems in citing correctly, especially when it comes to citing online sources. She suggested that the only solution to this problem would be to work in collaboration with other departments and the library.

When asked (seventh question) if there is any form of cooperation between the faculty and the library the respondent pointed out that currently there is no cooperation between the library and the faculty.

The eighth question was whether they could give an indication of how information literate the students are. The response was that most students are still not good at doing their searches and citing correctly.

Lastly, the interviewer asked the respondent whether NUL management gives support towards enforcing information literacy. The respondent indicated that all she could say is that through the management's decision the two courses were credited. The Interviewer thanked the interviewee for her time and cooperation. The researcher considers that information literacy is to some extent being inculcated by teachers and librarians at NUL

due to the fact that law lecturer involves students in learning by using resource-based approach, and the librarians through orientation sessions and library instruction.

5.2.2.4 Interviewing the second senior law lecturer at NUL

The interview was held in interviewee's office on the 12th May 2005 at 14h30 for half an hour (Appendix E). The interviewer firstly asked the interviewee what she understands by the term information literacy. She indicated that the term is not commonly referred to, by the majority of lecturers, but what she could say is that information literacy is concerned with the skills to use information to solve an immediate problem and for lifelong learning. She further indicated that two newly credited courses are meant to improve students' skills in using the computer as well as for communicating knowledge.

Secondly, the interviewer asked the interviewee whether the approach to teaching is teacher-centred or student-centred. The response was similar to the one given by the first senior law lecturer because she too pointed out that the approach she pursues is a combination of both.

The third question asked what the respondent does to improve her lessons. She said that students are better taught in a resource-based environment where they could independently exploit the resources to find out the answer to the task at hand. She further indicated that by using a resource-based environment students become engaged in the learning process. She further indicated that her students learn from her comments in a given assignment.

The fourth question was whether NUL offers any information literacy courses. The respondent indicated that there is no single course by the name information literacy but the newly credited courses could be regarded as a way forward.

The fifth question asked was whether she feels there is need to integrate information literacy into the NUL curriculum. The response was that it will be an added advantage to integrate it into their curriculum, but it will take time to get there, as they still have to improve the existing user education programs, and working towards collaborating with library staff.

The sixth question was whether NUL uses a specific citation style or not. The response was that Harvard referencing is used. But she had observed that most students seem to have problems in citing correctly.

When asked whether there is cooperation between faculty and the library (question 7) the interviewee responded that as far as she is concerned there is no such cooperation.

The researcher asked (question 8) whether the respondent could give an indication of how information literate her students are. The interviewee responded that there is a problem of students who could not cite properly in their assigned academic work.

Lastly the interviewer asked whether NUL management gives support towards enforcing information literacy. The interviewee pointed out that the University encourages participation in training workshops, educational conferences, membership in academic associations and community service whereby participants could learn, gain, and share knowledge and information with their counterparts using the latest technology for the benefit of the learner. The interviewer thanked her for her time and cooperation.

5.2.2.5 Interviewing the University Librarian

The interview was conducted in librarian's office on the 17th May 2005 at 16h00 (Appendix F). The interviewer was allowed thirty minutes. The interviewer asked the interviewee to elaborate on the role of the Lesotho Libraries Consortium (LELICO) in promoting information literacy. The response was that the NUL library is in partnership with the Lesotho College of Education (LCE), the National Library, the Lerotholi Polytechnic Library, the Lesotho High Court Library, the Agric Research Library, the Agric College Library, and the Library of the Institute of Public Administration Management (LIPAM). These libraries in partnership formed the Lesotho Libraries Consortium, whose main purpose is resource sharing and educational training for members in order to provide quality service in information handling. She further indicated that by improving the quality of library staff, the clients too would benefit. She then pointed out that NUL library is also a member of the Standing Conference of National University Libraries in Africa (SCONUL).

She indicated that LELICO member libraries will in future be educated in the use of electronic information resources, e-services which facilitate access to available information and its use such as developing online public access catalogues, and web pages. She indicated that members will also be exposed to the use of e-resources such as e-journals, e-books and databases such as EBSCO HOST could be accessed. Therefore, the librarians should be able to pass on their knowledge to their library clients.

She also indicated that NUL library is advanced compared to other LELICO members as it has started to educate students on the use of e-resources and the Internet. She also indicated that as members they have been given computers by donor agencies and the

NUL library has opened up an information literacy laboratory for the use of students using these computers in searching for information. She also pointed out that the previous Pro Vice Chancellor had shown support for the use of the laboratory in training fourth year students in library use and the use of the Internet. She further indicated that the proposed extension of the library will in future have a positive impact in the area of information literacy as there will be sufficient space for training students to acquire relevant information technology and information handling skills. Then the interviewer thanked the Librarian for her time and cooperation.

5.3 Summary of the findings from all the interviews

From the interviews the researcher learned that there is an expressed need for cooperation between faculty, departments and the library in order to enhance the information literacy programmes offered at NUL. Courses such as communication skills and computer literacy are already offered at NUL and have been incorporated into the curriculum. Independent learning is indirectly practised as the lecturers interviewed said that they use a combined teacher and student-centred approach. It was also indicated that the postgraduate students are exposed as much as possible to library resources; they receive library orientation, and are taught through library instruction how to make use of available resources to access information required. There was unanimity among all respondents about the importance of promoting information literacy at NUL.

The problem of insufficient professional staffing was regarded as a major problem contributing towards implementing information literacy at NUL. The observation noted

in Section 5.2.2.3 that students have difficulties in searching and citing, were supported by findings from the questionnaire as reflected in, for example: Tables 15-17 and 21.

The interviewees pointed out that they encounter problems such as a shortage of professional staff to handle large numbers of users; inadequate time allocation for user education programmes; and a lack of cooperation between library staff and faculty; students' lack of skills in proper citing and effective searching. By providing this information, additional to the questionnaire, the interviews seem to confirm much of what was gathered from the main data collection instrument.

5.4 Conclusion

This chapter provided findings and the interpretation of data. A number of standards for higher learning were used to assess the level of information literacy for a group of 2004/5 NUL postgraduate and senior students. It was found that the level or state of information literacy for that particular group of postgraduate and senior students ranged from moderate to poor. The next chapter will present conclusions and recommendations based on findings from the questionnaire and the interviews. It will also highlight the main issues derived from the entire study.

CHAPTER SIX

CONCLUSIONS ON FINDINGS AND RECOMMENDATIONS

6.1 Conclusions based on research questions

This chapter presents the conclusions and recommendations based on findings from the survey and interviews. The conclusions below arise from the evidence gathered in this study and are related to findings. The recommendations are aimed at improving the present state of information literacy education at NUL, particularly for postgraduate students. A student in higher education is expected to take responsibility for his or her own learning. Therefore, the development of skills will help students to survive the challenges brought about by information technology. With reference to the research questions that were stated in Chapter One, this investigation found:

Research question 1: Were postgraduate and senior students for the academic year 2004/5 able to recognize a need for information?

This research question was informed by Standard One of the ACRL Standards. Findings show that respondents have some idea of what kind of information they need, where to find it and who to consult in seeking for assistance with information need. The conclusion is that respondents seemed to realize that they have to go to the library where large collections of various information materials could be obtained. It was established that respondents are willing to seek assistance when faced with their information needs. In seeking for information, respondents expressed a need for guidance and training from information specialists, and they seemed to express that their information needs were inadequately met at NUL.

It was also found that respondents claimed to be able to frame questions, but results reflected that the majority of respondents were not able to frame research questions. It is therefore concluded that the importance of framing questions might not be sufficiently emphasized at NUL, which might be an obstacle in their ability to find the most appropriate information for a particular need. It was established that they lack knowledge of the contents of various common information sources and could not recognize sources of current and authoritative information. They also seemed to lack knowledge of how to distinguish primary from secondary sources of information. The conclusion is that the need for information for a particular task requires the effective exploration of library resources to familiarize students with what information to get from each common source of information.

Orientation programmes and library instruction offered by librarians should play an important role in enabling users to get to know the library and its sources better. The results from this study give the impression that the majority of respondents seemed to underestimate the importance of orientation and library instruction programmes offered by the library. The results show that while respondents might have been able to recognize an information need, they did not seem to explore various library resources and tended to limit their use of library resources to those found on the open shelves.

Research question 2: Were postgraduate and senior students able to access required information effectively and efficiently?

This question was informed by Standard Two of the published ACRL Standards and particularly sought to explore students understanding and use of the World Wide Web. Findings show that respondents were to a limited extent able to access required

information. It was found that the Internet was their information resource of choice but their web knowledge was somewhat superficial, suggesting that the majority of respondents seemed not to be able to retrieve appropriate information effectively. In order for students to be considered information literate they have to apply critical thinking in conducting searches and apply relevant information and technology skills that do not necessarily come naturally but have to be learned and practised.

While it was found that the majority of respondents understood the basics of Boolean searching and seemed to be aware of the proper use of Boolean logic, the respondents' difficulties in searching for online information were demonstrated in that they seemed to lack the ability to recognize and correct failures in a subject search. They seemed to have problems in conducting keyword and subject searches.

It became clear that the respondents seemed not to be very skilled in network literacy, which refers to the ability to identify access and use electronic information from the network. They did not seem very information technology literate, which includes competencies in using computer software such as spreadsheets and MS-Word, and also competencies in using the Internet for access to relevant information.

The results reflected that respondents lacked an understanding of the scope and configuration of the Internet. It is therefore concluded that the information technology terminology used in operating information retrieval tools might be a source of the problems facing the respondents. It is also suggested that a skills-based approach, which is characterized by self-directed independent learning, might not be emphasized at NUL.

Research question 3: Were postgraduate and senior students able to evaluate information and its sources critically?

The section of the survey that was designed to answer this question was informed by Standard Three of the published ACRL Standards. The results show that respondents seem to understand how to deal with dubious information but not much evidence was found for their ability to evaluate the appropriateness of information and its sources.

The respondents were not very confident in knowing whether documents found on the World Wide Web include information that is reliable and appropriate for an academic task.

Research question 4: Were postgraduate and senior students able to use information effectively to accomplish a specific purpose?

This question reflects Standard Four, which according to ACRL is achieved by librarians working in collaboration with lecturers. Findings obtained from the interviews with law lecturers established that law lecturers claimed to use a combination of teacher and student-centred approaches in their classes. They also claimed to use a variety of resources such as books, newspapers, journals, posters and some tools such as a television and a radio to improve their lessons. They stated that they involved students in learning by instructing them to collect resources from the library and use them for presentations in class. On the other hand they admitted that they did not collaborate with librarians on issues concerning teaching and learning approaches. This method involves a process approach, which requires various competencies and skills. The law lecturers were therefore trying to promote outcome-based learning as students learn better from

their own findings. This finding shows that these lecturers are aware of information literacy, but that it is not yet embedded in course curricula.

Research question 5: Did postgraduate and senior students have the ability to understand economic, legal and social concerns surrounding the ethical and legal use of information?

Standard Five of the published ACRL Information Literacy Standards is reflected in this question. Findings from this study showed that nearly all respondents were aware of copyright law and could recognize plagiarism. It is suggested that this was due to the fact that the majority of respondents were law students who dealt with legal issues such as property law and copyright law as part of their studies. Even though there is no written policy to warn students of the danger of being involved in plagiarism, it is understood that the law students deal with such issues as part of their learning.

The majority of the respondents could not recognize citations, and nearly half of the respondents did not recognize elements of a complete and correct citation. Students as users of information are expected to practise fair use of other people's works for academic purposes by citing properly and providing a list of works cited as their reference list in writing long papers such as a thesis. Both lecturers interviewed concurred that students had difficulties with citation.

Research question 6: Did postgraduate and senior students use diverse sources of information to inform decisions?

This question was an attempt to reflect the Sixth Standard of the ACRL Information Literacy Standards. With regard to a research question investigating whether students are

regularly exposed to the media as an indicator of lifelong learning, it was found that there was fairly frequent voluntary use of media such as radio and newspapers. It was found that a significant number of students listened to news on radio and read newspapers daily or weekly. This may also be the effect of the majority being law students who have to be current with daily events as part of their learning. As radio and newspapers are commonly used in African countries, the majority of students have access to information from these media.

Lifelong learning furthers the use of literacy skills, so that information literacy could be regarded as an indicator of lifelong learning. Learning takes place everywhere at every time throughout life, therefore students should learn to be independent self-directed skilful learners who are ready and prepared for lifelong learning.

In this information age technology use has become a dominating factor in higher learning for information society, which needs to be addressed by skilful information users. It is therefore concluded that the respondents' use of media might be an indicator of awareness of information literacy.

Research question 7: Was it possible to assess the information literacy of postgraduate and senior students at NUL by constructing instruments informed by published information literacy standards?

The discussion above has demonstrated that it was possible to measure the information literacy of a group of postgraduate and senior students at NUL using the five ACRL information literacy standards and one lifelong standard from CAUL as a method of measuring the level and extent of information literacy of a group of postgraduate students.

6.2 Recommendations

The recommendations below are based on findings obtained from this study. With respect to findings on the students' ability to recognize an information need, it was established that respondents seemed to be willing to seek assistance when faced with an information need, but still lack knowledge of the contents of various common information sources and were not able to frame research questions. It is therefore suggested that lecturers follow-up on students' use of the library and should themselves become effective users of the library to be able to make constructive suggestions on exploration and use of the library resources for the benefit of the learner.

The researcher also suggests that lecturers should put more emphasis on the importance of framing questions by including research methods into subject-integrated information literacy instruction. In addition it is suggested that library orientation should be made compulsory for all beginners and thereafter be continuous, based on educators' requests. Improved bibliographic instruction and the appropriate knowledge of bibliographic tools are recommended.

The literature survey has demonstrated the importance of librarians working in close cooperation with subject specialists to inculcate information literacy skills in students. Lecturers at NUL should be made aware of those issues and be encouraged to act accordingly.

It is suggested that librarians and lecturers work in collaboration to combine the expertise of library and faculty to meet educational goals and to prepare students to take a practical and decision-making role in dealing with information. Findings demonstrated students' difficulties in accessing information in that they seemed to have problems in

conducting computer searches, most especially in keyword and subject searches. Therefore, the researcher suggests that the use of electronic databases be emphasized at NUL. Furthermore, it is suggested that lecturers in collaboration with librarians could act as facilitators to help students to cope with ICTs within the electronic learning environments and assist students in developing into self-directed independent learners by fully implementing a student-centred approach.

It has been shown that while students frequently visit the library, the effective use of library holdings seemed to be a problem facing respondents at NUL. Libraries as part of the University are expected to market their services and programmes including bibliographic instruction in order to motivate students as library clients to make proper use of library resources and to get to know the library better (White, 2003:1). In interviewing library personnel on problems they encountered in fostering information literacy it was found that the library's professional staff is inadequate. It was found that there was limited time allocated for library education, and also that there is little cooperation between the library and the faculties. All these problems hinder progress in developing information literacy education programmes. The researcher suggests that the library should encourage the integration of information literacy skills into subject-integrated library instruction. She further suggests that NUL library needs to have an information literacy coordinator and specialized subject librarians for quality service in assisting students in using library information successfully. It is suggested that NUL should find a way of marketing its services to clients to make known what the library holds for them.

With regard to the legal use of information, the findings from the questionnaire and the interviews suggested that citation is a problem encountered by many students of NUL. It has been established that NUL does not have a written policy to address plagiarism but that students are expected to practise fair use of other people's work and be aware of the legal and ethical issues surrounding use of information. Therefore the researcher suggests that NUL formulates a written policy on plagiarism, to make students aware of the danger of plagiarizing when dealing with information for academic purposes. Postgraduate students should as much as possible be exposed to writing short and long academic papers to gain experience and practice of proper citing of the other people's works used (Turabian, 1982: vii-viii).

With regard to lifelong learning it was found from the survey that students independently used media such as radio and newspapers outside the classroom situation. The researcher recognizes that learning as a continuous process requires continuous development of skills, and therefore suggests that an independent student-centred approach towards learning should be encouraged as it helps students in developing information literacy and provides confidence towards lifelong learning. The researcher recommends the integration of information literacy skills and principles into postgraduate curricula at NUL. Information literacy should be the concern of the entire learning organization and should be enhanced through advanced information literacy education programmes and the awareness of the need to have information literacy standards as part of a working postgraduate curriculum that will underpin learning in higher education.

6.3 Overall conclusion

The results obtained from a group of postgraduate students cannot be generalized to reflect the overall performance of all postgraduate students at NUL, as only two faculties were represented out of five. It could however be concluded that students who participated in this study showed some familiarity with aspects of information literacy, even though in some instances the results suggested a lack of understanding and lack of various information skills associated with information seeking, locating, searching evaluating and using.

Information literacy is not only associated with library use, but also concerned with learning, and learning does not take place only in libraries and classroom situations, but it is a continuous lifelong process. The researcher expects that this study will act as an incentive and a challenge for developing creative and critical users of information and developing lifelong learners at NUL and that information literacy standards being a standardized measurement tool for information literacy skills, should inform postgraduate students' curricula.

It is further suggested that a similar research project could be carried out among undergraduate students of NUL because it has been shown that even at postgraduate level students do not have a firm foundation in information skills.

LIST OF REFERENCES

- AASL (American Association of School Librarians) & AECT (Association for Educational Communications and Technology). 1998. *Information Literacy Standards for student learning*. Chicago: American Library Association.
- ACRL (Association of College and Research Libraries). 2003. ACRL information literacy competency standards for higher education. [Online]. Available: <http://www.ala.org/acrl/acrlstandards/informationliteracycompetency.htm> [March 08, 2005].
- ALA (American Library Association). 2003. Information competence in the California State University: taking a snapshot of student information competence skills. [Online]. Available: <http://www.csupomona.edu/~kkdunn/1casses/phase1summary.htm> [August 8, 2005].
- ALA (American Library Association). 1989. *ALA Presidential committee on information literacy*. Final report. Chicago: American Library Association.
- Andretta, S. 2005. *Information literacy: a practitioner's guide*. Oxford: Chandos.
- Andretta, S. & Sinikara, K. 2003. Information literacy: a Nordic/ British comparison. *Library and information update*. 2(5):34-35.
- Armstrong, C. Et al. 2005. Defining information literacy for the UK. *Library and information update*. 4(1): 22-25.
- Arp, L. & Woodard, B.S. Eds. 2005. Information literacy and instruction. *Reference and user services quarterly*. 44(4):296-300.

- Babbie, E. & Mouton, J. 2001. *The practice of social research*. Oxford: Oxford University.
- Badger, J. & Robers, S. 2001. Finite questions and infinite answers: online assessment of information literacy skills. Conference papers. Melbourne: Swinburne University of Technology. [Online]. Available: <http://www.conferences.alia.org.au/online2001/papers/information.literacy.strategies.htm> [August 02, 2006].
- Behrens, S.J. 1994. A conceptual analysis and historical overview of information literacy. *College and research libraries*. 7: 309-323.
- Boekhorst, A.K. & Britz, J.J. 2004. Information literacy at school level: a comparative study between the Netherlands and South Africa. *South African journal of libraries and information science*. 70(2): 63-70.
- Bridgeland, A. & Whitehead, M. 2005. Perspectives on information literacy in the “E” environment: an approach for sustainability. *Journal of academic librarianship*. 31(1):54-59.
- Bruce, C.B. 2002. ‘Information literacy as a catalyst for education change: a background paper’. White paper prepared for UNESCO, the US National Commission on Libraries and Information Science, and the national forum on information literacy for use at the *information literacy meeting of experts*. Prague: the Czech Republic. July 2002. [Online]. Available: <http://scholar.google.com> [August 02, 2006].

- Bruce, C. 1997. Seven faces of information literacy in higher education. [Online].
Available: <http://sky.fit.qut.edu.ac/~bruce/inflit/faces/faces1.php> [December 08, 2005].
- Bundy, A. Ed. 2004a. *Australian and New Zealand information literacy framework: principles, standards, and practice*. 2nd ed. Adelaide: Australian and New Zealand Institute for Information Literacy.
- Bundy, A. 2004b. Beyond education: the academic library as educational change agent. Papers presented at the 7th *International Bielefeld Conference, Germany*, 3-5 February 2004. [Online]. Available: <http://www.library.unisa.edu.au/about/papers/bielefeld.information.pdf> [August 11, 2006].
- Cape Higher Education Consortium (CHEC). 2005. *Calico history*. [Online]. Available: <http://www.chec.ac.za> [August 18, 2006].
- CAUL (Council of Australian University librarians). 2001. Information literacy standards. [Online]. Available: http://ilp.anu.edu.au/Infolit_standards_2001.html [December 08, 2005].
- Coalition of South African Library Consortia (COSALC). 2003. The background of COSALC. [Online]. Available: <http://www.cosalc.ac.za> [August 18, 2006].
- Curran, C. 1993. Information literacy and the public librarian. In: Kent, A. Ed. *Encyclopedia of library and information science*. 51(14):258-265.
- Davidson, J.R., McMillan, P.S. & Maughan, L.S. 2002. Using the ACRL information literacy competency standards for higher education to assess a university

library instruction programme. *Information literacy programmes: success and challenges*. 36(1-2): 97-120.

De Jager, K. & Nassimbeni, M. 2005. Information literacy and quality assurance in South African higher education institutions. *Libri: international journal of libraries and information services*. 55(1):31-38.

De Jager, K. & Nassimbeni, M. 2003. An exploration of the current status of information literacy tuition in South African tertiary institutions and proposals for curriculum design. *South African journal of libraries and information science*. 69(2):108:114.

De Jager, K. & Nassimbeni, M. 2002. Institutionalising information literacy in tertiary education: lessons learnt from South African programmes. *Library trends*. 51(2):167-184.

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

Eisenberg, M.B. & Brown, M.K. 1992. Current themes regarding library and information skills instruction: research supporting and research lacking. *School library media quarterly*. 21(20):103-110.

Emde, J. & Emmett, A. 2005. Assessing information literacy skills in the real world: the good the bad and the literate. [Online]. Available: <http://scholar.google.com> [August 07, 2006].

Feather, J. & Sturges, P. 1997. *International encyclopaedia of information and library science*. London: Routledge.

- Fidzani, B.T. 1995. User education in academic libraries: a study of trends and developments in Southern Africa. *61st IFLA general conference – conference proceedings*. [Online]. Available: <http://www.ifla.org/IV/ifla61-fidb.htm> [May 9, 2005].
- Fiegen, A.M., Cherry, B. & Watson, K. 2002. Reflections on collaboration: learning outcomes and information literacy assessment in the business curriculum. *Reference services review*. 30(4):307-318.
- Fourie, I. & Niekerk, D. 2001. Follow-up on the use of portfolio assessment for a module in research information skills: an analysis of its value. *Education for information*. 19: 107-126.
- GAELIC (Gauteng and Environs Library Consortium). 2003. GAELIC. [Online]. Available: <http://www.gaelic.ac.za> [August 18, 2005].
- Hart, G. 1999. Project work as a vehicle for information literacy education in disadvantaged schools: an ethnographic field study of grade seven project work in a primary school in Cape Town. Mbibl dissertation. University of Cape Town: Department of Library and Information studies. (Unpublished).
- Hundie, K. 2001. Retrospective conversion of card catalogue at the National University of Lesotho library. *African journal of librarianship archives and information science*. 11(2): 149-157.
- Hyams, E. 2005. No clear message on digital information skills. *Library and information update*. 4(9): 26.

- INASP (International Network for the availability of Scientific Publications). 2005. Towards the digital library in Africa. [Online]. Available: <http://www.inasp.info> [May 11, 2005].
- Johnston, B. & Webber, S. 2003. Information literacy in higher education: a review and case study. *Studies in higher education*. 28(3): 335-352.
- Johnson, P. 2002. New technology tools for human development? Towards policy and practice for knowledge societies in Southern Africa. *Compare*. 32(3):381- 389.
- Julien, H. 2000. Information literacy instruction in Canadian academic libraries: longitudinal trends and international comparisons. *College and research libraries*. 61(6): 510-523.
- Keenan, S. & Johnson, C. Eds. 2000. *Concise dictionary of library and information science*. 2nd ed. London: Bowker-Saur.
- Kiondo, E. & Msuya, J. 2005. *User information literacy: case studies from university library programmes in the SCANUL-ECS region*. Tanzania: SCANUL-ECS
- Kirby, J., Liddiard, L. & More, K. 1998. *Empowering the information user: new ways into user education*. London: Library Association.
- Kuhlthau, C. 1994. *Teaching the library research process*. 2nd ed. Metuchen: Scarecrow.
- Larraine, S. 2003. Everything you need to know about standards and are glad you never asked. [Online]. Available: <http://www.alia.org.au/groups/topend/2003.symposium/standards.html> [December 08, 2005].

- Leedy, P.D. 1989. *Practical research: planning and design*. 4th ed. New York: Macmillan.
- Lockhart, J. & Coetzee, A. 2001. "Before you start." Information Fluency. [Online]. Available: <http://www.lib.uct.za/training/infolit/infolit/infolit.htm> [August 02, 2006].
- Makhubela, L. & Koen, Z. 1995. Another angle on access: information literacy and student learning. *Academic development*.1(1): 13-19.
- Mats'ela, Z.A. 2001. African technology policy studies (ATPS) network, Lesotho Chapter: an urgent call for research proposals. Roma: National University of Lesotho. (Unpublished).
- Maughan, P.D. 2001. Assessing information literacy among undergraduates: a discussion of the literature and University of California-Berkeley assessment experience. *College and research libraries*. 62(1):71-85.
- McClure, C.R. 1994. Network literacy: a role for libraries? *Information technology and libraries*. 6: 115-125.
- Ministry of Communications, Science and Technology. 2004. National ICT policy for Lesotho draft. 2004. [Online]. Available: http://www.lesotho.gov.ls/articles/2004/Lesotho_ICT_Policy_Draft.pdf [July 27, 2006].
- Ministry of education and training Lesotho. 2004. *National report on the development of education*. Maseru: Ministry of education and training Lesotho. [Online]. Available: <http://www.lesotho.gov.ls> [July 27, 2006].

- Mosheshoe-Chadzingwa, M. 2005. "User information literacy programmes: the case of Thomas Mofolo Library at National University of Lesotho". In: Kiondo, E. & Msuya, J. Eds. *User information literacy: case studies from university library programmes in SCANUL-ECS region*. Tanzania: SCANUL-ECS.
- Mosheshoe-Chadzingwa, M. et al. 2003. Lesotho library consortium (LELICO): official launch and capacity building workshop held at Maseru Sun cabanas. March 3-4. Roma: National University of Lesotho. (Unpublished).
- Msuya, J. 2005. "Information literacy in the Eastern, Central and Southern African region: an overview." In: Kiondo, E. & Msuya, J. Eds. *User information literacy: case studies from university library programmes in SCANUL-ECS region*. Tanzania: SCANUL-ECS.
- National University of Lesotho Bureau of Projects. 2001. Bureau of projects, training and consultancy services NUL - CONSULS. [Electronic]. Available: <http://www.nul.ls/about/nul-consuls-gov.htm> [December 08, 2005].
- National University of Lesotho Information Office. 2001. *National University of Lesotho calendar 2002/3-2005/6*. Roma: National University of Lesotho Information Office.
- National University of Lesotho Statistics Office. 2004. Enrolment by faculty by year: Postgraduate and undergraduate statistics for academic year 2004/5. Roma: NUL. (Unpublished).
- O'Connor, L.G., Radcliff, C.J. & Gedion, J.A. 2001. Assessing information literacy skills: developing a standardized instrument for institutional and longitudinal

measurement. *ACRL 10th National Conference*. Kent State University. [Online] Available: <http://www.ala.org/ala/acrl/acrlevents/oconnor.pdf> [February 10, 2006].

Pausch, L.M. & Popp, M.P. 1997. Assessment of information literacy: lessons from the Higher Education Assessment Movement. [Online]. Available: <http://www.ala.org/acrl/paperhtm/d30.html> [August 02, 2006].

Rader, H.B. 2001a. Managing academic and research libraries partnerships. Managing academic and research libraries partnerships. *67th IFLA Council and General Conference*. University of Louisville. [Online]. Available: <http://www.ifla.org/IV/ifla67/papers/100-192e.pdf>. [December 08, 2005].

Rader, H.B. 2001b. Cooperative ventures between the University and the library. *67th IFLA Council and General Conference*. University of Louisville. [Online]. Available: <http://www.ifla.org/IV/ifla67/papers/081-164e.pdf>. [December 08, 2005].

Rockman, I.F. 2002. Strengthening connections between information literacy, general education, and assessment efforts. *Library trends*. 51(2): 185-198.

Sayed, Y. 1998. *The segregated information highway: information literacy in higher education*. Cape Town: University of Cape Town.

SCONUL (Standing Conference of National and University Libraries). 1999. Information skills in higher education: a SCONUL paper. [Electronic]. Available: <http://scholar.google.com> [April 20, 2005].

- Selematsela, D. & Krooden, E. 2005. "The library information literacy programme of the University of South Africa (UNISA)" In: Kiondo, E. & Msuya, J. Eds. *User information literacy: case studies from university library programmes in SCANUL-ECS region*. Tanzania: SCANUL-ECS.
- Smit, G.J. 1995. *Research: guidelines for planning and documentation*. Halfway House: Southern Book.
- Spitzer, K.L. 1998. *Information literacy: essential skills for the information age*. New York: Syracuse University.
- Struwig, F.W. & Stead, G.B. 2001. *Planning designing and reporting research*. Cape Town: Pearson Education South Africa.
- Teacher-Librarians supporting student learning. 2005. Resource-based learning: definition. [Online]. Available: <http://scholar.google.com> [August 02, 2006].
- Turabian, K.L. 1982. *A manual for writers of research papers, theses, and dissertations*. London: Heinemann.
- Webb, J. & Powis, C. 2005. Start with the learner. *Library and information update*. 4(1-2): 50-52.
- Webber, S. & Johnston, B. 2000. Conceptions of information literacy: new perspectives and implications. *Journal of information science*. 26(6):381- 397. [Online]. Available: <http://scholar.google.com> [August 07, 2006].
- White, M.V. 2003. Information literacy programs: successful paradigms for stimulating and promoting faculty interest and involvement. *Reference librarian*.

[Electronic]. Available from EbscoHost: Academic Search Premier at
<http://www.lib.uct.ac.za/datahosts.htm> [March 8, 2005].

Williams, M.E. 2001. Annual review of information science and technology. *Information today*. 35, 385-388.

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APPENDIX A

ACRL INFORMATION LITERACY STANDARDS (ACRL, 2003).

(<http://www.ala.org/ala/acrl/acrlstandards/informationliteracycompetency.htm#stan>)

Standards, Performance Indicators, and Outcomes

Standard One

The information literate student determines the nature and extent of the information needed.

Performance Indicators:

1. The information literate student defines and articulates the need for information.

Outcomes Include:

- a. Confers with instructors and participates in class discussions, peer workgroups, and electronic discussions to identify a research topic, or other information need
 - b. Develops a thesis statement and formulates questions based on the information need
 - c. Explores general information sources to increase familiarity with the topic
 - d. Defines or modifies the information need to achieve a manageable focus
 - e. Identifies key concepts and terms that describe the information need
 - f. Recognizes that existing information can be combined with original thought, experimentation, and/or analysis to produce new information
2. The information literate student identifies a variety of types and formats of potential sources for information.

Outcomes Include:

- a. Knows how information is formally and informally produced, organized, and disseminated
 - b. Recognizes that knowledge can be organized into disciplines that influence the way information is accessed
 - c. Identifies the value and differences of potential resources in a variety of formats (e.g., multimedia, database, website, data set, audio/visual, book)
 - d. Identifies the purpose and audience of potential resources (e.g., popular vs. scholarly, current vs. historical)
 - e. Differentiates between primary and secondary sources, recognizing how their use and importance vary with each discipline
 - f. Realizes that information may need to be constructed with raw data from primary sources
3. The information literate student considers the costs and benefits of acquiring the needed information.

Outcomes Include:

- a. Determines the availability of needed information and makes decisions on broadening the information seeking process beyond local resources (e.g., interlibrary loan; using resources at other locations; obtaining images, videos, text, or sound)
 - b. Considers the feasibility of acquiring a new language or skill (e.g., foreign or discipline-based) in order to gather needed information and to understand its context
 - c. Defines a realistic overall plan and timeline to acquire the needed information
4. The information literate student reevaluates the nature and extent of the information need.

Outcomes Include:

- a. Reviews the initial information need to clarify, revise, or refine the question
- b. Describes criteria used to make information decisions and choices

Standard Two

Standard Two

The information literate student accesses needed information effectively and efficiently.

Performance Indicators:

1. The information literate student selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.

Outcomes Include:

- a. Identifies appropriate investigative methods (e.g., laboratory experiment, simulation, fieldwork)
 - b. Investigates benefits and applicability of various investigative methods
 - c. Investigates the scope, content, and organization of information retrieval systems
 - d. Selects efficient and effective approaches for accessing the information needed from the investigative method or information retrieval system
2. The information literate student constructs and implements effectively-designed search strategies.

Outcomes Include:

- a. Develops a research plan appropriate to the investigative method
 - b. Identifies keywords, synonyms and related terms for the information needed
 - c. Selects controlled vocabulary specific to the discipline or information retrieval source
 - d. Constructs a search strategy using appropriate commands for the information retrieval system selected (e.g., Boolean operators, truncation, and proximity for search engines; internal organizers such as indexes for books)
 - e. Implements the search strategy in various information retrieval systems using different user interfaces and search engines, with different command languages, protocols, and search parameters
 - f. Implements the search using investigative protocols appropriate to the discipline
3. The information literate student retrieves information online or in person using a variety of methods.

Outcomes Include:

- a. Uses various search systems to retrieve information in a variety of formats
 - b. Uses various classification schemes and other systems (e.g., call number systems or indexes) to locate information resources within the library or to identify specific sites for physical exploration
 - c. Uses specialized online or in person services available at the institution to retrieve information needed (e.g., interlibrary loan/document delivery, professional associations, institutional research offices, community resources, experts and practitioners)
 - d. Uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information
4. The information literate student refines the search strategy if necessary.

Outcomes Include:

- a. Assesses the quantity, quality, and relevance of the search results to determine whether alternative information retrieval systems or investigative methods should be utilized
 - b. Identifies gaps in the information retrieved and determines if the search strategy should be revised
 - c. Repeats the search using the revised strategy as necessary
5. The information literate student extracts, records, and manages the information and its sources.

Outcomes Include:

- a. Selects among various technologies the most appropriate one for the task of extracting the needed information (e.g., copy/paste software functions, photocopier, scanner, audio/visual equipment, or exploratory instruments)
- b. Creates a system for organizing the information
- c. Differentiates between the types of sources cited and understands the elements and correct syntax of a citation for a wide range of resources
- d. Records all pertinent citation information for future reference
- e. Uses various technologies to manage the information selected and organized

Standard Three

The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

Performance Indicators:

1. The information literate student summarizes the main ideas to be extracted from the information gathered.

Outcomes Include:

- a. Reads the text and selects main ideas
- b. Restates textual concepts in his/her own words and selects data accurately
- c. Identifies verbatim material that can be then appropriately quoted

2. The information literate student articulates and applies initial criteria for evaluating both the information and its sources.

Outcomes Include:

- a. Examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias
- b. Analyzes the structure and logic of supporting arguments or methods
- c. Recognizes prejudice, deception, or manipulation
- d. Recognizes the cultural, physical, or other context within which the information was created and understands the impact of context on interpreting the information

3. The information literate student synthesizes main ideas to construct new concepts.

Outcomes Include:

- a. Recognizes interrelationships among concepts and combines them into potentially useful primary statements with supporting evidence
 - b. Extends initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information
 - c. Utilizes computer and other technologies (e.g. spreadsheets, databases, multimedia, and audio or visual equipment) for studying the interaction of ideas and other phenomena
4. The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.

Outcomes Include:

- a. Determines whether information satisfies the research or other information need
 - b. Uses consciously selected criteria to determine whether the information contradicts or verifies information used from other sources
 - c. Draws conclusions based upon information gathered
 - d. Tests theories with discipline-appropriate techniques (e.g., simulators, experiments)
 - e. Determines probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions
 - f. Integrates new information with previous information or knowledge
 - g. Selects information that provides evidence for the topic
5. The information literate student determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.

Outcomes Include:

- a. Investigates differing viewpoints encountered in the literature
 - b. Determines whether to incorporate or reject viewpoints encountered
6. The information literate student validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.

Outcomes Include:

- a. Participates in classroom and other discussions
 - b. Participates in class-sponsored electronic communication forums designed to encourage discourse on the topic (e.g., email, bulletin boards, chat rooms)
 - c. Seeks expert opinion through a variety of mechanisms (e.g., interviews, email, listservs)
7. The information literate student determines whether the initial query should be revised.

Outcomes Include:

- a. Determines if original information need has been satisfied or if additional information is needed
- b. Reviews search strategy and incorporates additional concepts as necessary
- c. Reviews information retrieval sources used and expands to include others as needed

Standard Four

The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

Performance Indicators:

1. The information literate student applies new and prior information to the planning and creation of a particular product or performance.

Outcomes Include:

- a. Organizes the content in a manner that supports the purposes and format of the product or performance (e.g. outlines, drafts, storyboards)
 - b. Articulates knowledge and skills transferred from prior experiences to planning and creating the product or performance
 - c. Integrates the new and prior information, including quotations and paraphrasings, in a manner that supports the purposes of the product or performance
 - d. Manipulates digital text, images, and data, as needed, transferring them from their original locations and formats to a new context
2. The information literate student revises the development process for the product or performance.

Outcomes Include:

- a. Maintains a journal or log of activities related to the information seeking, evaluating, and communicating process
 - b. Reflects on past successes, failures, and alternative strategies
3. The information literate student communicates the product or performance effectively to others.

Outcomes Include:

- a. Chooses a communication medium and format that best supports the purposes of the product or performance and the intended audience
- b. Uses a range of information technology applications in creating the product or performance
- c. Incorporates principles of design and communication
- d. Communicates clearly and with a style that supports the purposes of the intended audience

Standard Five

The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

Performance Indicators:

1. The information literate student understands many of the ethical, legal and socio-economic issues surrounding information and information technology.

Outcomes Include:

- a. Identifies and discusses issues related to privacy and security in both the print and electronic environments
 - b. Identifies and discusses issues related to free vs. fee-based access to information
 - c. Identifies and discusses issues related to censorship and freedom of speech
 - d. Demonstrates an understanding of intellectual property, copyright, and fair use of copyrighted material
2. The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.

Outcomes Include:

- a. Participates in electronic discussions following accepted practices (e.g. "Netiquette")
 - b. Uses approved passwords and other forms of ID for access to information resources
 - c. Complies with institutional policies on access to information resources
 - d. Preserves the integrity of information resources, equipment, systems and facilities
 - e. Legally obtains, stores, and disseminates text, data, images, or sounds
 - f. Demonstrates an understanding of what constitutes plagiarism and does not represent work attributable to others as his/her own
 - g. Demonstrates an understanding of institutional policies related to human subjects research
3. The information literate student acknowledges the use of information sources in communicating the product or performance.

Outcomes Include:

- a. Selects an appropriate documentation style and uses it consistently to cite sources
- b. Posts permission granted notices, as needed, for copyrighted material

Appendix I: Selected Information Literacy Initiatives

- In 1989 the American Library Association (ALA) Presidential Committee on Information Literacy issued a Final Report which defined four components of information literacy: the ability to recognize when information is needed and to locate, evaluate and use effectively the needed information.
- In 1990, the National Forum on Information Literacy (NFIL) was founded as a response to the recommendations of the ALA Presidential Committee *Final Report*. NFIL is a "coalition of over 75 education, business, and governmental organizations working to promote international and national awareness of the need for information literacy and encouraging activities leading to its acquisition." Forum members promote information literacy nationally, internationally, and within their own programs. <http://www.infolit.org/index.html>
- In March 1998 NFIL issued, *A Progress Report on Information Literacy: An Update on the American Library Association Presidential Committee on Information Literacy: Final Report*. <http://www.infolit.org/documents/progress.html>
- In 1998 the American Association of School Libraries (AASL) and the Association of Educational Communications and Technology (AECT) published *Information Literacy Standards for Student Learning*. The AASL/AECT standards detail competencies for students in K-12.
- Since 1989, in the absence of national standards, many states, school districts, state university systems, and local institutions have developed information literacy competency standards. <http://www.fiu.edu/~library/fili/iliweb.html>

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APPENDIX B

CAUL STANDARD SEVEN ADOPTED AS SIXTH STANDARD OF ACRL

(obtained from: CAUL standards, 2001:19).

(http://ilp.anu.edu.au/Infolit_standards_2001.html#seven)

The information literate person recognises that lifelong learning and participative citizenship requires information literacy

Outcomes

7.1 *The information literate person appreciates that information literacy requires an ongoing involvement with learning and information technologies so that independent lifelong learning is possible*

Examples

- 7.1.1 Uses diverse sources of information to inform decisions
- 7.1.3 Seeks to maintain current awareness in areas of interest and/ or expertise by monitoring information sources
- 7.1.4 Derives satisfaction and personal fulfilment from locating and using information
- 7.1.5 Keeps up to date with information sources, information technologies, information access tools and investigative methods
- 7.1.6 Recognises that the information search process is evolutionary and nonlinear

7.2 *The information literate person determines whether new information has implications for democratic institutions and the individual's value system and takes steps to reconcile differences*

Examples

- 7.2.1 Identifies whether there are differing values that underpin new information or whether information has implications for personal values and beliefs
- 7.2.2 Applies reasoning to determine whether to incorporate or reject viewpoints encountered
- 7.2.3 Maintains an internally coherent set of values informed by knowledge and experience

APPENDIX C

AN EVALUATION OF INFORMATION LITERACY OF POSTGRADUATE STUDENTS OF THE NATIONAL UNIVERSITY OF LESOTHO (NUL)

Identification of faculty, department, course and year of study:

Faculty: _____ Department: _____

Course: _____ Year of study: _____

Please answer all questions to the best of your ability. You have one hour in which to complete the test.

1. Have you ever felt a need for any of the following? (Please tick [√]the appropriate box next to each statement)

- 1.1 to attend a course on study skills
- 1.2 to attend library sessions
- 1.3 attend more advanced library instruction on specific finding tools and skills
- 1.4 help with the recommended citation style at NUL
- 1.5 help with writing a research paper
- 1.6 help with finding library material
- 1.7 guidance in conducting different searches
- 1.8 training in Microsoft office package, e.g. Word, Excel, and Outlook.

Often	Sometimes	Never

2. Suppose you have been asked to investigate this topic: “HIV/ AIDS in Lesotho” would you be able to formulate a question suitable for research? (Please tick ‘Y’ for yes or “N” for no).

Y	N

3. If your answer is yes, please provide a research question on HIV/AIDS in Lesotho.

7. Which of the following are characteristics of popular journals (those appealing to the general public) and which are of scholarly journals (those appealing to researchers)? (Please tick the correct answers in the appropriate box for each statement):

	Popular	Scholarly
7.1 Availability by subscription only		
7.2 Written by reporters and journalists		
7.3 In -depth and current research		
7.4 Many advertisements and glossy pictures		
7.5 Long unbroken passages of dense text		

8. Identify the best source for current and authoritative information for an academic task? I would consult: (Please select one answer and tick [✓] the appropriate box next to it)

8.1 A library catalogue	
8.2 An encyclopedia	
8.3 Databases on library's website	
8.4 The World Wide Web	

9. Which of the following are primary and which are secondary information sources? (Please tick [✓] the appropriate box next to each answer):

	Primary	Secondary
9.1 Encyclopedias		
9.2 Letters		
9.3 Diaries		
9.4 Reports of interviews		
9.5 Index to journal articles		
9.6 Research reports		

10. I will know that the document on a World Wide Web site I have found includes information that is reliable and appropriate for an academic task if: (tick [✓] as many as are appropriate):

10.1 The document includes citations	
10.2 The site is associated with a university or a government	
10.3 The author comes from a university or a learned organization	
10.4 The site has many colourful advertisements	

11. Which of the following characteristics applies to the World Wide Web? (Please tick [√] the appropriate box next to each statement)

	Agree	Disagree	Don't know
11.1 Information found on the World Wide Web is always reliable, valid and accurate			
11.2 Information found on the Internet is the same as information in the libraries			
11.3 Anybody can publish anything on the World Wide Web			

12. The second time you visit a web page in an Internet session the page is usually faster to display on your screen than the first time. Why? (Please tick [√] one correct answer.)

12.1 Because Internet path has already been established	
12.2 Because the URL becomes compressed once you visited a site	
12.3 Because files that make the page are cached on your computer	
12.4 It is not really faster the second time	

13. The URL is found in (Please tick (√) one correct answer.)

13.1 Online catalogue	
13.2 The World Wide Web	
13.3 The computer	
13.4 A CD-ROM	

14. Please indicate whether you agree or disagree with the statements below: (please tick [√] the appropriate box next to each statement)

	Agree	Disagree
14.1 Google is a search engine		
14.2 The web has a good system of quality control of information		
14.3 The databases on library's website are the good sources of current and authoritative information.		
14.4 A computer operating system at NUL is Windows XP		
14.5 A library cataloguing system at NUL is ITS		
14.6 A spreadsheet package is MS-Word		

15. Which of the following is the best description of the Internet? (Please tick [✓] one correct answer)

- 15.1 A collection of interconnected computers managed by universities, the government and large organizations
- 15.2 A huge number of computers of various sizes which are connected to each other and which can belong to anyone
- 15.3 A big computer somewhere which contains a large amount of information

16. You have been given a topic to investigate by your lecturer and you need additional information. Where would you start your search? (Please tick [✓] each statement in the appropriate box)

- 16.1 By asking a friend
- 16.2 By using an online catalogue
- 16.3 By using the Internet
- 16.4 By asking a librarian
- 16.5 By using a Web search engine

	Often	Sometimes	Never
16.1			
16.2			
16.3			
16.4			
16.5			

17. If you have the citation for the article by Webb, J. & Powis, C. entitled "Start with the learner" published in the journal *Library and information update*, January 2005, volume 4, number 1: 50-52, what would you search in the library catalogue to find out if your library owns it? (Please select one statement)

- 17.1 Search the title "Start with the learner"
- 17.2 Search the title "Library and information update"
- 17.3 Search the author "Powis, C."
- 17.4 Search the authors "Webb, J & Powis C."

18. To prepare a presentation on the main events of the anti-apartheid struggle, which of the following keywords would retrieve the best results from a database search? (Please select one statement)

- 18.1 Presentation, anti-apartheid
- 18.2 Events, struggle
- 18.3 Anti-apartheid, struggle
- 18.4 Events, anti-apartheid

19. When performing a subject search on a specific topic in a library's online catalogue and the computer retrieves zero results I will conclude that: (Please select one answer by ticking [√] the appropriate box)

- | | | |
|------|--|--------------------------|
| 19.1 | The library's books on the topic are listed under different terms | <input type="checkbox"/> |
| 19.2 | The library has no books on the subject | <input type="checkbox"/> |
| 19.3 | Adding more terms to the search statement will retrieve books on the topic | <input type="checkbox"/> |
| 19.4 | Don't know | <input type="checkbox"/> |

20. Which of the following will retrieve most records? (Please select one answer by ticking [√] the appropriate box)

- | | | |
|------|---------------|--------------------------|
| 20.1 | Cats AND dogs | <input type="checkbox"/> |
| 20.2 | Cats OR dogs | <input type="checkbox"/> |
| 20.3 | Cats NOT dogs | <input type="checkbox"/> |

21. Suppose you have to discuss "capital punishment as a deterrent to crime." Which of the following search statements will get the best information from a database search? (Please select one statement)

- | | | |
|------|------------------------------|--------------------------|
| 21.1 | Capital punishment or crime | <input type="checkbox"/> |
| 21.2 | Deterrent and crime | <input type="checkbox"/> |
| 21.3 | Capital punishment and crime | <input type="checkbox"/> |

22. Suppose you were writing a paper on tourism in Lesotho and you found a newspaper report with a statement claiming that there was a 20% increase in tourism during 2004, which of the following is the next best step? (Please select one statement)

- | | | |
|------|---|--------------------------|
| 22.1 | Try to check the accuracy of the figure by asking someone who lives there | <input type="checkbox"/> |
| 22.2 | Use the data anyway | <input type="checkbox"/> |
| 22.3 | Check the statistics in an official source | <input type="checkbox"/> |
| 22.4 | Don't know | <input type="checkbox"/> |

23. What is this cited item? Mazanec, J. A. 1995. Constructing traveler types: new methodology for old concepts. In *Change in tourism: people, places, processes*, R. Butler and D. Pearce, Eds. London: Routledge. 137-158. (Please select one statement)

- | | | |
|------|---|--------------------------|
| 23.1 | The cited work is a chapter in a book | <input type="checkbox"/> |
| 23.2 | The cited work is a journal | <input type="checkbox"/> |
| 23.3 | The cited work is a conference paper | <input type="checkbox"/> |
| 23.4 | The cited work is the proceedings of a conference | <input type="checkbox"/> |

24. Is the citation above a complete and correct citation according to Author-date style? (Please answer "Y" for yes or "N" for no by placing a tick [√] in the appropriate box)

Y	N

25. Are you allowed to photocopy a whole book? (Please tick [√] the appropriate box. Answer "Y" for yes or "N" for no)

Y	N

26. Why may you or may you not photocopy a whole book? (Please give a reason)

27. Which of the following is an example of plagiarism?

- 27.1 Using phrases and sentences of others as if they are your original work
- 27.2 Reading a book written by someone you don't know
- 27.3 Cutting down expenses
- 27.4 Using the Internet

28. An article by Anna Louw entitled "The evaluation of the performance of students during professional education and in practice" that appeared in *Mousaion* a journal of library and information science, volume 12 number 1, 1994, contained the following statement on page 34: "The true aim of the evaluation of students is to assess what they have achieved in the process of education."

Read through the following and decide which instances of plagiarism are and which are not:

- 28.1 The aim of the evaluation of students is to assess what they have attained in their process of learning
- 28.2 "The true aim of the evaluation of students is to assess what they have achieved in the process of education" (Louw, 1994: 34).
- 28.3 Evaluation of students aims at assessing students' achievements in the process of learning (Louw, 1994: 34).

	Is	Is not
28.1		
28.2		
28.3		

29. How often have you done the following in the last six months?

		Once a day or more	Once a week or more	Once a month or more	Hardly ever
29.1	Watched news on TV				
29.2	Heard news on the radio				
29.3	Read news in newspapers				
29.4	Heard news from a public gathering				

THANK YOU FOR YOUR TIME AND CO-OPERATION

University of Cape Town

APPENDIX D**INTERVIEW SCHEDULE:****INTERVIEW QUESTIONS ON INFORMATION LITERACY AT NUL FOR
THREE INFORMATION SPECIALISTS**

- 1 What is your understanding of the concept, information literacy?
2. Is information literacy integrated into NUL curriculum?
3. Which user education programmes are offered by NUL library?
4. What role does NUL play in promoting information literacy?
5. Is there cooperation between faculty and the library?
6. How are NUL students helped by the library?
7. What problems are encountered by NUL library personnel in fostering information literacy?

APPENDIX E**INTERVIEW SCHEDULE:****INTERVIEW QUESTIONS ON INFORMATION LITERACY AT NUL FOR
TWO LAW LECTURERS**

1. What is information literacy?
2. Is the teaching approach practised at NUL student-centred or teacher-centred?
3. What do lecturers do to improve their lessons?
4. Does NUL offer any information literacy courses?
5. Is there a need to integrate information literacy into NUL curriculum?
6. Which citation style has been adopted by NUL?
7. Is there cooperation between faculty and the library?
8. Could you give an indication of how information literate your students are?
9. What kind of support does NUL management give towards enforcing information literacy?

APPENDIX F**INTERVIEW SCHEDULE:****INTERVIEW QUESTION ON INFORMATION LITERACY AT NUL FOR****THE UNIVERSITY LIBRARIAN**

1. What is the role of Lesotho library consortium (LELICO) in promoting information literacy?

University of Cape Town

APPENDIX G

FROM: Lineo Mary Mariti
University of Cape Town

TO: The Secretary
L.T.B. NUL, ROMA 180.
Lesotho

DATE: 07/04/05

Dear sir/madam,

REQUEST TO CONDUCT RESEARCH

My name is Lineo Mariti, a Masters student in Library and Information Science at the University of Cape Town. I am doing a research on "An Evaluation of information Literacy standards of postgraduate research students of the National University of Lesotho". The intention for carrying out this study is to find out the level or degree of information literacy of postgraduate research students of NUL as they progress with their work. The purpose of the investigation is to measure the results against the information literacy standards so that improvements could be made where need arise in order to facilitate or enhance quality learning, so as to help students reach all the standards required for a person to be considered information literate.

I am therefore, making a request to conduct my study at your place, and I also seek permission to use your library for my study. I also solicit permission from the concerned departments to allow me to make use of their students. I planned to use a questionnaire as a main data collection instrument and to conduct some interviews with the concerned staff, as supplementary to the main data collection instrument. My intention is to test students before they break for winter vacation, hopefully from the first week of May. The information collected will be treated strictly confidential.

Thanking you in advance

Lineo Mary mariti.