UNIVERSITY OF KWAZULU NATAL

A DESCRIPTIVE STUDY ON THE UTILIZATION OF INTERNET AS AN ACADEMIC TOOL AMONG UNDERGRADUATE NURSING STUDENTS, AT A SELECTED UNIVERSITY IN KWAZULU NATAL

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A DESCRIPTIVE STUDY ON THE UTILIZATION OF INTERNET AS AN ACADEMIC TOOL AMONG UNDERGRADUATE NURSING STUDENTS, AT A SELECTED UNIVERSITY IN KWAZULU NATAL

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(Nursing Education)

By

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March, 2013

DECLARATION

I, Alexis HARERIMANA declare that this dissertation entitled **"A DESCRIPTIVE STUDY ON THE UTILIZATION OF INTERNET AS AN ACADEMIC TOOL AMONG UNDERGRADUATE NURSING STUDENTS, AT A SELECTED UNIVERSITY IN KWAZULU NATAL"** is my own unaided work. It is being submitted for the Degree of Masters in nursing education at the University of KwaZulu Natal, Durban. It has not been submitted for any other purpose. All resources have been acknowledged by means of referencing.

Student's signature (Alexis HARERIMANA) Date

…… ……

Supervisor's signature (Professor N.G. MTSHALI) Date

……..…… ……

DEDICATION

This Dissertation is dedicated to my Beloved mother Verediana MUSHONGANANA, Brothers and sisters, my Aunt Anasthasie NYIRABUKEYE and to the Coordinator of Nursing Department in Ministry of Health Mary MUREBWAYIRE, the Registrar of Rwandan Nursing Council Julie KIMONYO and to Professor N.G MTSHALI for all their love, encouragements, support and who instilled in me that Education was a key to success and that the Sky is only the limit.

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ABSTRACT

Background to the study: The Internet is rapidly becoming an important learning tool in academic institutions and workplaces. In academic institutions it plays a pivotal role in meeting information and communication needs of students, academics and researchers. Despite internet becoming an important information gathering and dissemination tool, literature reflects under-utilization both in academic and in practice settings for a number of reasons. This study therefore described the utilization of internet as an academic tool among undergraduate nursing students in a selected University in KwaZulu Natal in order to establish ways of enhancing its utilization.

Methodology: A quantitative, non-experimental, descriptive design was used in this study. The population of the study was 222, and the the sample size was 141 of undergraduate nursing students which was calculated using Raosoft sample size calculator. The sample was stratified according to the percentages of the population in the Nursing program and the year of the study of the respondents. However, only 115 agreed to participate in this study and the response rate was rate therefore 81.1%. Data was collected using a survey after obtaining ethical clearance from the university and were analyzed descriptively.

Findings: The findings revealed that participants perceived themselves to be at different levels of utilizing the Internet; intermediate level (32.2%) advanced level (19.1%) competent level (29.6%), beginner level (17.4%) and expert level (1.7%). The results reflected traditional university students as better equipped to use the Internet than non-traditional university students. The Internet was used for different purposes

including; academic (96.5%); communication (82.6%), pleasure (71.3%), work related activity (53.9%) and shopping (13.9%). Facebook (77.4%) was the most commonly used social network followed by the twitter (24.3%). Challenges cited covered restricted access to certain sites (62.6%), very slow internet connection (55.7%), limited training in the use of the Internet (38.3%), limited number of computers (37.4%). The majority of the participants (89%) singled out training on internet use as priority with specific focus on basic IT skills (72.2%), accessing academic related material (70.4%), using Moodle (51.3%), Turnitin (35.7%) and endnote (33.9%).

Conclusion: Contrary to other studies, this study reflected that students do use the Internet for a number of reasons. They however recommend structured support on how to use internet for academic purposes.

Key words: Internet, ICT, Nursing students, Undergraduate

LIST OF ABBREVIATION

ARPANET: Advanced Research Projects Agency Network

BN: Bachelors of Nursing

BNAP: Bachelors of Nursing Advanced practice

E-MAIL: Electronic mail

HTML: Hypertext Markup Language

HTTP: Hypertext Transfer Protocol

FTP: File Transfer Protocol

Freq: Frequency

ICT: information communication Technology

IP: Internet Protocol

IT: Information Technology

KZN: KwaZulu Natal

LAN: Local Area Networks

MUD: Multi User Dungeons

N: Population

n: Sample Size

NASA: National Aeronautics and Space Administration

SPSS: Statistical Program for Social Science

TELNET: Terminal Emulator Protocol Network

TCP: Transmission Control Protocol/Internet Protocol

UNESCO: United Nations Educational, Scientific and Cultural Organization

UNIX: Uniplexed Information Systems

USENET: Users network

WWW: World Wide Web

X^2: Chi square

%: Percentage

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CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1. INTRODUCTION

The Internet has become an important component in academic institutions, as it plays an important role in meeting the information and communication needs of the staff and students (Luambano and Nawe, 2004). The Internet is an international computer network through which all computer users worldwide can exchange a wide range of information (American Heritage Science Dictionary, 2011; Maxwell, 2009; Hyperdictionary, 2008; WordIQ, 2007; WordNet Dictionary, 2003). The importance of Information and Communication Technology (ICT) and the Internet in tertiary education is generally recognized by higher education institutions (Kheswa, 2010; Nwezeh, 2010; Kumar and Kaur, 2005). In nursing education, Dee and Stanley (2005) argued that nursing professionals need a wide variety of health information to meet their clinical and educational needs. Using the Internet can bring positive effects to broader healthcare systems, as information on health systems is changing rapidly due to new innovations in that field (Shakarishvili, Atun, Berman, Hsiao and Burgess, 2009).

In education, the Internet should be used as an academic tool (UNESCO, 2003), which can be defined as an instrument to transfer and implement educational objectives into a practice which engage participants in the learning process. Transferability is one of the inherent characteristics of any educational tool (Salto-Youth, 2010). According to UNESCO (2003), the application of the Internet as a tool in education is understood as the usage of Internet technologies to solve various educational tasks, namely, teaching,

learning and management of the educational process. Those who study at schools, universities and colleges can enhance their knowledge using the educational literature, encyclopedia, references, dictionaries and databases that are freely accessed through the Internet, particularly those participating in distance educational courses and in collaborative projects with students from other schools, universities, countries (UNESCO, 2003). Davies (1997) argues that the typology of using internet in education shows the ways internet can be used for different activities: Web based courses, educational administration, development and communication skills, electronic publishing, mining information using search engines, ask the experts, electronic appearances and virtual realization, involvement in research projects, professional networking.

However, the literature further indicates that the use of ICT and Internet for database searching as a source of information was underutilized among health care professionals (Majid, Foo, Xue, Luyt, Yun-Ke, Leng et al., 2011; Gagnon, Légaré, Labrecque, Frémont, Pluye, Gagnon et al., 2009). In Nursing the literature reveals several factors that impeded nurses' successful information gathering, including lack of access to a computer (Richwine and Mcgowan, 2001), and lack of time to search large volumes of health literature (Verhey, 1999). Some nurses were reluctant to use digital information resources (Lathey and Hodge, 2001) and exhibited a lack of knowledge about computers (Dee and Stanley, 2005; Mccaughan, Thompson, Cullum, Sheldon and Thompson, 2002; Bachman and Panzarine, 1998).

Shezi (2005) found that 70.8% of participants in their study indicated that they were not formally trained to use the Internet, which made using it difficult. This lack of training

affects the way students use internet in their academic daily activities. Luambano and Nawe (2004) stated that using the Internet academically makes it possible to access a wide range of information, such as up to date reports, from anywhere in the world. It also enables scholars and academic institutions to disseminate information to a wider audience around the globe.

1.2. BACKGROUND TO THE STUDY

The Internet is the world's largest network of Information, Communication and Technologies. It is used in medicine, nursing and other health care professionals (Trivedi and Joshi, 2008; Royal College of Nursing, 2006; Lazinger, Bar-Ilan and Peritz, 1997). However some of the literatures reveal that the use of ICT and Internet as a sources of information is underutilized by the health care professionals (Majid et al., 2011). Several other studies show that academic use of the Internet by university students is increasing, including studies carried out by Lubans (1998), Matthew (1998), and Rena, Pavlina and Paul (2007).

In Deschooling Society, Illich (1973), cited by Smith (2011), argued while discussing about Learning webs as a new formal educational institutions, that a good education system should have three purposes: (i) to provide all that want to learn with access to resources at any time in their lives; (ii) to make it possible for all who want to share knowledge etc. to find those who want to learn it from them; (iii) to create opportunities for those who want to present an issue to the public to make their arguments known. Illich (1993) stressed the importance of local groups and networks for opening up and sustaining learning.

Islam and Panda (2007) stated that web-based information retrieval trends of researchers is increasing, and that the electronic material will eventually replace the traditional library, negating the need to go and obtain the information they need. Dee and Stanley (2005), in their study, argued that nursing students and clinical nurses were most likely to rely on colleagues and books for medical information, while other resources they frequently cited included personal digital assistants, electronic journals and books, and drug representatives. More nursing students than clinical nurses used online databases, including CINAHL and PubMed, to locate health information, report and perform a database search at least one to five times a week (Dee and Stanley, 2005). Malik and Mahmood (2009) conducted a study on students' web search behaviour, and reported that two thirds of the students (67.5%) used the Internet daily, with 72.5% using the Internet for research, 76.5% for education, 68% for entertainment, 18.5% for sports and 6% for shopping (Malik and Mahmood, 2009).

Malik and Mahmood (2009) reported that Google was the most frequently used search engine used by (97%), followed by Yahoo (72%).In a study conducted on 183 first year medical and nursing students of the University College Hospital of Ibadan in Nigeria by Ajuwon (2003), it was noted that only 42.6% of the sample could use a computer, while 57.4% could not, with the majority (69.8%) who could not claiming that this was due to a lack of access. In the same study, e-mail was the most popular of Internet services used by the students (76.4%), used by 81.3% medical and 73.4% student nurses. The findings from a study conducted by Balakrishnan (2010) indicated that approximately 50% of the sample had never communicated with their lecturers via the Internet, 56.5% had never contributed ideas to the web and 94.6% had never uploaded files to the

Internet. In a study conducted by Nwezeh (2010) on the source of information used by student, 85% obtained information from the Library and 56% from internet.

According to Balakrishnan (2010), the comprehensive literature available shows that the Internet has the following functions in education: (i) storehouse of information, (ii) communication without boundaries, (iii) online interactive learning, (iv) electronic/online research, (v) innovation in the new world, (vi) improve interest in learning, (vii) global education, and (viii) information catalogues. Tella, Tella, Ayeni, and Omoba (2007) argue that the students' ability to find and retrieve information effectively is a transferable skill, useful for their future life, as well as enabling the positive and successful use of the electronic resources while at school. To make use of the growing range of electronic resources, students must acquire and practice the skills necessary to exploit them (Okello-Obura and Magara, 2008). Skills learning is essential in a technology driven environment, but can be greatly enhanced through the use of innovative learning strategies (Lawson 2005).

According to Internet World Statistics (2011), in 2011, there were estimated to be 2,095,006,005 internet users globally, that being 30% of the world's Population. Although internet is being used around the world, there is a big difference between developed countries and underdeveloped (Chinn and Fairlie, 2006). Statistics shows that only 11.4% of the African population use the Internet, 23.8% of Asians, 36.2% of Latina Americans and Caraibeans, 58% of Europeans and 78.5 of North Americans.. Academic institutions are among the big internet users. In Africa, overall online activity is disproportionately distributed, with two thirds occurring in South Africa, which only accounts for 5% of the continent's population, and most of the remaining one third being

distributed between Morocco and Egypt. The number of internet subscribers by percentage, however, is greater in smaller countries such as the Seychelles, where as many as 37% of the population has internet access, while in 2009 only 11% of the South African population have internet access (APC and HIVOS, 2009).

According to the South African Internet statistics for 2011, Internet user base grew 25% in 2011 to 8.5 million Internet users at the end of 2011. This follows a growth of 28% in 2010. A total of 7.9 million South Africans access the Internet on their cell phones The study found that while 6.02 million use a computer, laptop, or tablet, 90% of them also use their mobile phones to access the Internet (Vermeulen, 2012; Goldstuck, 2012). The statistics also shows that 2.48 million South Africans use only their cellphones to access the Internet and there was 5.5 million 3G users and 8.5 million smartphone owners in South Africa by the end of 2011 (Goldstuck, 2012; Vermeulen, 2012). Mobile phones are proving to be essential tools for communication, especially in under-serviced rural areas that are not served by landlines (with only 10.1 fixed lines for every 100 people) (Internet World Statistics, 2008 cited in APC and HIVOS, 2009), and the number of South Africans who use their mobile phones to access the Internet exceeds the number of those who rely on traditional desktop to connect to the Internet (APC and HIVOS, 2009; Batchelor, 2009).

Regarding South African education, a study conducted by Kheswa (2010)found that undergraduate students accessed internet on campus and off campus. The Internet services used were mainly: E-mail (99.2%), the Web (93.3%) and social networks (66.7%). A similar study, conducted by Shezi (2005) demonstrated that most frequently used facilities were e-mail 61.7% and the WWW 58.8%.In the same study 47.1% of

respondents were using the WWW for accessing academic related materials. This was followed by using the WWW to obtain news from around the world by 23.5%, entertainment and sport by 8.8%.

Although the literature reveals the use of internet among students in South Africa (Kheswa, 2010; Kader, 2007; Shezi, 2005), access to telecommunications remains a development issue for South Africa and bridging the digital divide is an ongoing challenge for the South African government (APC and HIVOS, 2009). In 2007, a study on using internet in South Africa revealed that 22% of the students had no access to a computer before they attended university, had less than 2 year experience using a computer, relied on formal channels to acquire this knowledge (Brown and Czerniewicz, 2010).

A study conducted by Shezi (2005) at St. Joseph's Theological Institute in KwaZulu-Natal, South Africa, revealed that 70.8% of respondents had not received formal training and did not know how to use the Internet. The major problems facing the Internet users at St. Joseph's were the shortage of computers mentioned by 38.2% respondents and computers being slow as indicated by 38.2% respondents. 17.6% respondents also pointed to not having enough training in the use of Internet facilities (Shezi, 2005).

In nursing, the literature reveals that internet is less utilized (Richwine and Mcgowan, 2001; Lathey and Hodge, 2001; Verhey, 1999; Bachman and Panzarine, 1998; Thompson, 1997), the literature further indicates that the use of ICT and Internet for database searching as a source of information was underutilized among health care professionals (Majid, Foo, Xue, Luyt, Yun-Ke, Leng et al., 2011; Gagnon, Légaré,

Labrecque, Frémont, Pluye, Gagnon et al., 2009). However the use of internet among health care professionals, is argued by Shim (2008), to have unquestionably changed the flow of health information. Due to the important role of the Internet as an important source of health information, people can make themselves well-informed and self-involved in health decision-making, based on simple Web searching (Suggs, 2006; Cassell, Jackson and Cheuvront, 1998). In the past the health care people tried to take help from printed materials such as books, journals, handbooks, monographs held in personal libraries and also from friends (Koller, Peltenburg, Joachim and Steurer, 2001; Thompson, 1997; Haug, 1997).

As the Internet is an important learning tool at the tertiary education level, it is argued that investigating the use of the Internet at a selected University in KZN, in order to explore the extent of using internet and problems which are experienced by under graduating students would assist in facilitating more effective use of the Internet at the selected University.

1.3. RESEARCH PROBLEM

As the growth of the Internet and the number of the students accessing academic institution increases, the development of the Internet will be meaningless if it is not used appropriately in education (Balakrishnan, 2010), and as an academic tool among by undergraduate students. It should also respond to rapidly changing information in the academic world as well as in the health sector, allowing people to excel in their academic activities (Balakrishnan, 2010). Despite the Internet becoming an important component in academic institutions, literature reflects under-utilization due to a number of factors that impeded nurses' successful information gathering, including lack of

access to a computer (Richwine and Mcgowan, 2001) and lack of time to search large volumes of health literature (Verhey, 1999). Further research revealed a reluctance among nurses to use digital information resources (Lathey and Hodge, 2001) and that they exhibited a lack of knowledge and skills about computers (Mccannon and O'neal, 2003; Mccaughan et al., 2002; Bachman and Panzarine, 1998). This compromised their academic performances because their information needs were not met (Rasch and Coddill, 1999). Literature also reflects paucity on internet usage in nursing education nationally and internationally. In South Africa, studies conducted on internet usage among students at University of KZN, Durban campus and PMB, as well at St Joseph's Institute, revealed numbers of challenges including lack of training in using, few computers, lack of enough time, restricted sites (Kheswa, 2010; Kader, 2007; Shezi, 2005). In the light of the above issues related to internet utilization, this study was conducted among undergraduate nursing students at the selected University in KwaZulu-Natal.

1.4. THE AIM OF THE STUDY

The aim of the study was to describe the use of the Internet as an academic tool among undergraduate nursing students at the selected University in KwaZulu-Natal, in order to establish ways of enhancing its utilization.

1.5. OBJECTIVES

To achieve the above aim, the study had the following objectives:

- Describe the purpose of using internet among nursing students
- Measure the knowledge and skills of nursing students on using internet academically
- Describe the perceived usefulness of the Internet to nursing students
- Describe the frequency of using internet resources among nursing students
- Describe factors influencing effective use of internet as an academic tool

1.6. RESEARCH QUESTIONS

The following research questions informed the study:

- For what purpose do nursing students use Internet resources?
- What knowledge and skills do nursing students have of using Internet as an academic tool?
- What is the perceived usefulness of the Internet to nursing students?
- What is the frequency of using internet resources among nursing students?
- What are the factors that influence effective use of internet as an academic tool (accessibility, relevance of resources, etc)?

1.7. SIGNIFICANCE OF THE STUDY

At present, internet technology is being widely used because it provides a variety of relatively inexpensive services. If technologies are to be used, they will need to offer something new to the users (Kripanont, 2007). The Internet is a gateway to a wealth of knowledge and information, and its uses are virtually unlimited (National Academy of

Sciences, 2003). The findings from this study will be useful to students, to curriculum development, to nursing education, to Health care professionals, and to further research. However the findings from this study may not be generalized to other universities. The significance of the study can be summarised as follows:

- **To students:** It will assist in determining the students' needs regarding using internet services as part of teaching and learning, and provide recommendations that will assist in improving the effective use of internet among the students.
- **To curriculum development:** The finding will generate a body of knowledge on internet utilization as an academic tool that can be used in curriculum development to integrate ICT into the teaching and learning process.
- **To nursing education:** This study could contribute to the quality of nursing education as it would reveal a need to integrate internet into teaching and learning, and this would develop problem-solving skills, creative and critical thinking skills, self-directed learning skills in the students. And the Literature reveals that the Internet has been given an integral role in education (Selwyn, 2008 cited in, Peou and Lwin, 2011).
- **To health care professionals:** The findings of this study could provide information for nurses and other health care professionals regarding research and evidence-based practice, so that decisions can be made to improve the quality of health care by using internet technologies.
- **To the research:** This study could contribute to research, as new knowledge has been generated and provide a platform for further research.

1.8. OPERATIONAL DEFINITIONS

The following operational definitions are used in this study:

Internet: this is defined by Maxwell (2009) as an international computer network through which all computer users worldwide can exchange information and communicate. In popular parlance, the Internet often refers to the World Wide Web (WWW), electronic mail (e-mail) and online chat services operating on the Internet (American Heritage Science Dictionary, 2011; Maxwell, 2009; Hyperdictionary, 2008; WordIQ, 2007; WordNet Dictionary, 2003). In this study the definition of the WordNet Dictionary was used, where internet is defined as a publicly available computer network consisting of a worldwide network of computer networks that use the TCP/IP network protocols to facilitate data transmission and exchange.

Use or utilization: this is defined by the Collins English Dictionary (2011) as: “to put into service or action; employ for a given purpose.” Use also refers to behave towards in particular way especially for one’s own ends”. Use is further defined as a means of accomplishing a purpose or achieving a result (Persall, 1998). In this study, internet utilization was defined as means to create and share information, locate and evaluate information, research and solve problems, send and receive information via an internet.

Undergraduate student: this is defined as a student in a university or college who has not received a first degree, especially a bachelor's degree (Http://dictionary.reference.com/browse/undergraduate). In this study, the

undergraduate students refer to the students who are doing Bachelors Degree of Nursing, as well as these doing Bachelors of Nursing Advanced Practice.

Tool: this is defined by Macmillan Dictionary (2012) as something that you use in order to perform a job or to achieve an aim. It is also defined by Dreamomania (2011), as a device that can be used to produce an item or achieve a task but is not destroyed in the process. Informally the word is also used to describe a procedure or process with a specific purpose. In this study, the word tool referred to internet that might be used to get an academic task done or to achieve the academic goals by the students. It also referred to the procedure and the process through which students use internet.

Academic: this is a term used when relating to education especially education in colleges and University (MacMillan Dictionary, 2012). In this study it was used when relating to school or education.

Competence: this is defined as a result of integrative learning experiences in which skills, abilities, and knowledge interact to form bundles that have currency in relation to the task for which they are assembled. (U.S. Department of Education and National Center for Education Statistics, 2002). According to Jonnaert, Barrette, Boufrahi and Masciotra (2004) competence is based on mobilising and coordinating resources by a person in a given situation; it can be developed only in a situation; and can be attained only if the situation is successfully handled. Rey (2008) argues that competences includes acting autonomously, using tools interactively and interacting in heterogeneous

groups. In this study, a competence is related to the capacity to use autonomously and successfully internet as an academic tool through integrative learning experiences where a combination of skills, abilities, and knowledge are needed to use internet.

1.9. CONCEPTUAL FRAMEWORK

This study was guided by a network literacy model as devised by Ngulube, Shezi and Leach (2009), (Figure1.1). The core concept “network literacy” is defined by McClure (1994) as “the quality or state of being able to identify, access and use electronic information from the information network,” informed the study. Ngulube, Shezi and Leach (2009), cited in Kheswa (2010), point out that despite the advantages of the Internet, its use is limited due to the poor level of network literacy of some users.

Ngulube, Shezi and Leach (2009), cited in Kheswa (2010), point out that despite the advantages of the Internet, its use is limited due to the poor level of network literacy of some users. Network literacy consists of four major areas as follows: (1) knowledge of information resources available on the Internet; (2) the skillful use of ICTs to access networked sources; (3) the judgment of the relevance of information sources; and (4) the skill in the use of computer-mediated communication tools.

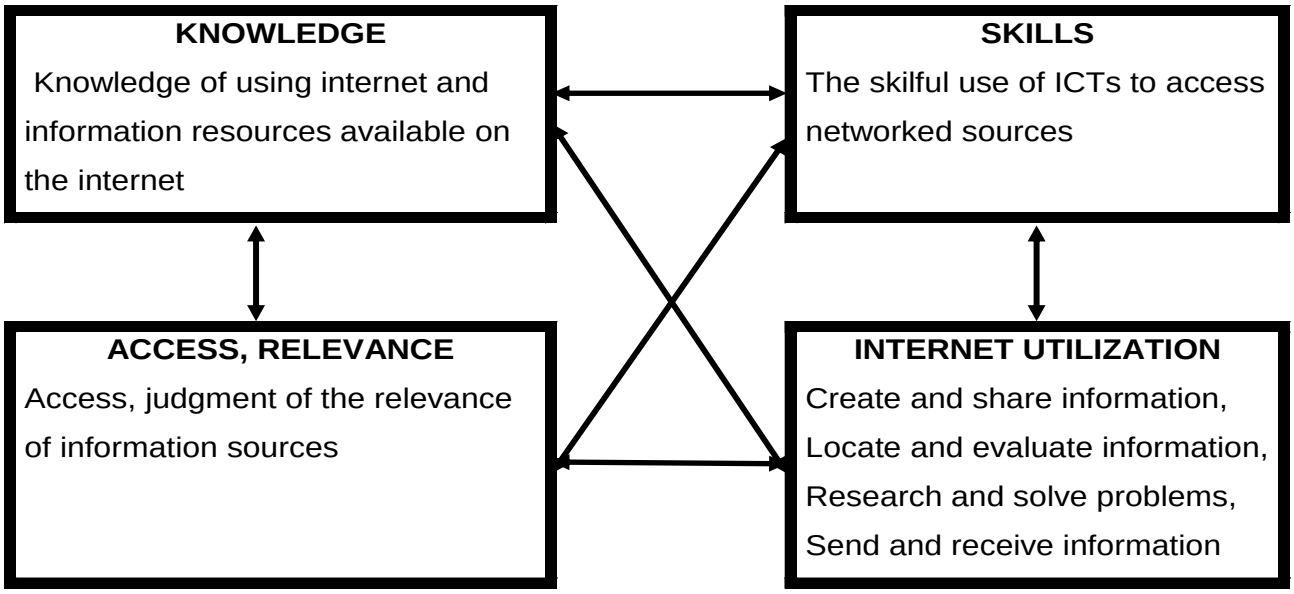

Figure 1.1: Network literacy model adapted from Ngulube, Shezi and Leach (2009) cited by Kheswa(2010).

Being network literate is thus a crucial component of the broader concept of information literacy (Kheswa, 2010). The current study examined the extent to which Nursing students from a selected University in KwaZulu-Natal were network literate and used internet for academic purposes. This conceptual framework was useful and effective in answering the research questions listed earlier, as their formulation is based on this framework. The network literacy concept was also helpful when analyzing data as the study was guided by its four major areas.

1.10. OUTLINE OF THE DISSERTATION

This dissertation is organized into the following five chapters:

Chapter one presented an introduction and the background to the study, the research problem, aim, objectives and research questions. It outlines the significance to the

study, defines key terms, and presents the conceptual framework, an overview of the study and the conclusion.

Chapter Two reviews the related literature, which involves identification, location and analysis of documents or materials containing information related to the research problem. These are organized into themes which are presented as subheadings.

Chapter Three focuses on the methodology, outlining the research method, the study population and the instruments used for data collection. The chapter also describes the process of data collection and finally, presents the methods used for data analysis.

Chapter Four presents the findings from this study.

Chapter Five discusses the findings from the previous chapter in relation to the relevant literature. This chapter also concludes the study, and presents recommendations that shall inform the nature of internet utilization by Undergraduate Nursing students.

1.11. CONCLUSION

The aim of this chapter was to highlight the background to utilization of internet as an academic tool among University students. The problem statement to this phenomenon has been provided. Aims, research objectives, research questions, significance to the study, definition of key terms and the conceptual framework have been presented and discussed. The next chapter will explore the Literature with respect to internet utilization.

CHAPTER TWO

LITERATURE REVIEW

2.1. INTRODUCTION

A literature review involves the identification and location of information on a particular topic or topics (Babbie, 2009; Cronin, Ryan and Coughlan, 2008). Prytherch (2000) argued that a literature review is a survey of progress in a particular aspect of a subject over a given period, and may range from a bibliographical index or a list of references, to a general critical review of original publications. Gash (2000), on the other hand, defined a literature review as “a systematic and thorough search of all published literature in order to identify as many items as possible that are relevant to a particular topic”.

In this literature review, the topic that directed the systematic search of information was use of the Internet as an academic tool among nursing students to establish ways of enhancing its utilization, with the search including information on medical tertiary institutions. The review included both local and international material, and covers a number of topics: internet definition, internet utilization globally, history of teaching and learning using internet, internet and the theories of teaching and learning. A brief description of internet in education is provided as are internet resources, access to internet resources, search engines and catalogues, and the factors which influence the effectiveness of internet use in education. The literature search included the information ranging from 1979 to 2012, and this this was mainly based on the historical, professional and educational use of Internet.

The literature search included the following computer-assistance, data-based bibliographies namely; MEDILINE (Medical Literature Online), Academic Search Premier, Nexus, CINAHL (Cumulative Index to Nursing and Allied Health Literature), Google and Google Scholar.

2.2. DEFINITION OF THE INTERNET

Information Technology (IT) is defined as computer technology, both hardware and software, for processing and storing information, and communication technology, including networking and telecommunications, for transmitting information on a global scale via the TCP/IP protocol (American Heritage Science Dictionary, 2011; FOLDOC, 2011; Martin, Brown, Dehayes, Hoffer and Perkins, 2002). The Internet is seen to be an important aspect of information technology. It is further defined as a publicly available computer network of computers that use the TCP/IP network protocols to enable data transmission and exchange (WordNet Dictionary, 2003). The Internet often refers to the World Wide Web (WWW), electronic mail (e-mail) and online chat services operating on the Internet (American Heritage Science Dictionary, 2011; Hyperdictionary, 2008; WordIQ, 2007).

2.3. HISTORY OF THE INTERNET AND ITS USE IN TEACHING AND LEARNING

To provide context to the use of the Internet, the history of the Internet will be reviewed, with a brief outline of the relevant timelines, followed by an overview of its use in the history of teaching and learning.

2.3.1. History of the Internet

According to WordIQ (2007), The core networks forming the Internet started in 1969 as the ARPANET, created by the United States Department of Defence Advanced Research Projects Agency (ARPA). It was initially developed as an experiment and was used to support communication within the Defence Department. Boswell (2005) states that the usefulness of computer networking, especially e-mail, as exhibited by the Department of Defence on ARPANET, stimulated the interest of other communities and disciplines. Some early research which contributed to the ARPANET included work on decentralized networks, queuing theory, and packet switching. On January 1, 1983, the ARPANET changed its core networking protocols from NCP to TCP/IP, marking the start of the Internet as we know it today (Hyperdictionary, 2008; WordIQ, 2007).

According to WordIQ (2007) and FOLDOC (2011), until the advent of the World Wide Web in 1990s, the Internet was almost entirely unknown outside universities and corporate research departments, and was accessed mostly via command line interfaces, such as telnet and FTP. In August 1991, Tim Berners-Lee publicized his new World Wide Web project, two years after he had begun creating HTML, HTTP and the first few web pages at CERN (Hyperdictionary, 2008; WordIQ, 2007). While the web (primarily in the form of HTML and HTTP) is the best known aspect of the Internet, there are many other protocols in use, supporting applications such as electronic mail, Usenet, chat, remote login, and file transfer (Hyperdictionary, 2008; WordIQ, 2007).

2.3.2. A brief internet timeline

As the world of technology is transforming, Internet underwent several transformation in order to make it accessible, and to be able to respond to the daily needs of the world

population (Prabhudesai, 2007). The following Internet timeline has been adapted from Boswell (2005).

- **1957:** The United States Department of Defence formed a small agency called ARPA (Advanced Research Projects Agency) to develop military science and technology.
- **1961-1965:** The Massachusetts Institute of Technology (MIT) started to research sharing information in small, phone-linked networks. ARPA was one of their main sponsors.
- **1966:** The first ARPANET plan was unveiled by Larry Roberts of MIT. Packet switching technology was getting off the ground, and small university networks were beginning to be developed.
- **1969:** The Department of Defence commissioned the fledgling ARPAnet for network research. The first official network nodes were UCLA, Standford Research Institute, UCSB, and the University of Utah. The first node to node message was sent from UCLA to SRI.
- **1971:** more nodes join the network, bringing the total to 15. These new nodes include Harvard and NASA.
- **1973:** ARPAnet went global when the University College of London and Norway's Royal Radar Establishment join.
- **1974:** Network intercommunication was becoming more sophisticated; data was now transmitted more quickly and efficiently with the design of TCP (Transmission Control Program).

- **1976:** Unix was developed at AT and T; Queen Elizabeth sends out her first e-mail message.
- **1979:** USENET, the mother of all networked discussion groups was developed.
- **1982:** Internet technology protocols were developed, commonly known as TCP/IP (Transmission Control Protocol and Internet Protocol). This leads to one of the first definitions of an "internet" being a connected set of networks.
- **1984:** The number of hosts increased to 1000, with more being added daily.
- **1985:** The first registered domain was Symbolics.com.
- **1987:** Number of hosts breaks the 10,000 mark.
- **1988:** First large-scale Internet worm affects thousands of Internet hosts.
- **1991:** Tim Berners-Lee develops the World Wide Web.
- **1993:** The World Wide Web's annual growth reached 341,634%.
- **1994:** ARPAnet celebrated 25th anniversary.
- **1995-1997:** RealAudio introduced Internet streaming technology, dial-up systems emerged (America Online, Compuserve), the Internet backbone continued to be strengthened with the addition of MCI, with Microsoft and Netscape fighting for WWW browser supremacy, and there were more than 70,000 mailing lists.
- **1998-present:** The Internet continued to experience considerable growth. More people used the Internet to connect to others, find information, conduct business, and share information than ever before in history (Boswell, 2005).

In the history of the Internet, there have been different variation of the Internet, such as Web 1.0, Web 2.0, and Web 3.0 (Prabhudesai, 2007). According to Prabhudesai (2007), the three variations of web are different, in Web1.0, the information was

published on the web in a static manner, similar to a word document on the web with pictures and formatting done neatly. Naik and Shivalingaiah (2008) said that Web 2.0 is currently in its infancy, or the “read-write” web, as indicated by Berners-Lee’s method of describing it. Naik and Shivalingaiah (2008) further argues that Web 3.0 is a term that has been coined to describe the evolution of Web usage and interaction that includes transforming the Web into a database. By extending Tim Berners-Lee’s explanations, the Web 3.0 would be a “read-write-execute” web (Naik and Shivalingaiah, 2008).

WordIQ (2007) argues that since the creation of the Internet, it has grown to become an almost ubiquitous aspect of modern information systems, becoming highly commercial and a widely accepted medium for a variety of customer relations such as advertising, brand building, and online sales and services. Its original spirit of cooperation and freedom have, to a great extent, survived this explosive transformation, with the result that the vast majority of information available on the Internet is free of charge, and unlike older communications systems, the Internet protocol suite was deliberately designed to be agnostic with regard to the underlying physical medium.

According to Anderson (2010), each year, the world’s store of information almost doubles that of the year before. A global market intelligence company reports that by 2011, the digital universe will be 10 times the size it was in 2006. The situation is described as an exploding digital universe (IDC, 2008 cited by Anderson, 2010). Experts estimate that 24 million new blog posts are updated daily, and more than a billion songs are shared over the Internet each day. These blog posts can contain a commentary on current events, a collection of memos or thoughts, a place to post photos and comments, and almost anything a user wishes. Other people on the Internet

can read these posts, as they are called, and leave comments if they wish, or comment on previous comments made (Anderson, 2010). YouTube, a company that only started a few years ago, now hosts 100 million video streams a day. YouTube is a widely used website that provides a service where users can upload videos and share these with others (Anderson, 2010).

Knowledge is not the same as an increase in information, and is expanding exponentially. According to one estimate by Resta and Patru (2010), more than 7,000 scientific and technical articles are published each day. Chemists estimate that the number of known chemical substances or products has grown steadily from a few hundred in 1800 to approximately 25 million today (Resta and Patru, 2010). Information and knowledge are the new forms of wealth and are the driving force for development. Resta and Patru (2010) argue that the extraordinary expansion of knowledge is brought about by information and communications technology (ICT), which make it possible to generate, store, transmit, retrieve and process information at vastly increased speeds. All this has implications for lifelong learning, as educators now recognize that learning does not stop after formal education ends. Critical challenges for educators are how to ensure equal access by all to this global storehouse of knowledge, and how to equip all citizens with the necessary skills for the new global environment, a theme taken up next (Anderson, 2010).

2.3.3. History of teaching and learning using internet

According to Phillips (2009), we live in a time with unprecedented access to information. A simple search on Google's search site for any rudimentary term will provide millions of links to the desired term, but it has not always been this way. A brief examination of the

history of education will confirm that the last ten years are truly phenomenal in the amount of information available. Prior to the advent of writing, education was accomplished orally and with a very specific purpose. Families would pass down oral traditions in order to provide cultural and social context to children. Ritual and religious philosophy were also passed on orally in order to maintain the moral teachings (Phillips, 2009). There have been different revolutions in education such as Revolution 1: reading and writing, Revolution 2: printing press, Revolution 3: the Internet (Phillips, 2009; Kagan, Ozment and Turner, 2007; Briggs and Burke, 2002).

According to Phillips (2009), the third great revolution in education has come with the advent of the Internet. IOPS (2012), argues that the Internet has really changed the way that we communicate, how we shop, how we spend time with friends and even how we obtain our education. The history of online education began in the 1980s when electronic-training was only just becoming a potential creation (IOPS, 2012). Companies and educational institutions were hiring instructors for the purpose of training their students on a strict basis. These instructors allowed for hands on training and students were able to interact with classmates while experiencing the lessons (IOPS, 2012).

The first online educational institutions began in the 1990s, as the Internet became a great success and people were taking multimedia to new levels. Colleges were starting to offer a wealth of online courses in the new millennium (IOPS, 2012). According to White (2008), The initial stages of the WWW from 1990 to 2001 provided the capacity for an information service. Schools, training colleges and universities developed websites as part of the proliferation of information accessible globally. The websites were institutionally focused and similar to reading manuals. This meant that access by

users was limited to the provision of information only in text formats, with little consideration for being user friendly or user focused. This was described in a predictions about the Internet in 1999 called 'The ClueTrain Manifesto' (Levine, Locke, Searls and Weinberger, 2000).

Today, online education has really come a long way, with Instructors are being hired to teach online courses, sometimes involving live chats and filming for online video lessons. Companies are also hiring online education programs, as training sessions are quick and effective, and academic institutions are offering entire degree programs online for many different industries, thereby changing the future of education as we know it (IOPS, 2012). Over the past few years, technology and the Internet have really changed the way students learn, from being dependent upon what the teacher could demonstrate in the classroom or in person, to learn new concepts, knowledge and information that they might not otherwise have been exposed to (IOPS, 2012).

The Internet and computers have allowed students to have access to the entire world. That means if students are learning about China, they can set up virtual meetings with students in China and talk to them first hand. If they are learning a language such Spanish, they can talk to native speakers. It has become a worldwide classroom and has created a global learning environment (IOPS, 2012). Computer-supported collaborative learning is one of the most promising ideas to improve teaching and learning with the help of modern information and communication technology (Lehtinen, Hakkarainen, Lasse Lipponen, Rahikainen and Muukkonen, 1999).

2.4. INTERNET UTILIZATION IN THE WORLD POPULATION

The number of people using internet is growing, according to Internet world Statistics (2011), and increased by 480.4% between 2000 to 2011. In 2000, there were estimated 360.985.492 internet users, which increased to approximately 2.095.006.005 in 2011, 30% of the global population.

Table 2.1 presents a comparison of internet users by continents in 2000 and 2011, with a big difference between developed and underdeveloped countries (Internet World Stats, 2011). English is the most used language for communication on the Internet due to its original creation and is commonly used in software programming, with early computers only being able to handle English characters. This presents a problem to people in Thailand and others non-English speaking countries. However, in recent years, the Internet has developed to the extent that native languages are available in most developed countries (Kripanont, 2007).

Table 2.1: World internet usage and population statistics March 31, 2011

World regions	Population Est 2011	Internet users Dec. 31, 2000	Internet users latest data	Penetration (% population)	Growth 2000-2011	Users % of table
Africa	1,037,524,058	4,514,400	118,609,620	11.4	2527.4%	5.7%
Asia	3,879,740,877	114,304,000	922,329,554	23.8	706.9%	44.0%
Europe	816,426,346	105,096,093	476,213,935	58.3	353.1%	22.7%
Middle East	216,258,843	3,284,800	68,553,666	31.7	1,987.0%	3.3%
North America	347,394,870	108,096,800	272,066,000	78.3	151.7%	13.0%
Latin America/ Caribbean	597,283,165	18,068,919	215,939,400	36.2	1037.4%	10.3%
Oceania / Australia	35,426,995	7,620,480	21,293,830	60.1	179.4%	1.0%
World Total	6,930,055,154	360,985,492	2,095,006,005	30.2	480.4%	100.0%

Adapted from Internet world Statistics (2011)

2.5. INTERNET AND THE THEORIES OF TEACHING AND LEARNING

Since its creation, the Internet has been adopted to influence difference teaching and learning theories, such as behaviorism cognitivism, constructivism and recently connectivism (Anderson, 2010; Siemens, 2006; Downes, 2006; Koç, 2005; UNESCO, 2003). According to Koc (2005), teachers need to use a variety of teaching activities in their classrooms, and that variety should include technology whenever appropriate. Koc (2005) argues that appropriate use of technology is one aspect of teaching that pre-service teachers must use as reflective practitioners who evaluate choices for presenting content, monitoring and measuring students' understanding of content, and for students' to use to explore a variety of resources in the learning process. Technology exists in classrooms not simply for the sake of its presence, but also to enhance the learning process. Luambano and Nawe (2004) point out that the Internet has also enabled the growth of distance learning, both within nations and across the international borders.

The section reviews the Internet and learning theories: behaviourism, cognitivism, constructivism, connectivism, and learning as a social phenomenon. The implication of using internet according to each theory of learning and teaching is described.

2.5.1. Internet and Behaviourism

According to Anderson (2008), early computer learning systems were designed based on a behaviourist approach to learning. The behaviorist school of thought, influenced by Thorndike (1913), Pavlov (1927), and Skinner (1974) as cited in Anderson (2010), postulates that learning is a change in observable behaviour caused by external stimuli

in the environment. Behaviorists claim that observable behaviour indicates whether or not the learner has learned something, and not what is going on in the learner's head.

Koc (2005) argues that the use of technology from the behaviorist perspective mirrors traditional classroom practice: users are relatively passive, the content and interaction between the user and the software are predetermined, and there is a limited repertoire of acceptable responses (Jonassen, 2000). The acquisition of facts through repeated practice and rote memory, or learning from the technology, is the goal of instruction (Jonassen and Reeves, 1996).

Computer assisted instruction (CAI), integrated learning systems, drill-practice programs, computer-based tutoring systems, and assessment software are some of the technologies that are based on the behaviorist learning theory (Jonassen, 2000). CAI and integrated learning systems have been readily adopted in many schools in the USA. As they closely match the traditional routine of classroom life, Jonassen (2000) argues that CAI can increase achievement because it leads to automaticity of lower-level skills through extended practice. A computer that is endlessly patient with the learner monitors this practice. In the tutorial form of computer-assisted instruction, the computer provides additional information to the learner if an incorrect answer is supplied, which continues until the learner is successful. Skinner's views of immediate positive reinforcement following a correct answer are directly applicable to drill-and-practice and tutorial forms of CAI (Yaakub, 1998).

According to Anderson and Elloumi (2003), using the Internet in a behaviorist perspectives, learners should be told the explicit outcomes of the learning so that they

can set expectations and judge for themselves whether or not they have achieved the outcome of the online lesson. Learners must be tested to determine whether or not they have achieved the learning outcome. Online testing and other forms of testing and assessment should be integrated into the learning sequence to check the learner's achievement level and to provide appropriate feedback. Learning materials must be sequenced appropriately to promote learning. The sequencing could take the form of simple to complex, known to unknown, and knowledge to application. Learners must be provided with feedback so that they can monitor how they are doing and take corrective action if required (Anderson and Elloumi, 2003).

2.5.2. Internet and cognitivism

Cognitive psychology claims that learning involves the use of memory, motivation, and thinking, and that reflection plays an important part in learning. Whelan (2005) argues that Cognitivism emphasizes the importance of perception, learning and thought as the basis for understanding human behavior and learning. Rooted in information processing theory pioneered in the 1960s, cognitivism draws from the analogy between computers and minds, allowing for the possibility of computer programs that 'think' alongside their human users. According to Anderson and Elloumi (2003) strategies should be used to allow learners to perceive and attend to the information so that it can be transferred to working memory. Learners use their sensory systems to register the information in the form of sensations. Strategies to facilitate maximum sensation should be used. Examples include the proper location of the information on the screen, the attributes of the screen (color, graphics, size of text, etc.), the pacing of the information, and the mode of delivery (audio, visuals, animations, video) (Anderson and Elloumi, 2003).

Strategies to promote perception and attention for online would ensure that lessons, headings are used to organize the details, and formatted to allow learners to attend to and process the information they contain. Learners should be told why they should take the lesson, so that they can attend to the information throughout the lesson. The difficulty level of the material must match the cognitive level of the learner, so that the learner can both attend to and relate to the material. Links to both simpler and more complicated materials can be used to accommodate learners at different knowledge levels (Anderson and Elloumi, 2003).

Strategies should be used to allow learners to retrieve existing information from long-term memory to help make sense of the new information. Learners must construct a memory link between the new information and some related information already stored in long-term memory (Ausbel, 1960 cited in Anderson and Elloumi, 2003; Mayer, 1979). According to Anderson and Elloumi (2003), pre-instructional questions should be used to set expectations and to activate the learners' existing knowledge structure. With the flexibility of online learning, students with diverse backgrounds and knowledge can choose the most appropriate path to review previous or prerequisite learning before new information is presented. To facilitate deep processing, learners should be asked to generate the information maps during the learning process or as a summary activity after the lesson (Anderson and Elloumi, 2003; Bonk and Reynolds, 1997).

2.5.3. Internet and constructivism

According to UNESCO (2003), the constructivism pattern in designing learning strategies and knowledge matches well with the Internet as a learning instrument. UNESCO (2003) further explains that the instruction is centered in the learners who are

the centre of the learning process. Constructivist theorists claim that learners interpret the information and the world according to their personal reality, that they learn by observation, processing, and interpretation, and then personalize the information into personal knowledge (Wilson, 1997; Cooper, 1993). Learners learn best when they can contextualize what they learn for immediate application and personal meaning. Internet in relation to the constructivism is seen as tool to help the student to build knowledge through the learning activities that favor personal autonomy and propitiate self-regulation or control of the learning (UNESCO, 2003; Anderson and Elloumi, 2003). When used in a constructivist manner, students utilize technologies to: (a) manipulate data, (b) explore relationships, (c) intentionally and actively process information, (d) construct personal and socially shared meaning and (e) reflect on the learning process (Jonassen, Peck and Wislon, 1999 cited in, Koç, 2005).

The constructive learning area finds in the Internet an instrument that allows the experimental game of the “correct and mistake”, offering the possibility to build up original knowledge. Since it is an open system, where the interests are multiple and heterogeneous, its exploration can be multidirectional (UNESCO, 2003). The Internet navigation experience is a transcript of the mental itinerary of investigation or the cognitive outlines that we use to explore the data perceived by our senses. This walk on the Internet should be preceded, for it is beneficial in the educational area, by the ideology of the theory of the constructivism learning, that states that the most important thing when learning is not what we will learn, but what we have already learnt, in the sense that what we will learn should be integrated in the previous cognitive net of the student (UNESCO, 2003).

Internet navigation must be based on the interest of the student. The interest causes intellectual curiosity that emerges into an atmosphere where the expectations of the students are satisfied by means of the Internet, in which the interest detected by the student can expand, improving the learning. It allows each student to advance in his/her development in a personal and autonomous way according to his/her abilities (UNESCO, 2003). Multimedia instruments, i.e. those that integrate in one format the combined information of audio, video, text and image, increase the possibilities of perception, and these technologies raise positive transformations and improve the teaching and learning processes to a maximum. This technology, used as didactic resources, is a vehicle of knowledge for a curricular culture that is adapted to the transactional nature of the relationship between instructor, learners, and content, and it is significant to the learning experience (UNESCO, 2003; Garrison, 1999).

According to Heinich, Molenda, Russell and Smaldino (2002), learning is the development of new knowledge, skills and attitudes, as the learner interacts with information and the environment. Interaction is also critical to creating a sense of presence and a sense of community for online learners, and to promoting transformational learning (Murphy and Cifuentes, 2001; Johnson and Johnson, 1996; Hooper and Hannafin, 1991).

2.5.4. Internet and connectivism

A recently proposed theory under discussion is connectivism (Downes, 2006; Siemens, 2006; Siemens, 2004). According to Siemens (2004), connectivism is the integration of principles explored by chaos, network, complexity and self-organization theories. Due to the information explosion in the current age, learning is not under the control of the

learner. Changing environments, innovations, changes in the discipline and in related disciplines all suggest that learners have to unlearn what they have learned in the past, and learn how to learn and evaluate new information. What must be learned is determined by others and is continually changing.

As machines are becoming smart with the use of intelligent agents, Siemens (2004) also asks whether, in fact, learning may reside in machines. Some knowledge will reside in machines while some will reside in humans. The challenge for educators, therefore, is how to design instruction for both machines and humans, and how the two can interact with each other. For example, if there is a change in a procedure on how to use a machine, the wireless capability in the machine will allow the updated procedure to be downloaded into the machine's memory. When a learner goes to interact with the recently updated machine, that learner will be informed that the procedure has changed and that the machine will guide them through the procedure (Siemens, 2004).

Under a close analysis of the behaviorist, cognitivist, and constructivist schools of thought, many overlaps in ideas and principles become apparent. The design of online learning materials can include principles from all three schools of thought. According to Ertmer and Newby (1993), the three schools of thought can, in fact, be used as a taxonomy for learning. Behaviorists' strategies can be used to teach the what (facts); cognitive strategies can be used to teach the how (processes and principles); and constructivist strategies can be used to teach the why (higher-level thinking that promotes personal meaning, and situated and contextual learning). Janicki and Liegle (2001) analysed different instructional design models to identify the components that support quality design of web-based instruction. They identify components from each of

the behaviorist, cognitivist, and constructivist schools of learning, and explore connectivist theory to help designers use it to guide the design of learning materials.

2.5.5. Learning as a social phenomenon and the Internet

According to UNESCO (2003), the consideration of the Internet as a suitable pedagogic instrument for learning is also supported by the principles that sustain the theory of Vigotsky: that learning is a social phenomenon. In Vigotsky's opinion, the acquisition of new knowledge depends on the interactions of people in dialogue. To learn is, therefore, a dialectical process in which a person contrasts his/her points of view with others trying to get to an agreement, finally reaching an agreement. Vigotsky linked cognitive contexts and developments because they were related to the socio-cultural transformations (UNESCO, 2003). According to Vagotsky, the Internet enlarges the possibilities to acquire new knowledge to unsuspected limits. The concentration in the Internet of so many people, ideas and cultures adds to the conception of the learning by Vigotsky, that the multipolarity of levels of social experiences and culturally different people are connected virtually. Meaning that it is a place where series of things exist and circulate and is considered virtual because it is located at the same distance from anyone (UNESCO, 2003).

The learning process depends on the dialogic device, cyberspace and hypertexts that the Internet owns. These are the most impressive agora for establishing dialogic relationships added to the acquisition of new knowledge, because the Internet multiplies relationships, impels the establishment of ideological contrasts, favourable dialectical processes and, even, real time debates (UNESCO, 2003).

2.6. THE INTERNET IN EDUCATION

The Internet has been given an integral role in education (Selwyn, 2008 cited in, Peou and Lwin, 2011), and it has been implemented in universities' organizational and educational practices for almost two decades in many countries, where it has shown its impact not only on people's lives but also on education (Peou and Lwin, 2011). According to Nwezeh (2010), information and communication technologies have introduced new methods of teaching and conducting research, and have been brought into education facilities for online learning, teaching and research collaboration. For example, from a 2002 survey conducted in the U.S., it was found that college students seem generally positive about the Internet and its impact on their educational experience, while distance learning projects have not found much success (Kripanont, 2007).

Faculty and students often react with ambivalence to the new technologies (Usun, 2003). On the one hand, they want to preserve the benefits associated with traditional classroom learning, while on the other, they may feel increasing pressure (from themselves or others) to experiment with the Internet (Dede, 1996; Russel, 1996 cited in Usun, 2003). There appears to be little interest among traditional college students (those who are from 18-22 years old) to abandon the classroom and take courses online. Only 6% of students took online courses for college credit, and of those, only half (52%) thought the online course was worth their time, and another half said they believed they learned less from the online course than they would have from an on-campus one (Kripanont, 2007).

Based on this finding, it is clear that for students already enrolled in traditional college courses, online education has a long way to go before it might challenge the traditional classroom. Regarding study habits, the finding showed that 73% of college students said that they used the Internet as the primary site of their information searches rather than the library. The convenience of the Internet is tempting students to rely very heavily on it when searching for academic resources (Pew Internet and AmercanLife Project, 2002 cited in, Kripanont, 2007).

The survey also showed that distance learning projects have not found much success because students can choose between study in classrooms and courses online. In remote areas, however, where the classroom is not available for those who are interested in studying, taking online courses may be the only choice. and may help people to communicate with others and to increase their knowledge (Pew Internet and Amercan Life Project, 2002 cited in, Kripanont, 2007). In practice, much of the recent focus of technological development in the university sector has been concerned with promoting the use of the Internet as a teaching and learning tool, and was taken to its logical conclusion: as a replacement for, rather than a supplement to, a traditional textbook. The Internet is appealing to higher education for a number of reasons including: it reduces the time lag between the production and utilization of knowledge; it promotes international co-operation and exchange of opinions; it furthers the sharing of information; and it promotes multidisciplinary research (Usun, 2003; Hooper and Hannafin, 1991).

According to Donnellan (2012), information and communications technology (ICT) projects run by the UK Education Departments have shown that its use in education

provides a number of learning benefits including: 1) improved subject learning across a wide range of curriculum areas, including: English, maths, science, history, geography, modern languages, art, technology, IT and careers, as well as independent study and cross-curricular project work. 2) improved motivation and attitudes to learning. 3) development of independent learning and research skills. 4) improved vocational training. 5) development of network literacy (i.e. the capacity to use electronic networks to access resources, create resources and communicate with others, these can be seen as complex extensions of the traditional skills of reading, writing, speaking and listening). 6) social development.

According to Usun (2003), the US public school system has long been perceived as a major avenue to increase equality among diverse groups of students. However, Postman (1999) argues that the introduction of technology into schools has created an ever-expanding chasm of inequity. Gladieux and Swail (1999) contended that the introduction of technology into schools has unfortunately created a group of technologically disadvantaged students, particularly for students who do not have access to computers at home and only encounter computers in their schools. Selwyn (1999) reported that 983 college freshmen and sophomores who had computers at home expressed more favorable attitudes towards the use of computers in their schoolwork than students who did not.

The importance of ICT and the internet in tertiary education is generally recognized by higher education institutions (Kheswa, 2010). According to Bon (2007), the Internet represents the world's largest knowledge database which is easily accessible through powerful search engines. Bon (2007) argued that the Internet can provide access to

resources of scientific publications and scholarly information when students have access to computers and the Internet with sufficient bandwidth for downloading and exchanging documents over the network. Those who study at schools, universities, colleges can enhance their knowledge using the educational literature, encyclopedia, references, dictionaries, databases, which are freely accessed, participating in distance educational courses, in collaborative projects with students from other schools, universities, countries, discussing different problems with them (UNESCO, 2003).

The opportunities provided by the Internet for education are unique, which according to UNESCO (2003), was invented specifically for education. Very few technical aids were designed and produced particularly for educational purposes. Educators have always had to investigate the didactic opportunities of various inventions to define how it can be successfully used in education. It is very important neither to overestimate the role of the Internet in education nor to underestimate it, to define this role and place in the educational process (UNESCO, 2003).

The educational theory of constructivism and psychological theories of critical thinking and activity are recognized by the progressive educators' world to be meeting the demands of the time. Education is no longer solely concerned with the reproduction of acquired knowledge as its main goal. People need to engage in life-long learning to be up-to-date in any professional sphere (UNESCO, 2003).

2.7. EXISTING TYPOLOGIES OF INTERNET APPLICATIONS IN EDUCATION

According to UNESCO (2003), The application of the Internet in education is understood as the usage of Internet technologies to solve various educational tasks, namely, teaching, learning and management of the educational process. Dryli and Kinnaman (2002) argue that the Internet enables students to find information and experts, as well as allowing users to think critically and creatively, become collaborative and cooperative, and solve problems. The systematic analysis of experiences in using the Internet in education implies that the types of such application provide an opportunity for comparisons and generalizations that can be preliminarily identified and defined (UNESCO, 2003). At the same time, due to the accumulated experience in the use of the telecommunication technologies in education, one should note two main approaches in selection of the grounds for segmentation of this project-domain (UNESCO, 2003).

The technology-oriented approach is most widespread. For example, the statistical study on the use of the electronic communication in open learning and distance education, conducted by UNESCO in 1995 (Euler and Berg, 1998), has used the following matrix based on the types of the applied telecommunication media to collect information on interactive technologies in educational programmes: telephone, fax, audio-conference, video-conference, electronic mail, access to databases (UNESCO, 2003). Depending on a chosen typology, the analysis will cover different aspects of the experience. Various typologies of Application of the Internet in Education have been proposed the literature recently.

Table 2.2: Internet tools for online teaching

Virtual degree (skills level)	Internet tools
Low level	Usage of e-mails or discussion lists
Medium level	Discussion lists and online lecture notes delivered via the web
High level	The above plus interactive web tutorials, designed specifically for the course and students interaction and production of their own web pages
Expert	The above plus, virtual environments, giving the participants possibility of cooperative activity (like multi user dimension, MUD)

Adopted from Groves, Lee, Stephens (1999).

The above table shows the skills level in using internet. At low level, there is the use of internet tool for e-mails and discussion. At high level, on top of the activities, there are interactive tutorials designed specifically for the course and the student's interaction and production of their own web pages. There is also the level of Expert, this level contains the activities mentioned on two previous levels, and the virtual environments giving the participants possibility of cooperative activities (Groves et al., 1999).

Ellsworth (1994) cited in UNESCO (2003), proposes a classification of the Internet tools in accordance with the types of interaction between the participants of the educational process in the course of solution of different tasks/Net tools with different combinations of students, teachers, and curriculum goals: (a) interaction between students and professors in educational process; (b) interaction between students and professors during information searches on the internet; (c) professional joint activities of professors and administration; (d) students' joint research projects. Harris (1995) analysing the experience of successful design and implementation of online education courses and applications, introduces a notion of components or "activity structures" which means a model of activity of the participants of educational process in the Internet.

Table 2.3. Type of online interaction

Kind of interaction	Activity structures
Interpersonal interaction	Key pals
	Global classrooms
	Electronic appearances
	Electronic mentoring
	Impersonation
Information collection	Information exchanges
	Data base creation
	Electronic Publishing
	Tele-field trip
	Pooled data analysis
Problem solving projects	Information searches
	Parallel problem solving
	Serial creation
	Simulation
	Social action projects

Adapted from Harris (1995).

One of the possible approaches was introduced by Harasim (1989), Rapaport (1991) and developed by Paulsen (1998; 1995) for the sphere of education. Paulsen proposes that the following four types of communication paradigms (communication methods) and the kinds of "pedagogical techniques" should be taken into consideration as a basis for singling out different Internet applications. He suggests that these "pedagogical techniques" should be interpreted as "the ways of accomplishing teaching objectives". In a summarised form this typology is presented as follows:

Table 2.4: Methods, techniques and devices that could be applied in CMC-based teaching systems

Ways of communication	Single	One to one	One to multitude	Multitude to multitude
Pedagogical Techniques	Online data base Online magazines Online applications Program libraries Online hobby groups Interview	Educational contracts Preparation course internship correspondence teaching	Lecture Symposiums Publications	Discussions Simulations or games Role paying Discussion groups Transcripts based assignments Brain storming Delphi Technique Nominal group techniques Forums Project groups
Types of CMC-devices	Facilities to work with online resources	e-mails	List servers, BBS and WWW	Usenet, BBS, and computer teleconference

Adapted from (Paulsen, 1998; 1995).

This table shows the CMC based teaching mechanisms where two ways of communication are considered, pedagogical techniques and Types of CMC devices. In Pedagogical techniques there is a Single way of communication that has online data base, online magazines, online applications, program libraries, online hobby, groups' interview. This single communication way related to CMC devices contains facilities to work with online resources (Paulsen, 1998; 1995).

One to one way of communication; using a Pedagogical technique should focus on educational contracts, preparation course internship, correspondence teaching. And while using CMC-devices it focuses on e-mails. One to multitude way of communication, using a pedagogical technique, it focuses on lecture, symposiums, publications. And while using CMC devices, it focuses on list of servers, BBS and WWW. Multitude to multitude as way of communication, using pedagogical techniques it focuses on discussions, Simulations or games, Role paying, Discussion groups, Transcripts based

assignments, Brain storming, Delphi Technique, Nominal group techniques, Forums, Project groups, and while using CMC devices it focuses on usenet, BBS, and computer teleconference (Paulsen, 1998; 1995). Davies (1997) cited in UNESCO (2003), builds her own typology of the usage of the Internet in education on the basis of the activity types in all aspects of the educational process (Table 2.5):

- Web based courses: Fully WWW placed courses, Major component of the course on the WWW, Support in WWW; WWW contains only the information on the course
- Educational administration: Online admission, Course registration, Tuition payment, Administrative tasks
- Development and communication skills: Thematic student to student, correspondence, including students from abroad
- Electronic publishing: Creating hypermedia web pages by students, Issuing of online journals
- Mining information: Data base browsing, Electronic encyclopedia
- Ask the experts: E-mailing question to the most famous experts
- Electronic appearances and virtual realization: Virtual conferences or forums
- Simulations: MUD, MOO (Davies, 1997 cited in UNESCO, 2003; Kubey, Lavin and Barrows, 2001)
- Involvement in research projects: Shared global search, collection and analysis of information
- Professional networking: Exchange of experience and information via synchronous and asynchronous teleconferencing and discussion list (Davies, 1997).

Table 2.5 Typology of internet usage in education

Typology	Activities
Web based courses	Fully WWW placed courses Major component of the course on the WWW Support in WWW WWW contains only the information on the course
Educational administration	Online admission Course registration Tuition payment Administrative tasks
Development and communication skills	Thematic student to student correspondence, including students from abroad
Electronic publishing	Creating hypermedia web pages by students Issuing of online journals
Mining information	Data base browsing Electronic encyclopedia
Ask the experts	E-mailing question to the most famous experts
Electronic appearances and virtual realization	Virtual conferences or forums
Simulations	MUD, MOO
Involvement in research projects	Shared global search, collection and analysis of information
Professional networking	Exchange of experience and information via synchronous and asynchronous teleconferencing and discussion list

Adapted from Davies (1997) cited in UNESCO (2003).

2.8. ICT INTEGRATION IN THE CLASSROOMS

This section reviews the integration of Information Communication Technology in the classrooms. Information and communication technology, or ICT, is defined as the combination of informatics technology with other, related technologies, specifically communication technology. ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form. For example, personal computers, digital television, email, robots (Gokhe, n.d; Zuppo, 2012). Four stages of ICT integration are Emerging, Applying, Infusing and Transforming (Anderson, 2010).

2.8.1. Stages of ICT integration

The model in Figure 2.1 has two dimensions: technology and pedagogy. Technology refers to all the information and communication technologies that ICT comprise, and pedagogy is the art and science of teaching. The technology dimension is a continuum that represents increasing amounts and variety of ICT in use. The pedagogy dimension is also a continuum and represents changing teaching practices resulting from adoption of ICT. Within these two dimensions are seen four stages that classes or schools typically pass through in their integration of ICT. Sometimes, the number of stages varies. However, there is general consensus that the integration of ICT in education proceeds progressively in a series of broad stages called in the model Emerging, Applying, Infusing and Transforming (Anderson, 2010).

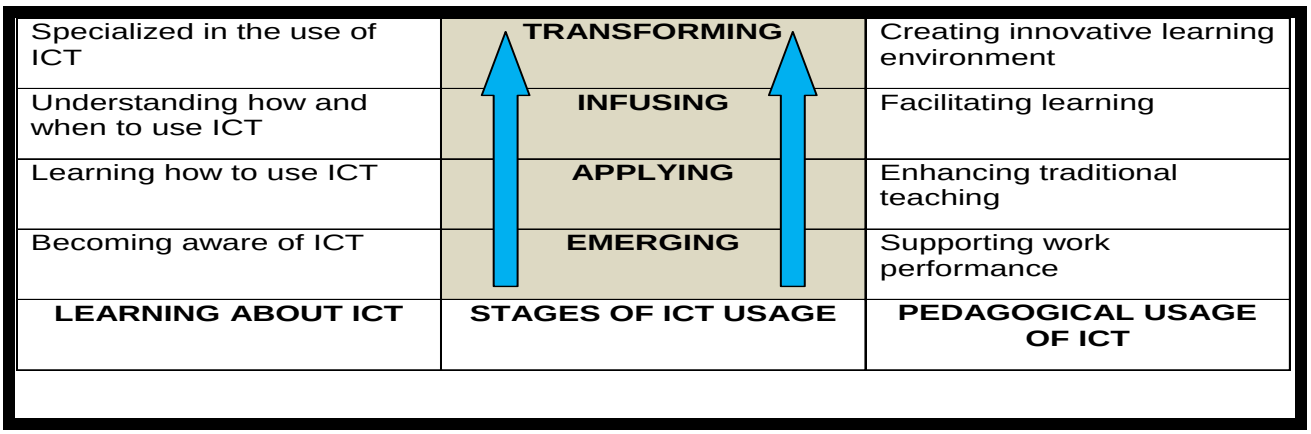

Figure 2.1. Stages of ICT integration. Adapted from Anderson (2010)

a. Emerging stage

Schools at the emerging stage have just begun to introduce computers. Initially, they may have only one or two computers and a printer, either donated or purchased by the education department. On the start of their journey along the ICT

road, administrators and one or more pioneering teachers begin to explore the potential of ICT for school management and for classroom teaching (Anderson, 2010).

At the emerging stage, the focus in the classroom is often on learning basic ICT skills and identifying ICT components. Teachers at this stage frequently use available equipment for their own professional purposes, such as word processing to prepare worksheets, spreadsheets for managing class lists and, if the Internet is also available, for locating information or communicating by e-mail. In this way, teachers develop their ICT literacy skills and learn how to apply ICT to a range of professional and personal tasks. The emphasis is on learning to use a range of tools and applications, and becoming aware of the potential of ICT in their future teaching. At the emerging stage, classroom practice is still very much teacher-centred (Anderson, 2010).

b. Applying stage

Schools at the applying stage have acquired additional ICT equipment throughout their organization, and are usually in countries where there are national ICT policies in place and where various ICT strategies are being trialled. School administrators use ICT for more organizational and management tasks. Meanwhile, teachers begin to adapt the curriculum in order to increase the use of ICT in different subject areas, applying specific software tools such as drawing, designing, modelling and simulations in their teaching. What is widely observed in the development of teachers' skill and use of ICT at this stage is that initially, ICT are used almost as a separate curriculum area. That is, teachers may "do" things

on computers with their students (such as word processing or using other software) in isolation from what is being studied in class. Computers may also, initially, be seen as a “reward” for fast finishers in classroom activities, and much initial use is for playing games on the computer (Anderson, 2010).

Teachers at the applying stage still tend to dominate learning activities in the classroom. However, they use ICT for professional purposes, focusing on improving their subject teaching in order to enrich how they teach with a range of ICT applications. Gradually they gain confidence in using specialized ICT tools in teaching in their subject fields. The opportunity to apply ICT in all their teaching is often limited only by a lack of ready access to ICT facilities and resources (Anderson, 2010).

c. Infusing stage

Schools at the infusing stage are incorporating ICT across the curriculum. The terms integrating, embedding, infusing and these terms are largely synonymous and are all used. At this stage, almost all classrooms are equipped with computers; as are school offices and the library, and schools have internet connections. A wide variety of other ICT is in evidence across the institution, in classrooms, laboratories and administrative offices (Anderson, 2010).

At this stage, ICT infuse all aspects of teachers’ professional lives in such ways as to improve student learning and management of learning. The approach of senior staff is to support active and creative teachers who are able to stimulate and manage the learning of students, and to integrate a range of preferred learning

styles in achieving their goals. The infusing stage often involves teachers easily integrating different knowledge and skills from other subjects into project-based curricula. The curriculum begins to merge subject areas to reflect real-world applications (Anderson, 2010).

While teachers now integrate ICT in all aspects of their professional lives to improve their own learning as well as the learning of their students, ICT are not completely fused with other regular learning activities. Students, however, are slowly given more control over their learning and a degree of choice in projects undertaken. Teachers use ICT to assist their students to assess their own learning in achieving the aims of personal projects. At the same time, it becomes quite natural for teachers to collaborate with other teachers in solving common problems and to share their teaching experiences with others (Anderson, 2010).

d. Transforming stage

The stages we are discussing are not necessarily a hierarchy but rather stages that teachers typically pass through in their feelings of confidence and ease with ICT as they transform their pedagogy and the learning of their students. The infusing stage is already leading to transformation. A major challenge is to move teachers through the infusing stage to a point where ICT are tools used routinely to assist learning in such a way that they are fully integrated in all classes (UNESCO-IICBA, 2012; Anderson, 2010).

When ICT is fully integrated in all regular classroom learning activities, it is used to rethink and renew institutional organization in creative ways, and when ICT is a

regular part of the daily life of the institution, then schools are at the transforming stage. ICT become an integral, though invisible part of daily personal productivity and professional practice. The focus in classrooms has moved fully from teacher-centred to learner centred that integrates subject areas in real-world applications (UNESCO-IICBA, 2012; Anderson, 2010).

At the transforming stage, ICT may be taught as a separate subject at senior levels of secondary schools and incorporated into vocational areas. Teachers with expertise in ICT may be on staff along with other subject specialists. Part of such teachers' responsibilities is to keep track of developments in ICT, and to assist in recommending and acquiring ICT facilities and resources to support the curriculum throughout the institution. With the school head, such staff may assist in developing an ICT plan for the institution (UNESCO-IICBA, 2012; Anderson, 2010).To conclude, when the transforming stage is reached, the whole ethos of the institution is changed: teachers and other support staff regard ICT as a natural part of the everyday life of their institutions, which have become centres of learning for their communities (Anderson, 2010).

In a pedagogic environment wider than school, the importance of the Internet should not be hidden, although it is necessary to consider its possibilities and limitations. In these environments, as well as school learning, when it is achieved, it produces a behaviour change: it is the result of the interaction of an individual with the environment. So, we could call it learning when the technological replica is articulated with the educational strategy. That is to say, the Internet will be viable for the learning as long as there is a balance among what is sought of new behaviours and the characteristics of the means.

In the Internet the message is the means, since it is the message that determines the means to be used, as well as where, how, when and for whom it is used. In other words, the educational objective must be adapted to the instrument, which will provide the type of learning depending on the didactic cognitive design that the electronic means has taken into account (UNESCO, 2003).

2.9. INTERNET USE IN SOUTH AFRICAN EDUCATION

The Department of Education (DoE) stipulates that participation in the information society means that, “Every South African learner in the general and further education and training bands will be ICT capable (that is, use ICTs confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013” (Department of Education, 2003). According to Kistan (2002) cited by Jaffer, Ng’ambi and Czerniewicz (2007), higher education in South Africa is under increasing pressure to meet the social transformation and skills needs of the new South Africa. Isaacs (2007), argues that in all the different facets of the ICTs for education prism, South Africa boasts more than a decade of accumulated experience from its wide range of projects and programmes.

However, De Clercq (2002), argues that South African education is under immense external and internal pressure to improve on its policy and delivery performance. One of the indicators of social transformation in education is increasing the demographic representation among graduates and reducing the demographic difference between student intake and graduate throughput.

Although, a lot has been done to integrated internet in education, Studies conducted, show that students are not fully using it to boost their academic performances (Shezi, 2005), In study conducted at St. Joseph's Theological Institute, in south Africa by Shezi (2005), it was noted that, of the 65 students who answered the questionnaires, just over half 52.3% used the Internet. In the same study, just under half, 47.6% of the students surveyed indicated that they had not used the Internet. The vast majority, 93.5% of these were undergraduate comprising 56.8% of the fifty-one undergraduates surveyed.

The reasons, reported by the students of not using internet, t the vast majority 54.8% indicated that they did not know how to do so. Surprisingly, three 9.6% said that they had no access, which could suggest a lack of publicity about the availability of Internet services to students at the Institute (Shezi, 2005). According to Ojedokun (2001), many of the students did not use the Internet because they lacked the necessary searching skills to make effective use of the resource. Ojedokun and Owolabi (2003) reported that 22% of the respondents had the experience of between one and two years of internet use, while 73.6% had three or more years of internet use.

It was also found by Shezi (2005) that 70.8% of the participants indicated that they were not formally trained to use the Internet which made using it difficult. This lack of training affects the way students use internet in their academic daily activities. The findings of a regional study into the access and use of Information and Communication Technologies (ICTs) in five higher education institutions conducted by Czerniewicz and Brown (2005), demonstrated that 45% of students say they use a computer daily for study and to access information, and 75% of students report using some form of communicative

media occasionally or more frequently in their courses, yet only 55% report being asked to use communicative media as part of their courses.

2.10. INTERNERT USE IN HEALTH CARE PROFESSIONALS

This section reviews the Internet utilization in health care professionals and ethical consideration among health care professionals.

2.10.1. Internet utilization in health care professionals

The Internet is the world's largest network of Information, Communication and Services, the Internet is widely used in medicine and has made significant impact in research, training and patient care (Trivedi and Joshi, 2008). Among Health care professionals, knowledge about telemedicine, evidence based medicine(EBM) and problem based learning(PBL), good clinical practices, open access journals, Medline, Medscape, Cochrane reviews, e-medicine, MD-consult, ProQuest Medical Library(PML) etc have to be assessed (Trivedi and Joshi, 2008). The use of Internet in health care professionals and their education is to prepare students to meet the demands of an increasingly technological world (Daggett, 2010).

Health care professionals are considered to be among the more aggressive users of the Internet as compared to faculty members in many other disciplines and they find this resource indispensable (Lazinger et al., 1997). Obst (1998) surveyed German medical professionals and reported profound changes in their communication patterns as a result of their Internet use. Kaminer (1997) explored the relationship of Internet use with certain variables such as computer usage, length of time of Internet use, expertise in Internet use, and perceived utility of the Internet. It was found that an overwhelming

majority of the faculty members used a number of utilities frequently. He found that the Internet expertise was significantly related to the use of different services and there of their use.

According to MedPac (2004), IT allows health care providers to collect, store, retrieve, and transfer information electronically. However, more specific discussion of IT in health care is challenging due to the lack of precise definitions, the volume of applications, and a rapid pace of change in technology. The health care people seek health information for the reasons that they need to be updated for the current development in medical field all over the globe. They need to obtain answers to patient's specific questions and they need information for teaching materials for undergraduate (UG) and postgraduate (PG) and for research (Trivedi and Joshi, 2008). From its inception the Internet was a prime site for the dissemination of health information (Brown, n.d).

According to Spink (2001) cited in McLean, Kayas and Henderson (2005) nearly 10% of web searches are for health or scientific information. For this reason accessible health information should be a high priority for those creating, organizing and disseminating information. As long ago as 1997 there were 25,000 sites devoted to aspects of health (Ferguson, 1997) and 21st century estimates suggest a much higher number, from 100,000 upwards (Steelman, 2003). Likewise there is some variability in estimates of the extent to which people use these facilities.

According to Bovi (2003), approximately 3 million Americans used the Internet for online consultations with a medical expert. For example, an early 21st century survey revealed that 41% of patients participating in the study were reluctant to spend time in physicians'

offices to ask questions that could be answered through other means of communication, such as e-mail. The survey also concluded that 81% of the online population would like to receive e-mail reminders for preventive care and 83% would like follow-up e-mails after a visit to their physicians (Information Technology Association of America, 2001 cited in Bovi, 2003).

In a study conducted by Podichetty, Booher, Whitfield and Biscup (2006), on internet use and effects among healthcare professionals, he found that most survey respondents (72%) said they use the Internet regularly for medical or professional updating. 81% of the physicians stated that they would take web based CME courses and 80% of the physicians had patients present printed web based information on their condition during the office visit. In the same study Sixty two per cent of the survey respondents would permit patients to access their information through a web site, and slightly more than half of the survey respondents favoured second opinions via the web as a valuable resource for patients. Similarly, slightly more than half of the physicians claimed that web information does influence their healthcare decisions (Podichetty et al., 2006).

Another study conducted Professional use of the Internet among Saudi Arabian dermatologists by AlGhamdi (2009), revealed that 97% of the respondents found the Internet to be a useful tool for medical updating, 96% found the Internet to be a useful tool for obtaining information about medical courses, conferences, and meetings, 51% found the Internet to be a useful tool for obtaining information on career (job) opportunities. In the same study 91% found the Internet to be a useful tool for obtaining information on drugs and medical equipment, 84% reported seeing patients who had

presented them with medical information from the Internet (web-informed patients), and 80% of dermatologists expected there to be a major gain in the overall importance of the]internet for practicing dermatologists.

In a study conducted by Rehman and Ramzy (2004), When the respondents were asked to indicate their perception about the importance of using the Internet in their work as health care professionals, almost two-thirds of them, 65.4%, perceived the Internet as extremely valuable, and more than one-third of them (29.9%) perceived it to be quite valuable. In the same study, It was found that majority of them learnt how to use the Internet through self-instruction 60.6% reported that they used online help and documentation. Internet usage is widespread among physicians. However, use of online EBM resources such as the Cochrane library, clinical evidence and up-to-date was very minimal (Trivedi and Joshi, 2008). In a study conducted by Trivedi and Joshi (2008), it was observed that most of the users in their survey were using PubMed (26.80%) indicating that the services provided by the Internet or useful for their research work, dissertation purpose. However in of the study held in Iran by Asefeh and Asemi (2005) cited in Trivedi and Joshi (2008), it was depicted that internet utilization for research work purpose was 28%.

According to Shim (2008), the Internet has unquestionably changed the flow of health information. Due to the important role of the Internet as an important source of health information, people can now make themselves well-informed and self-involved in health decision-making, based on simple Web searching (Suggs, 2006; Cassell et al., 1998). In the past the health care people tried to take help from printed materials such as books, journals, handbooks, monographs held in personal libraries and also from

friends (Koller et al., 2001; Thompson, 1997; Haug, 1997). However, due to increase in the pace of health care research and the introduction of computers and internet many new electronic information resources and systems are now available. Due to the easy availability of the Internet there is an increased possibility of immediate access to the most recent and reliable results of clinical research in every day medical practice in developing countries as well as developed countries. However, internet is still only available to a minority of health care professionals in developing countries like India and often it is not available when actually needed. There are number of problems regarding its connectivity and speed (Trivedi and Joshi, 2008).

The degree of Internet and IT use varies by health care setting: Pharmacies are generally advanced users, while other settings such as physician offices or nursing homes are further behind (MedPac, 2004). The kind of technology used also varies by setting. For example, in home health, the use of technology that allows patients to monitor their own vital signs from their home and communicate results to the agency could increase the ability to address a problem before a patient requires acute care (MedPac, 2004). In both home health and nursing home settings, use of handheld computers to complete documentation and capture patient assessment information can increase efficiency and provide more information to care givers. IT and the Internet have also had a significant impact on consumers. Numerous websites have made health information more available to patients, thereby strengthening their role in care decisions. The Internet also helps consumers choose providers by allowing insurers and others (including Medicare) to post information on providers including, in some instances, comparative quality information (MedPac, 2004).

Royal College of Nursing (2006), argues that today all nurses recognize the importance of evidence-based practice, where every care decision is informed by accurate and up-to-date knowledge. ICT, and in particular the Internet, gives you the access you need to knowledge and resources including recent research findings, protocols and guidelines. According to Royal College of Nursing (2006), it is not only nurses who'll benefit from increased access to knowledge, and with Internet, patients can now obtain a great deal of health information. This is already changing the balance of power between the professional and the patient, and while some professionals may view this as a threat, the Royal College of Nursing strongly believes nursing is very much about empowering and enabling people.

ICT offers nursing a great opportunity to take on the role of 'knowledge broker', actively helping patients to access the information they need, and deciding how to use it. As well as teaching patients about their disease or disability, nurses can help patients to find, and understand, information about specialists, resources, and alternative treatments. At the same time nurses can use information to enable people to keep healthy and well whilst avoiding or minimising stress or risky behaviour (Royal College of Nursing, 2006). From the literature, one would argue that the Internet is gaining ground as the central source of health-related information (Hesse, 2005; Cotten and Gupta, 2004; Baker, Wagner, Singer and Bundorf, 2003; Eysenback and Kohler, 2003; Doyle, 2002).

2.10.2. Ethical consideration in utilization of internet in health professionals

According to Bovi (2003), Interactive as well as informational online sites may raise ethical concerns, including accuracy, the credentials or qualifications of web-based

physicians, conflicts of interest, and advertising. Moreover, the security, privacy, and confidentiality of information transmitted to and from interactive online sites, including

In regards to online sites that provide health-related information, both online visitors and physicians are leery of the accuracy of the information. To alleviate these concerns, information presented on online sites should identify the source of their information and be updated frequently since out-dated information can be misleading and harmful (Bovi, 2003).

Health-related online sites that provide medical advice or care outside an existing patient physician relationship and without information from a physical exam, or that rely on computer-generated responses, are also ethically problematic because of the increased risk of misdiagnosis or inappropriate treatment recommendations. Therefore, physicians should refer to general and specialty-specific standards regarding the appropriate use of interactive online sites, including their possible use in the absence of a pre-existing patient-physician relationship, as well as the use of algorithms that may generate diagnoses or prognoses that are directly transmitted to users (Bovi, 2003). When establishing or participating in interactive online sites, physicians must consider security and privacy concerns. This also applies to the use of interactive online sites that are limited to administrative functions, since they are likely to include personal information such as the patients' name or address, or even a diagnosis or other sensitive information (Bovi, 2003).

2.11. INTERNET RESOURCES

Internet allows the user to get get an access to various types of the information stored on numerous network servers such as: (a) data bases (factographic, bibliographic, etc.); (b) electronic libraries; (c) electronic vocabularies; (d) electronic online editions (newspapers, magazines); (e) file archives; (f) various web pages; (g) softwares, etc (UNESCO, 2003). The access to these information resources is provided by special network protocols and client-server software. The most famous Internet applications used to provide the access to the distributed network information resources are, Telnet, FTP (File Transfer Protocol), Gopher and WWW (UNESCO, 2003).

FTP is the protocol of the files transfer that regulates the rules of the files transfer within the network. The icons of the folders correspond to the catalogues (folders) on the distant computer, and icons of the documents to the files (UNESCO, 2003).

2.11.1. Search engines, browsers and access to internet resources

UNESCO (2003) argues that in order to get an access to the Internet information resources the user must know the network address of these resources. George et al. (2006) cited by Balakrishnan (2010), in the study they conducted, reported that students generally do use Google search engine (73%). However In the study conducted by Ajuwon (2003), he found out that Yahoo is the most popular used search engine where 89.1% of the students surveyed, reported that they get the information from Yahoo. In a survey conducted Sullivan (2003), on a sample of over 225,000 individuals in 26 countries, he found that people use different search engines in order to access information. Google was used at 29.5%, Yahoo, 28.9%, MSN 27.6%, AOL, 14%. Based on these findings, it is clear that Google Yahoo, and MSM remain the most used search

engines among the Internet users. This is also in line with the most recent study conducted in October 2011, by Experian Hitwise (2011), where it was found that Google is the leading search engines providers at 65.38%, followed by Bing-powered search at 28.62% and search.yahoo.com at 15.39%.

According to UNESCO (2003), MS Internet Explorer browser is developed to navigate the distributed distant resources of the Internet and to work with numerous documents off-line, if these documents can be read in HTML format. Using Ms Internet explorer is one of the best methods to access online resources. UNESCO (2003) states that with the help of MS Internet Explorer the user can have a lot of options: to copy the information from the web page to another document (by command File/Copy), to print out the information from the web page (by command File/Print with all the necessary settings of the printing and the traditional preview option like in other office programs), to send the web page to other users of the network (either the whole page, or just the link to it) by commands File/Send with the adding Page by mail, or Link by mail and to save the web page on the computer by the command File/Save. Lubans (1998), Matthew (1998), and Rena et al. (2007) pointed out that academic use of the Internet by university students is increasing. UNESCO (2003), argues that MS Explorer is used to access the Internet resources.

2.11.2. IP addresses and domain names

According to Association of CommonWealth Archivists and Records Managers, ACARM (2005), every computer, person and resource on the Internet has their own unique address. The computers have IP (Internet Protocol) addresses, the people have e-mail addresses and the resources have URL's (Universal Resource Locators). IP addresses

are number strings separated by full stops e.g. 491.572.72.196. Because computers on the other hand do not understand the human readable form of the address but only the IP addresses each network on the World Wide Web has a number of Domain Name Servers whose job it is to translate domain names into IP addresses (ACARM, 2005). Domain Name Servers are connected to a worldwide distributed database that keeps track of which domain name belongs with which corresponding IP address (ACARM, 2005).

ACARM (2005), argues that it is necessary to carefully select information from some of the organizational domains, here are details:

.com: Commercial sites. Information is usually promotional in nature and tends to be on the positive aspects of products and services advertised (ACARM, 2005).

.edu: Educational institution. This includes schools and tertiary education institutions. Information published under this domain can range from scholars' and students' personal websites to peer reviewed authoritative resources. You would not normally consider the information on a personal website authoritative, but published research papers on the other hand would be more trustworthy (ACARM, 2005).

.gov: Government. Government Agencies can be held legally accountable/liable for the information published on their websites. There are normally very strict rules about the content of documents and other information published on government websites. Formal approval for publication is normally a prerequisite. Information found on these websites have high credibility (ACARM, 2005).

.org: Non-profit organizations. Care must be exercised specifically if these organizations publish information that is biased and not totally objective to promote a specific point of view (ACARM, 2005).

.mil: Military. As part of government, the information is also highly credible.

.**net** All sites that do not fit under any other domain. Careful evaluation is necessary because the information could be biased and subjective (ACARM, 2005).

2.11.3. Online resources, copy right and plagiarism

According to Pfaff-Harris (1996) cited in (2007) copyright exists at the time of creation of a piece of work and represents the exclusive rights of the creator or owner to publish and sell his or her work such as books, art and music. Furthermore, copyright gives the owner the right to make alterations to or create different versions of the original piece of work (Bowen, 2006 cited in Kader, 2007). Many students ignore the copyright law which then leads to plagiarism (Kader, 2007). According to Standler (2000), plagiarism is a huge crisis at tertiary institutions in the USA which needs to be addressed.

Plagiarism refers to the act of submitting someone else's work as though it were your own (Bowen, 2006 cited in Kader, 2007). Plagiarism also encompasses the act of using parts of an original piece of work - even though it may have been amended – without permission or acknowledgement of the source (Pfaff-Harris, 1996 cited in Kader, 2007; Standler, 2000), 2000). Carbone (2001) cited in Kader (2007) argues that incorrect citing of sources is also plagiarism; students tend to use the excuse of having made a mistake with their references when they are caught plagiarising although there is evidence of copying and pasting from documents on the Internet.

2.12. FACTORS THAT INFLUENCE THE EFFECTIVENESS OF INTERNET USE IN EDUCATION

The efficiency of internet utilization in higher or secondary education depends on many factors. Some of them relate to Internet resources and facilities implemented in different forms of education, traditional education including; others deal with the distance form of education (UNESCO, 2003). According to UNESCO (2003), the most important among them is the ability of a user to work with information. It is not that simple, because it demands on behalf of a student the ability to use different kinds of intellectual skills, which many of our students do not possess. It means that a student should be able to analyse the information he deals with, to select the facts, data adequate to the problem he investigates. He/she has to find arguments to prove his/her point of view. It is quite obvious that the information the student comes across in the Internet is not always helpful. More than that, it can be very aggressive; it can be not up to the scientific level, etc. The Internet is a very democratic environment where every user can locate his/her information. A lot of educational materials do not undergo any examination. This fact produces a lot of difficulties even for a teacher to select the material for educational purposes (UNESCO, 2003).

To solve this problem one must be competent in his professional field. He/she should be able to analyse the material and recommend it to his/her students, and the students selecting the information should be also able to decide if this or that material is flawless to be used for the cognitive purposes (UNESCO, 2003). Thus, for effective education a mere access to Internet information resources is not enough. It is necessary to prepare the students beforehand to work with information or to provide those who use the distance form of education with special tasks destined to develop intellectual skills of

critical thinking, working with verbal texts, multimedia environment, to create all kinds of so-called secondary texts (abstracts, summaries, essays, etc.), to be able to work with information. It means in other words to develop their critical thinking. This must be the goal of every education system. Obviously, the usage of the information resources located in the Internet is not such a simple affair. It requires not only the ability to search for it in the huge ocean of the Internet, but to process it, to use it effectively for the cognitive goals (UNESCO, 2003).

UNESCO (2003), states that the second factor is connected with the culture of communication in the Internet, intercultural communication in particular. It is a very important and complicated problem to solve. The fact is that many people do not possess the culture of communication in terms of using the adequate forms of greetings, of writing briefly and laconically, using the literary language, avoiding abbreviations, etc. As for the intercultural, transnational communication the problem is particularly acute. The lack of knowledge of a strange culture, national traditions, the peculiarities of different confessions, etc. promote misunderstanding between the partners and can be a cause of a conflict. New technologies are only means for communication among people of different nationalities. Their mutual understanding or misunderstanding, sympathies or antipathies depend not on the technologies but on the people's respect of the culture and traditions of each other, on their awareness of the peculiarities of these cultures. It is not a technological but a human factor. So, the problem can be solved only with the assistance of teachers, tutors, who are responsible for the process of education. It is not only the problem of acquiring the definite knowledge but also the problem of tolerance (UNESCO, 2003).

Anderson (2010), argues that governments not withstanding regional differences, generally recognize that along with national ICT policies students need education or training in new ICT skills if they are to function in the changed global environment. As a result, Ministries of Education have adopted, or are in the process of adopting, reframed national education and curriculum policies. The new kind of skills required is driven in large part by the exponential growth of information in repositories around the world, of which we see examples above. As a consequence, students need to develop information literacy and other related skills to search for information from these seemingly unlimited sources on the Internet, to evaluate this information and to select wisely from it (Anderson, 2010). If newer advances in ICT such as these are to be harnessed educationally, students need new skills. So critical is it for education institutions to prepare students to work and live in the emerging digital world (Anderson, 2010).

2.13. SUMMARY

This section of the literature review covered introduction, Conceptualization of the term “Internet”, History of internet creation and its use in teaching and learning, Internet utilization in the world population, Internet and the theories of teaching and learning, Internet in education, Existing typologies of internet applications in education, Studies on internet in South African education, Internet utilization in health care professionals, The world beyond the classroom, Stages of ICT integration, The factors which influence the effectiveness of internet use in education.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. INTRODUCTION

This chapter focuses on the research design, the research instrument, and the validity and reliability of the research instrument. Research methodology is defined by Terre Blanche and Durrheim (1999) as the manner in which a researcher goes about studying what s/he believes can be learnt. This chapter explains how data were collected, the methods used for data analysis and the ethical considerations involved in this study.

3.2. THE PARADIGM AND THE APPROACH

The positivist paradigm, sometimes known as logical positivism, serves as a guide in this study. The positivist's scientific approach involves the use of orderly disciplined procedures with the tight control over the research situation (Polit and Beck, 2008). A quantitative approach, which is closely allied with the positivist tradition, was used in this study. Quantitative research is a formal, objective, rigorous, systematic process for generating new information, hence its use in this study (Burns and Grove, 2007).

3.3. RESEARCH DESIGN

A quantitative, non-experimental, descriptive design was used to explore the utilization of internet as an academic tool among undergraduate nursing students. The descriptive design was selected to obtain more information about the characteristics of the items being researched (Burns and Grove, 1999). Polit and Beck (2004), state that the

purpose of the descriptive studies is to describe and document aspects of a situation as it occurs. The descriptive approach was used in this study to describe the relationship among variables, instead of assuming cause and effect relationship. By using the descriptive design, more information could be gathered regarding the characteristics of the undergraduate nursing students.

3.4. RESEARCH SETTING

The data were collected at a selected University in KwaZulu-Natal province, South Africa, in the School of Nursing and Public Health at Howard College, from undergraduate nursing students. The study was conducted in the programs of Bachelors of Nursing, as well as Bachelors of Nursing Advanced Practice.

3.5. STUDY POPULATION

Polit and Beck (2008; 2004) define a population as entire aggregation of cases in which the researcher is interested in or all the individuals or objects with common, defining characteristics (Burns and Grove, 1999). The population of this study consisted of the 222 undergraduate nursing students registered in all four years for 2012 academic year and consisted of: 54 in first year, 51 in second year, 29 in third year, and 39 in fourth year from Bachelors of Nursing (BN) and 49 in the Nursing Advanced practice (BNAP) (Table 3.1).

3.6. SAMPLING AND SAMPLE SIZE

According to Polit and Beck (2008), sampling is the process whereby a portion of the population who are representative of the entire population are selected. They define

sample as subset of a population selected to participate in the study. A stratified sampling method was used, with simple random sampling from the identified strata. The sample size was 141 undergraduate nursing students which was calculated using Raosoft sample size calculator (www.raosoft.com) (Annexure 1). The sample was stratified according to the percentages of the population in the Nursing program and the year of the study of the respondents (Table 3.1). However, only 115 agreed to participate in this study and the response rate was rate therefore 81.1%. Respondents were distributed in Bachelors of Nursing (B.N) and Bachelors of Nursing Advanced Practice (BNAP) (Annexure 2). The respondents in the Bachelors of Nursing consisted of31 (34.1%) in first year, 31 (34.1%) in second year, 16 (17.6%) in third year, and 13 (14.3%) in fourth year. The respondents in the Bachelors of Nursing Advanced Practice (BNAP) consisted of: 12 (50.0%) in first year, 4 (16.7%) in second year and 8 (33.3%) in third year (Table 3.1).

Table 3. 1: Distribution of the population and the sample size of undergraduate nursing students per year of the study

Nursing Program	Year of study	The population	Percentage In the population	Sample size	Percentage in the sample size
Bachelors of Nursing	1st year Bachelors of Nursing	54	24.3%	34	24.3%
	2nd year Bachelors of Nursing	51	23%	33	23%
	3rd year Bachelors of Nursing	29	13%	18	13%
	4th Year Bachelors of Nursing	39	17.5%	25	17.5%
Bachelors of Nursing advanced practice	BNAP	49	22.2%	31	22.2%
	Total	222	100	141	100

3.6.1. Inclusion and Exclusion Criteria

According to Polit and Beck (2008), eligibility criteria are those that determine who may participate in the study and who would be excluded.

The inclusion criteria

According to Heavey (2011) and Polit and Beck (2008) the inclusion criteria make up the list of characteristics that a subject must have to be eligible to participate in the study. In this study the following inclusion criteria were used:

- All undergraduates registered in the nursing program for 2012 academic year.
- Those nursing students willing to participate.

The exclusion criteria

The exclusion criteria are characteristics that eliminate a subject from being eligible to participate in a study (Heavey, 2011; Polit and Beck, 2008). In this study, the exclusion criteria consisted of:

- Those nursing students unwilling to participate in the research study.

3.7. RESEARCH INSTRUMENT

A structured questionnaire was used as the most appropriate instrument to collect data because it was:

- The quick way of obtaining data from a large group of people;
- Less expensive in terms of time and money;
- One of the easiest research instruments to test validity;

- The format is standard and is not dependent on the mood of interviewer (Brink, Van Der Walt and Van Rensburg, 2006).

The researcher adapted questionnaires from Kripanont (2007), Rutgers The state University of New Jesey (2000), Schlosser and Pirolli (1998) and HAVERFORD , the choice of the questionnaire being guided by the research objectives, conceptual framework and the literature. The instrument was in simple and clear English, which was easier for respondents to complete (Burns and Grove, 2003), and was checked by experts from the School of Nursing.

The questionnaire was consisted of the following categories:

a) demographic data: age, gender, year of the study and Nursing program of enrolment for 2012 academic year.
b) knowledge and skills of nursing students on using internet academically
c) perceived usefulness of the Internet to nursing students
d) purpose of using internet among nursing students
e) frequency of using internet resources among nursing students
f) factors influencing effective use of internet as an academic tool

A four-point likert scale was used to rate the responses related to the perceived usefulness, the purpose and the frequency of using internet (Question 19, 21, 23). The Four likert scale contained alternatives such as: very important, important, somehow important, and not important.A Six point likert scale was also used for the question 32 on the frequency of using internet technologies and the following were alternatives: daily, two to four times a week, once a week, every two weeks, once a month, and

never. According to Brink, Van Der Walt and Van Rensburg (2006), a likert scale “is an example of a summated rating scale which is frequently used to test attitudes or feelings” (**Annexure 5**).

3.7.1. Validity and Reliability

The validity and reliability of the research instrument used in this study were performed as indicated below.

3.7.2. Validity

According to Polit and Beck (2004), validity is the degree to which an instrument measures what is supposed to measure. The validity in this study was determined through the cross validation, namely content validity and face validity, with the questions asked being specific and chosen according to the objectives of the study, the Conceptual framework, the literature, the research methodology, experts opinions, and IT staff.

3.7.2.1. Content validity

Content validity was used as a means of ensuring the validity of the data collection instrument (questionnaire) so as “to assess how well the instrument represents all the components of the variable to be measured” (Brink et al., 2006). Polit and Hungler (2001) also stated that validity refers to the ability of the research instrument to measure the phenomenon that it is supposed to measure.

Table 3. 2: content validity

RESEARCH OBJECTIVES	RESEARCH QUESTIONS	CONCEPTUAL FRAMEWORK	INSTRUMENTS' QUESTIONS
		NETWORK LITERACY MODEL	
Socio-demographic characteristics			Q1, Q2, Q3, Q4,
Describe the purpose of using internet among nursing students	For what purpose do nursing students use Internet resources?	internet utilization	Q22, Q23, Q35
Explore knowledge and skills of nursing students on using internet academically	What knowledge and skills do nursing students have of using Internet as an academic tool?	Knowledge Skills	Q5, Q6, Q7, Q8, Q9, 10, Q11, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q36
Describe the perceived usefulness of the Internet to nursing students	What is the perceived usefulness of the Internet to nursing students?	Internet utilization	Q20, Q21
Explore the frequency of using internet resources among nursing students	What is the frequency of using internet resources among nursing students?	Internet utilization	Q25, Q29, Q30,
Explore factors influencing effective use of internet as an academic tool	What are the factors that influence effective use of internet as an academic tool (accessibility, relevance of resources, etc)?	Internet utilization, Knowledge, Skills, Accessing, Judgement of the relevance of information resources	Q24, Q26, Q27, Q28, Q33, Q34, Q37, Q38

3.7.2.2. Reliability

According to Polit and Beck (2004), the instrument's reliability is the consistency with which it measures the targeted attributes. Reliability is also concerned with the questionnaire's accuracy to reflect the true scores. Gerish and Lacey (2006) define reliability as "a measure of the consistency and accuracy of data collection". In this study, reliability was measured using Cronbach's Alpha coefficient, which is a method to evaluate the internal consistency of the instrument (Polit and Beck, 2004), with higher values reflecting a higher internal consistency. Polit and Beck (2004) indicate that a

score of at least 0.7 is needed to be an acceptable reliability coefficient. The instrument on two occasions was distributed to a group of 4 nursing students who were not part of the study. The instrument was distributed in an interval of one week. The test of reliability revealed an internal consistency. In this study Cronbach's Alpha was 0.879, and Cronbach's Alpha based on standardized Items was 0.935, which indicated a high internal consistence.

3.8. DATA COLLECTION

The researcher obtained permission from the Principal of the School of Nursing and Public Health (**Annexure 6**), and students were approached in their classes and the purpose of the study was fully explained. Once all those who agreed to participate had been identified, a date for data collection was identified. Classrooms on campus were used as the venues for data collection during the Break and Lunch time. Respondents were provided with a study information sheet (**Annexure 4**), and the consent form to sign (**Annexure 3**). Respondents were informed that it was anonymous and that no identifiable information should be entered on the questionnaire.

Senior students assisted the researcher in the distribution of the questionnaires. Respondents completed the questionnaire on their own to ensure the confidentiality and anonymity. The researcher was available to explain and clarify questions and to answer respondents' queries as suggested by Polit and Hungler (2001). The completed questionnaires were collected and placed in a box for security reasons. Codes and numbers were used instead of nursing students' names to ensure confidentiality (Burns and Grove, 2003). Out of 141 questionnaires distributed, 115 were collected after completion, representing a response rate of 81.1%. Saunders, Lewis and Thornhill

(2000) argued that response rates in surveys can be as low as 40% and that a response rate of approximately 30% is reasonable. In contrast, Babbie and Mouton (2001) argued that a response rate of 50% is fairly good, while that of 60% and 70% is very good. Therefore, in the present study, a very good response rate of 81.1% was obtained, providing the researcher with the opportunity to make generalizations about the total population.

3.9. DATA ANALYSIS

With the assistance of the supervisor and the statistician from University of KwaZulu Natal, School of Nursing and Public Health. data analysis was done using SPSS Version 19. Descriptive statistics was used to describe the research phenomena. Table frequency, bar diagrams and pie charts, and percentage, item score, mean, mode, median standard deviations were compiled to communicate the data (Polit and Beck, 2004). Cross-tabulation was performed to determine the relationship between the variables. Different statistical tests were used and included the Fisher's exact test, and the T-test to explore the relationship between variables. Mann-Whitney U and Chi-square and Pearson Tests were performed to test whether there were differences in the responses according to social demographic data such as age group, gender, nursing program, and year of the study. A p value of $< .05$ was considered as statistically significant. Results were further discussed using other literature to make it more meaningful.

3.10. ETHICAL CONSIDERATIONS

Ethical approval was granted to conduct the research from the University of KwaZulu-Natal's Biomedical Research Ethics Committee (**Annexure 7**). The protocol reference number is HSS/0364/012M. The permission was also granted from the selected university where this study was conducted (**Annexure 6**). As prescribed by Brink, Van Der Walt and Van Rensburg (2006), and the World Medical Association Declaration of Helsinki (2004), the research study adhered to the ethical principles, and the following were considered:

- A two page participation Information letter was provided to each person explaining the purpose of the research and the nature of the questionnaire (**Annexure 4**). They were also provided with a consent form to participate in the study which they signed before answering any questions. Every participant was given a copy of what (**Annexure 3**).
- The principle of justice was adhered to by ensuring the participants' confidentiality. During the data collection processes, the researcher informed the participant not to write their names on the questionnaires. It was explained to them that the completion of the questionnaire required signing a consent form. The respondents were assured that no sensitive information would be divulged during the publication of the study results.
- All prospective participants were informed of the purpose of the study and of the fact that the research results would be made available to all respondents
- The respondents had the right to decide voluntarily whether or not to participate in the study without any risk of penalty or prejudicial treatment. The principle of Respect was thus adhered to.

- The principle of beneficence rules that the wellbeing of the respondents was maintained. The researcher ensured that no discomfort or inconvenience occurred during the data collection.

3.11. DATA MANAGEMENT

The data was stored by the researcher in a locked cupboard in a secured room, with accessible only to the researcher supervisor. The data sheets will be kept for five years in the secure environment after which they will be shredded. The raw digital data is housed on the researcher's computer which is accessed and controlled through password protection. It was backed up onto the University system for safe keeping, and the data was analyzed collectively rather than individually.

3.12. DATA DISSEMINATION

The final results were communicated to the supervisor and Head of Nursing and Public School of UKZN at the end of this study. The report of the findings was submitted to the faculty of Health sciences at UKZN. A date will be arranged for feedback to the respondents at which the results will be presented. Findings will be published in accredited academic journals.

3.13. CONCLUSION

This chapter focused on the research paradigm and approaches, the research design, the research instrument, and the validity and reliability of the research instrument. This chapter explained the research setting and the study population, the sampling and the sample size. This chapter described how data were collected, the methods used for

data analysis and the ethical considerations involved in this study. The data management and the dissemination of the results were also explained.

CHAPTER FOUR

PRESENTATION OF THE RESULTS

4.1. INTRODUCTION

This chapter presents the results of the analysis on the data collected through the use of self-administered questionnaires. To reiterate, the aim of this study was to explore the utilization of the Internet as an academic tool among undergraduate nursing students in a selected University in KZN, in order to establish ways of enhancing its use. The questionnaires were the primary source of data, and were completed by 115 respondents. The findings are presented in Figures and tables. In order to decrease the overload of this chapter, some of tables of the cross tabulations and correlation of various variables are put in annexures, and are referenced in this chapter. The findings presented in this chapter are in the following categories: demographic data, knowledge and skills of using the Internet academically, perceived usefulness of the Internet, purpose of using the Internet among nursing students, frequency of using the Internet resources among nursing students and the factors influencing effective use of the Internet as an academic tool.

4.2. SOCIO DEMOGRAPHIC CHARACTERISTICS THE RESPONDENTS

The social demographic data included in this study consisted of gender, and age Nursing program, and year of the study of the respondents.

4.2.1. Age and Gender of the respondents

Of 115 respondents, 90.4% (n=104) were females and 9.6% (n=11) were males. The findings displayed in table 4.1 demonstrated that the majority 50.4% (n=58) were aged between 21 and 25 years, 25.2% (n=29) were under 20 years old, 19.1% (n=22) were more than 30 years old and 5.2% (n=6) were between 26 and 30 years old. (Table 4.1)

Table 4.1: Age and gender of the respondents (n=115)

Age and gender of the respondents		Freq	%
Gender	Male	11	9.6%
	Female	104	90.4%
Age group	Under 20	29	25.2%
	From 21 to 25	58	50.4%
	From 26 to 30	6	5.2%
	More than 30	22	19.1%

The mean age of 115 respondents was 24.7 years (SD 7.7), the median was 21 and the mode was 19, with the age ranging from 17 to 50 years. (Figure 4.1)

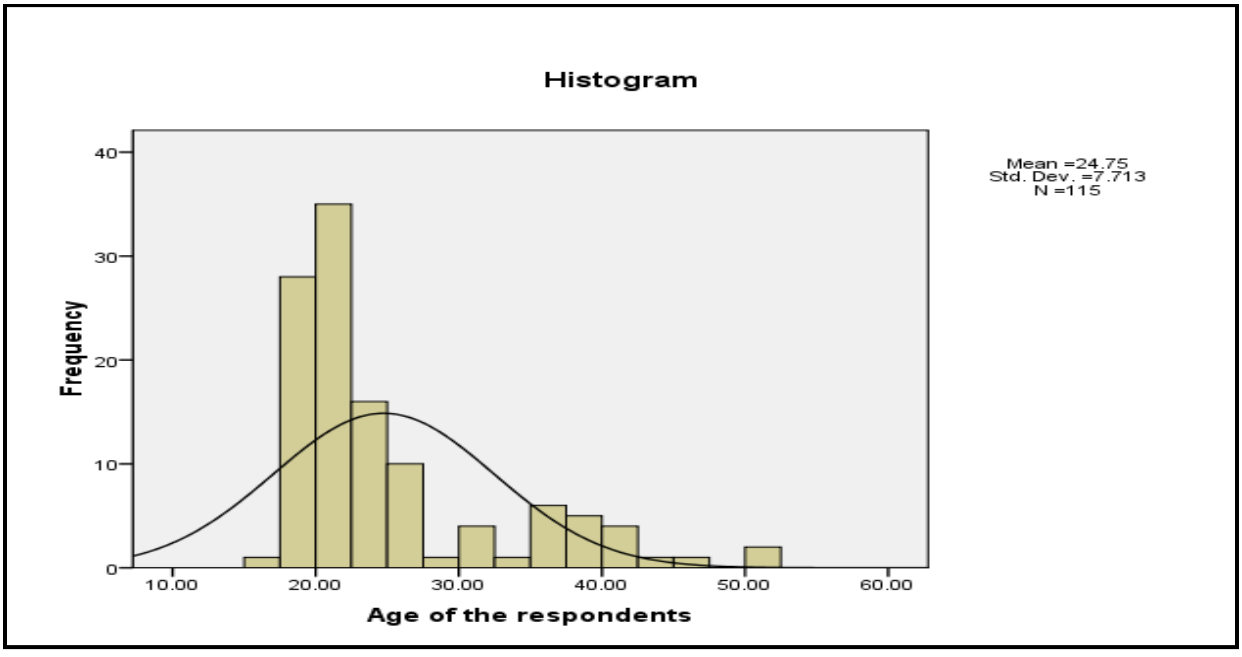

Figure 4.1: The histogram of age of respondents (n=115)

The majority of respondents were aged 25 years and below 75.7% (n=87) and were predominantly females 90.4% (n=104) (Figure 4.2).

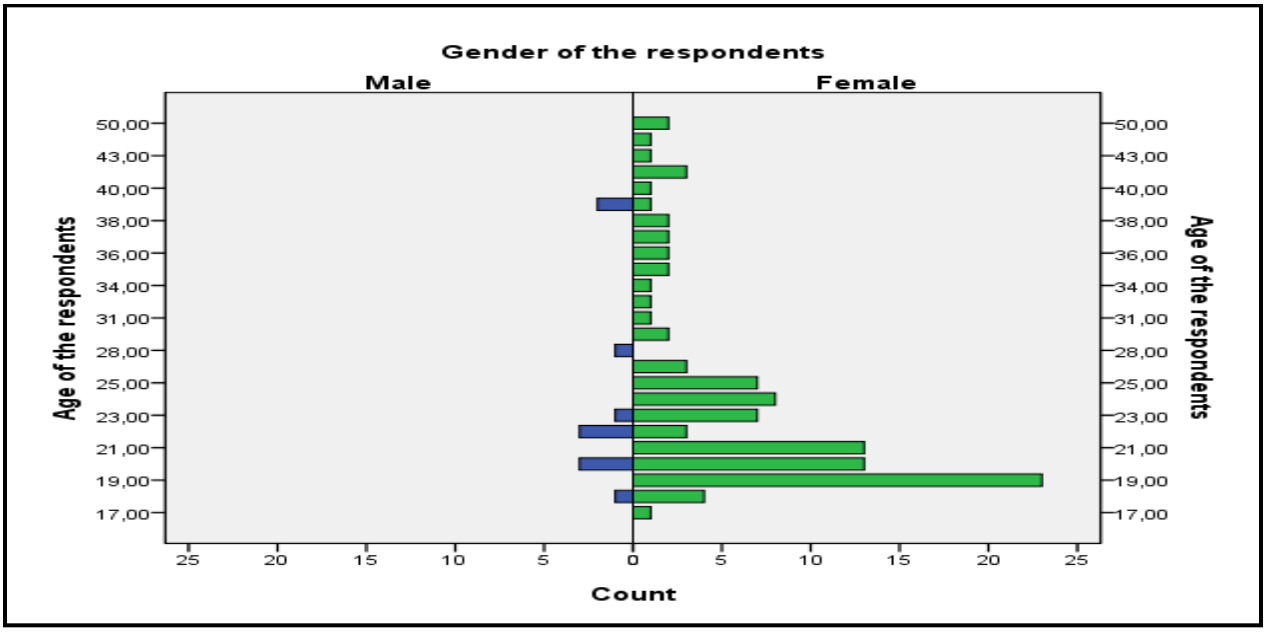

Figure 4.2: Population pyramid of Age and gender of the respondents (n=115)

4.2.2. Nursing program and year of the study

In the findings displayed in Table 4.2, it was revealed that out of 115 respondents 79.1% (n=91) were registered in Bachelors of Nursing (BN) and 20.9% (n=24) were registered in Bachelors of Nursing Advanced Practice (BNAP).

Of the 115 respondents, 37.4% (n=43) were registered in 1st year, 30.4% (n=35) in 2nd year, 20.9% (n=24) in 3rd year, and 11.3% (n=13) in 4th year. (Table 4.1).

Table 4.2: Nursing program and year of the study (n=115)

Nursing program and year of the study		Freq .	%
Nursing program	BN (Bachelors of Nursing)	91	79.1%
	BNAP (Bachelors of Nursing Advanced practice)	24	20.9%
Year of the study	1st year	43	37.4%
	2nd year	35	30.4%
	3rd year	24	20.9%
	4th year	13	11.3%

4.2.3. Distribution of the respondents according to the program and the year of the study

The participants to this study were registered in Bachelors of nursing and in Bachelors of Nursing Advanced Practice; and were also in deferent years of the study, from the 1st year to 4th year. The figure 4.3 shows the distribution of the respondents according to the nursing program and the year of the study of the respondents.

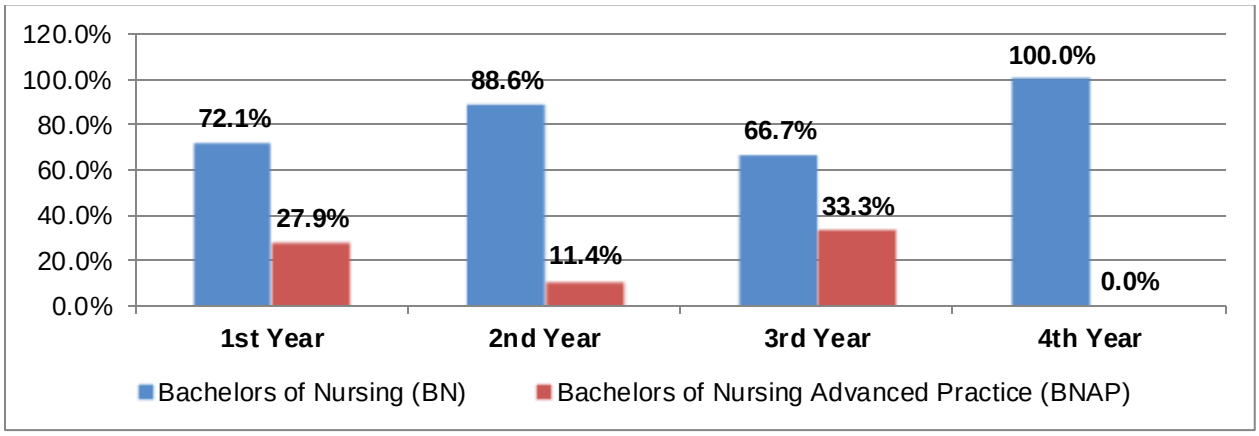

Figure 4.3: Distribution of the respondents according to the program and year of the study (n=115)

Out of 43 respondents from the 1st year, 72.1% (n=31) were registered in BN, and 27.9% (n=12) were registered in BNAP. In the second year, out 35 respondents, 88.6%

(n=31) were registered in BN and 11.4% (n=4) were registered in BNAP. In the third year, out of 24 respondents, 66.7% (n=16), and 33.3% (n=8) in BNAP. All the fourth year nursing students were registered in BNAP, 13 (100%).

4.2.4. Comparative chart of Age, gender and nursing program of the respondents

The findings from this study revealed that the Majority of respondents registered in BN Program were generally young. Out of 91 respondents, 93.4% (n=85) were aged 25 years and below. While these registered in BNAP program, the majority of the respondents were older. Out of 24 respondents from BNAP, 87.5% (n=21) were more than 30 years old (Figure4.4). The Wilcoxon-signed rank test was performed and was significant (Z=-9.324; p=0.000) (Annexure 12).

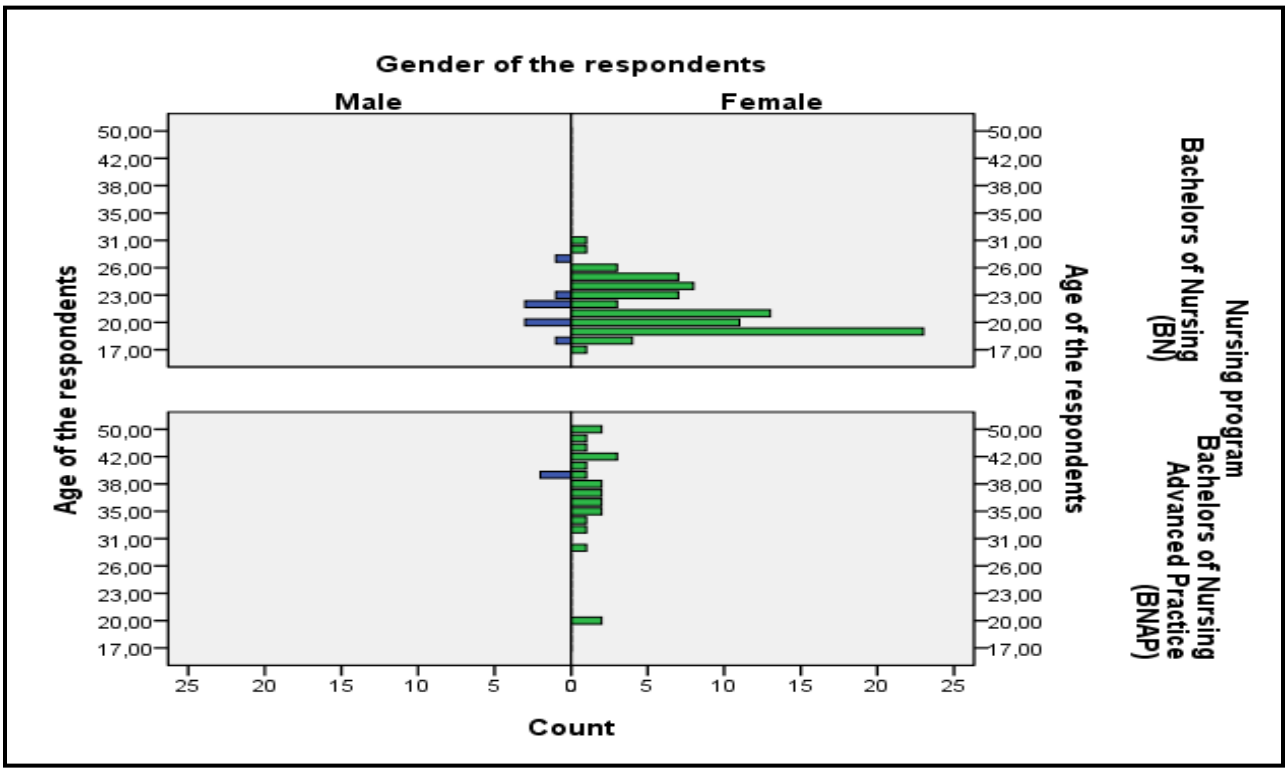

Figure 4.4: Age, Gender and Nursing program of the respondents (n=115)

The findings from this study revealed that out of 91 respondents registered in the Bachelors of Nursing (BN), 90.1% (n=82) were females and only 9.9% (n=9) were males. In the Bachelors of Nursing Advanced Practice, out of 24 respondents, 91.7% (n=22) were females and 8.3% (n=2) were males.

The Test of Mann-Whitney U was performed to see the relationship between Gender of respondents and the year of the study and was not significant (Z= -0.160, p= 0.873).

4.3. KNOWLEDGE AND SKILLS TO USE THE INTERNET

This section presents the findings related to the knowledge and skills of the respondents in using the Internet: their competence level of using computers, ability to use the Internet, ability to use e-mail facilities, awareness about electronic resources, types of the Internet browsers used, knowledge of the Internet related terms. It includes the activities performed by respondents when they access the Internet, access to the Internet, how respondents were informed about the existence of electronic resources, used search engines, frequency of use of the Internet for academic related activities and social networking used by the respondents.

4.3.1. Competence level of respondents in using computer

Figure 4.5 displays the competency level of the respondent in the computer use. It was noted from this study that of 115 respondents, 32.2% (n=37) perceived themselves at intermediate level, 19.1% (n=22) at an advanced level, 29.6% (n=34) at a competent level, 17.4% (n=20) at beginner's level, and only 1.7% (n=2) considered themselves to be experts. The variables were coded from 1 to 5, 1=beginner and 5=expert. The mode was two, and the median three. The standard deviation was 1.1.

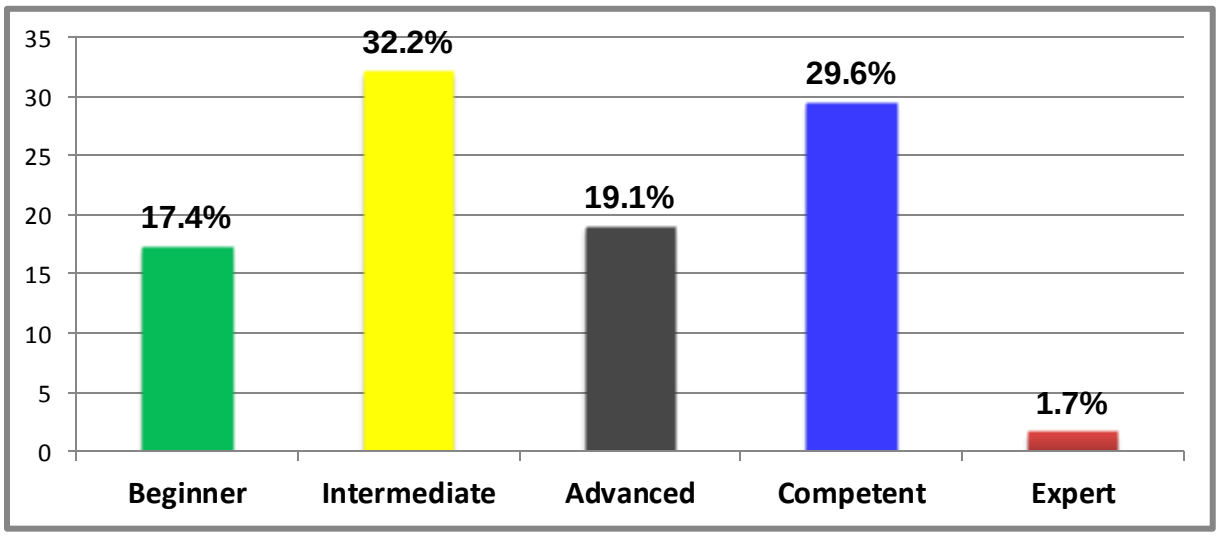

Figure 4.5: Competence level of the respondents in using computer (n=115)

4.3.2. Respondents' year of study and their perceived level of competency as computer users

The findings from the Cross tabulation of the year of study and the perceived level of competency as computers users demonstrated that out of 43 respondents from the first year 30.2% (n=13) were at the beginner level, 25.6% (n=11) were at the intermediate level, 23.3% (n=10) were at a competent level, 18.6% (n=8) were at an advanced level. In the second year, a significant percentage of the respondents were at the intermediate level. Out of 35 respondents from the 2nd year, 43% (n=14) were at intermediate level, 31.4% (n=11) were a competent level, and only 2.9% (n=1) were at the beginners' level. Out of 24 respondents from the third year37.5% (n=9) were at a competent level and 29.2% (n=7) at intermediate level. None of them reported to be an expert level. Out of 14 respondents from the 4th year, 38.5% (n=5) were at an intermediate level and 30.8% (n=4) were at a competent level. Chi-Square Test was performed to see the relationship between the variables, the year of the study and perceived level of competency and was not significant (p=0.322) (Table 4.3).

Table 4.3: Respondents' year of study and their perceived level of competency as computer users (n=115)

Year of study		Beginner	Intermediate	Advanced	Competent	Expert	Total
1	Freq	13	11	8	10	1	43
	%	30.2%	25.6%	18.6%	23.3%	2.3%	100.0%
2	Freq	1	14	8	11	1	35
	%	2.9%	40.0%	22.9%	31.4%	2.9%	100.0%
3	Freq	3	7	5	9	0	24
	%	12.5%	29.2%	20.8%	37.5%	.0%	100.0%
4	Freq	3	5	1	4	0	13
	%	23.1%	38.5%	7.7%	30.8%	.0%	100.0%
Total	Freq	20	37	22	34	2	115
	%	17.4%	32.2%	19.1%	29.6%	1.7%	100.0%

4.3.3. Ability to use the Internet according to respondents

The finding from this study regarding the ability to use the Internet showed that out of the 115 respondents, 57.4% (n=66) said they had a good ability, 29.6% (n=34) said that they had very good ability, 11.3% (n=13) had a poor ability, and 1.7% (n=2) said they had a very poor ability to use the Internet. The variables were coded from 1 to 4, 1=very good and 5=very poor. The mode and the median were both two. The standard deviation was 0.6. (Figure 4.6).

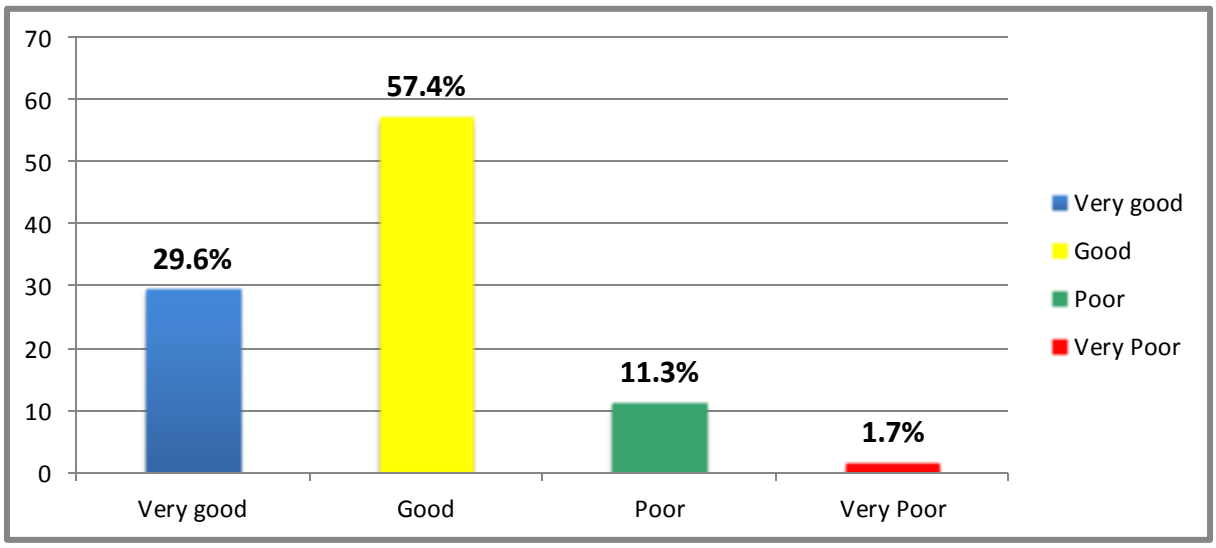

Figure 4.6: Respondents' ability to use the Internet (n=115)

4.3.4. Cross tabulation of the year of the study and their ability to use the World Wide Web

The findings from this study revealed that out of 43 respondents from the first year 48.8% (n=21) reported to were good in the Internet use and .23.3% (n=10) reported they were poor in the Internet use. Out of 35 respondents from the 2nd year, 62.9% (n=22) reported to have a good ability. Out of 24 respondents from the third year, 70.8 (n=17) reported to have a good ability and out of 13 respondents from the fourth year, 46.2% (n=6) had a good ability, 38.5% (n=5) reported that they were very good in the Internet use. Chi-square test was performed to assess the significance of the relationship between the year of the study and their ability to use the World Wide Web. The results showed that there is an association between the year of the study and the ability to use World Wide Web, with X^2 value of 82.739 and a p-value of (p=0.000) (Table 4.4).

Table 4.4: Cross tabulation of the year of the study and their ability to use the World Wide Web (n=115)

Year of study		Very good	Good	Poor	Very Poor	Total
1st Year	Freq	12	21	10	0	43
	%	27.9%	48.8%	23.3%	0.0%	100.0%
2nd Year	Freq	10	22	1	2	35
	%	28.6%	62.9%	2.9%	5.7%	100.0%
3rd Year	Freq	7	17	0	0	24
	%	29.2%	70.8%	0.0%	0.0%	100.0%
4th Year	Freq	5	6	2	0	13
	%	38.5%	46.2%	15.4%	.0%	100.0%
Total	Freq	34	66	13	2	115
	%	29.6%	57.4%	11.3%	1.7%	100.0%

4.3.5. Perceived level of ability to use e-mail facilities by respondents

The results from this study show that out of the 115 respondents, 50.4% (n=58), reported to have a very good, 40.9% (n=47) said they had good abilities, while 8.7% (n=10) indicated to have poor ability to use e-mail services. The responses from the respondents were coded from 1 to 3, 1=very good 2=good, and 3=poor. The mode was 1, media=1 and the standard deviation was 0.6.

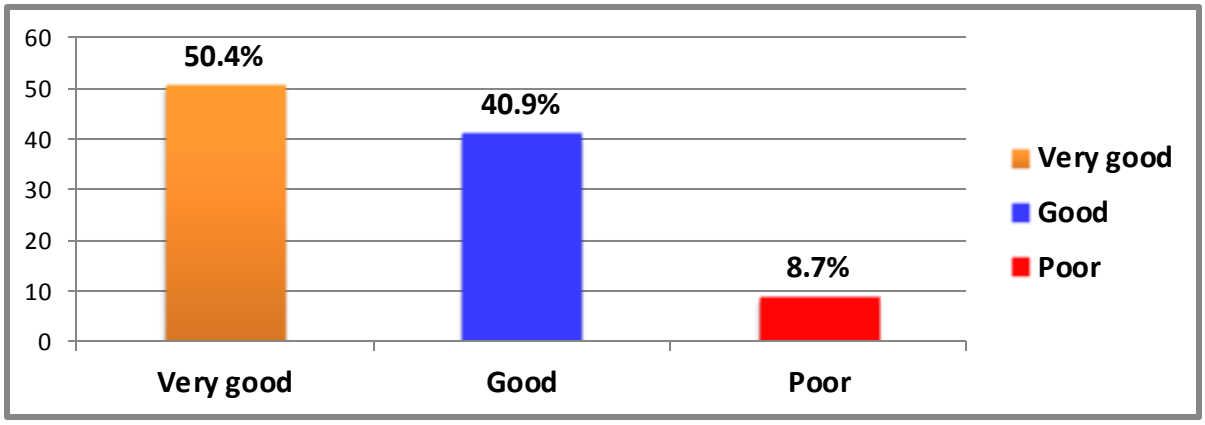

Figure 4.7: Perceived level of ability to use e-mail facilities (n=115)

4.3.6. Cross tabulation of the age group and their ability to use the World Wide Web

Table 4.4 demonstrates the ability to use the Internet by age group. And of the 29 respondents under 20 years old, 51.7% (n=15) reported that they were good and 41.4% (n=12) were very good at using the World Wide Web. Out of 58 respondents from the age group between 20 and 25 years old, 60.3% (n=35) reported they were good and 29.3% (n=17) reported they were very good in using the WWW. Out of 6 respondents from the age group between 26 and 30 years of age, 83.3% (n=5) reported that they were good in using the WWW. Out of 22 respondents in the age group of more than 30 years old, 50% (n=11) reported they were good and 22.7% (n=5) reported they were poor at using the WWW. Fisher's exact test performed to see the relationship between the age group and the Internet use and was not significant (Fisher's exact test value of 10.200 and p-value= 0.279) (Table 4.5).

Table 4.5: Cross tabulation of the age group and their ability to use the World Wide Web (n=115)

Age group of respondents		Very good	Good	Poor	Very Poor	Total
Under 20 years	Freq.	12	15	2	0	29
	%	41.4%	51.7%	6.9%	0.0%	100.0%
From 20 to 25 years	Freq	17	35	5	1	58
	%	29.3%	60.3%	8.6%	1.7%	100.0%
From 26 to 30 years	Freq	0	5	1	0	6
	%	.0%	83.3%	16.7%	0.0%	100.0%
More than 30 years	Freq	5	11	5	1	22
	%	22.7%	50.0%	22.7%	4.5%	100.0%
Total	Freq	34	66	13	2	115
	%	29.6%	57.4%	11.3%	1.7%	100.0%

The findings from this study revealed that by using Pearson correlation there is a significant correlation between the level of using computers, and the ability to use WWW (p-value<0.000), and the ability to use e-mail facilities (p-value<0.000). A correlation also was established between the use of WWW, and the ability to use e-mail facilities (p-value<0.000). However there is no significant correlation between the socio demographic characteristics and the ability to use computers, WWW, and e-mail (Annexure 12).

4.3.7. Source of information of the Internet pages / sites

Figure 4.8 displays the results on the source of information about the sites, and web pages visited. It was noted that out of 115 respondents, 49.6% (n=57) knew the visited website and pages from friends, 49.6% (n=57) by follow hyperlinks from other Web pages, 33.0% (n=38) from the Internet search engines (e.g., Alta Vista, Lycos, Google, yahoo, etc, 38.3% (n=44) from the Internet directories (e.g., Yahoo, McKinley, etc.).

It was found that 33.0% (n=38) said they obtained information about the websites and pages from their teachers, 26.1% (n=30) knew the web pages and the sites from the books, 21.7% (n=25) from magazines/newspapers, 19.1% (n=22) from television advertisements, 13.0% (n=15) from signatures at end of e-mail messages, while 3.5% (n=4) knew from Usenet newsgroups.

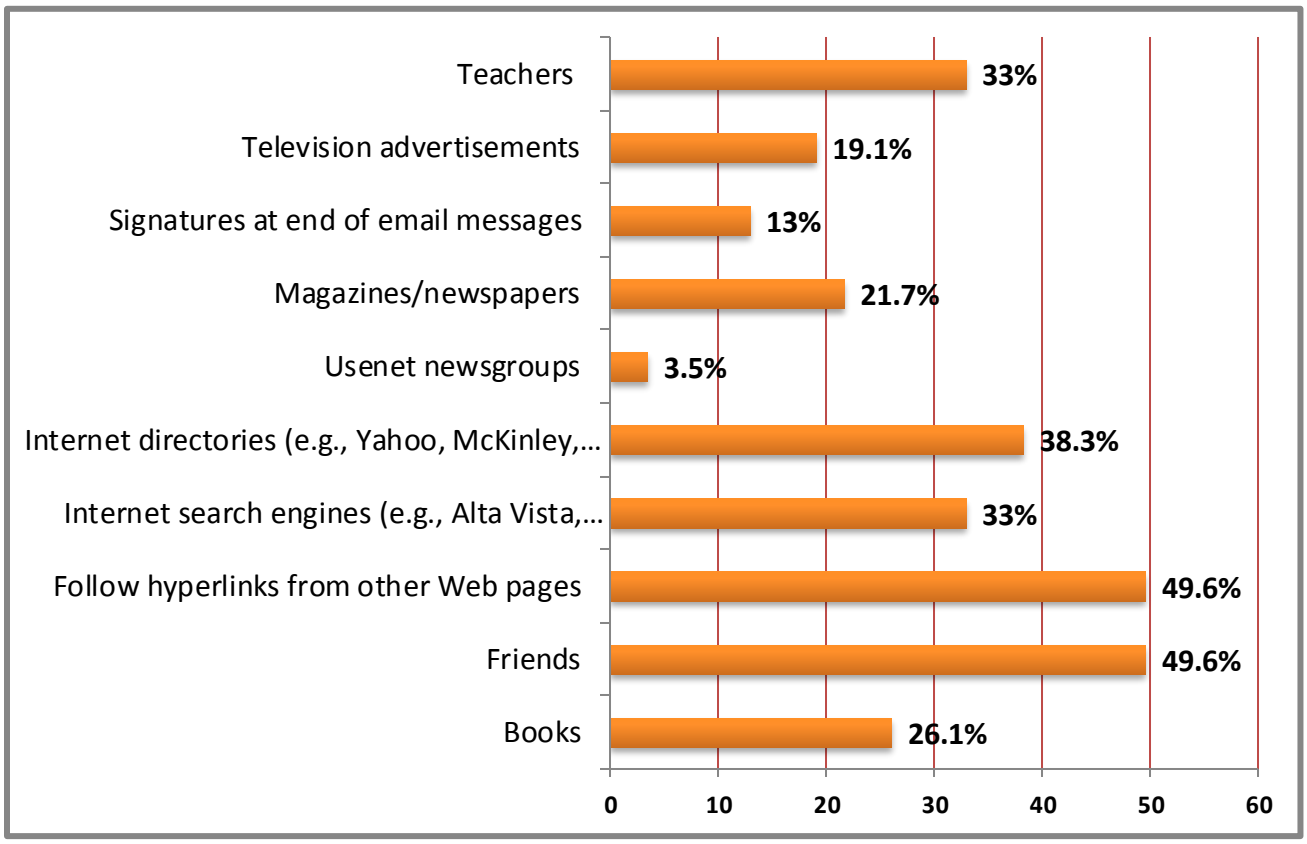

Figure 4.8: Source of information about the Internet pages / sites (n=115)

In order to calculate the overall score of items related to the source of information of websites, 10 items mentioned above were considered. The minimum score was 1 and the maximum score 10. The mean score of items was 2,913 and the standard deviation was 2.2. The majority of respondents, 75% have reported at least 4 items as source of information.and only 35.7% mentioned one item as a source of information. It was also noted that 13.9% reported more than 5 items as source of information about the websites and sites.

4.3.8. Types of the Internet browsers used by respondents

Out of 115 respondents regarding the type of the browser used, 92.2% (n=106) used the Internet Explorer, 4.3% (n=5) used Netscape, and 3.5% (n=4) said they do not know the type of the browser they use.(Figure 4.9).

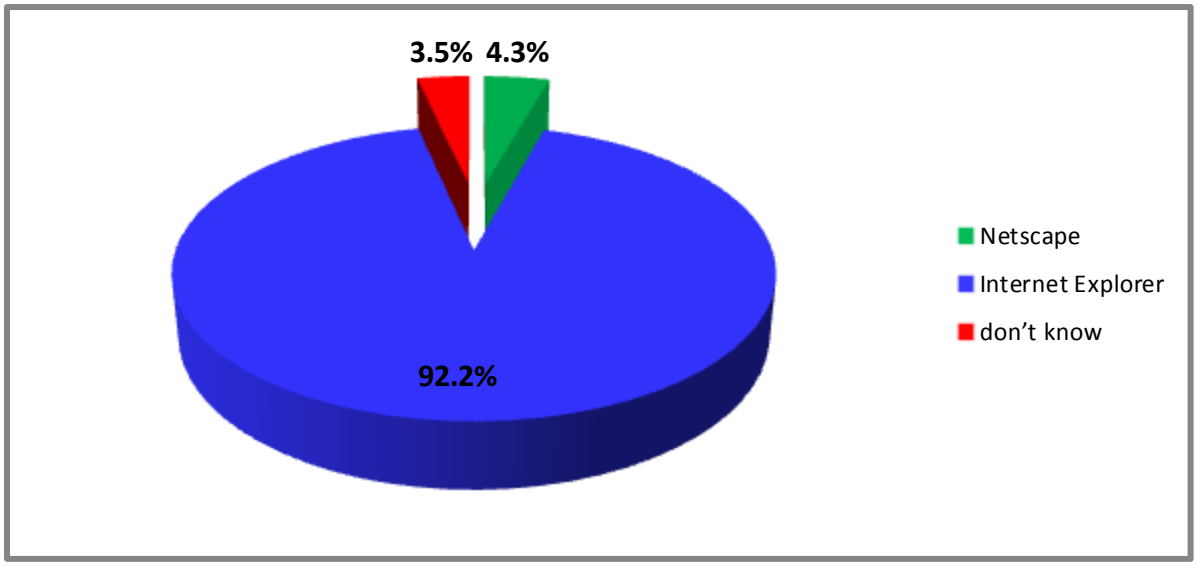

Figure 4.9: Types of the Internet browsers used by respondents (n=115)

4.3.9. The Internet related terms familiar to respondents

The figure 4.10 displays the findings for the terms related to the Internet which were familiar to the students. Of the 115 respondents, 76.5% (n=88) indicated that they were familiar with the term world wide web, 75.7% (n=87) with Browser, 69.6% (n=80) with pass word, 63.5% (n=73) Computer virus, 59.1% (n=68) Moodle, 55.7% (n=64) with Software, 54.8% (n=63) with Chatrooms, 53.9% (n=62) with URL (Uniform Resource Locator), 47.8% (n=55) Network, 41.7% (n=48) with Key words, 38.3% (n=44) with Html (HyperText Markup Language), 37.4% (n=43) Blog, 18.3% (n=21) with ftp (File Transfer Protocol). The above mentioned terms were recorded into 13 items in order to calculate the items score. The minimum was 1 and the maximum was 13. The higher the score,

the more respondents were familiar with the Internet related terms. The mean score of items known by respondents was 6.621. Only 25% knew at least 4 items and 75% knew at least 11 items. The standard deviation was 4.0. Regarding the relationship between the females and males responses, the mean for males score was 48.82, and the mean for males score was 58.97. Mann Whitney test was performed and was not significant (Z= -0.966, p=0.334).

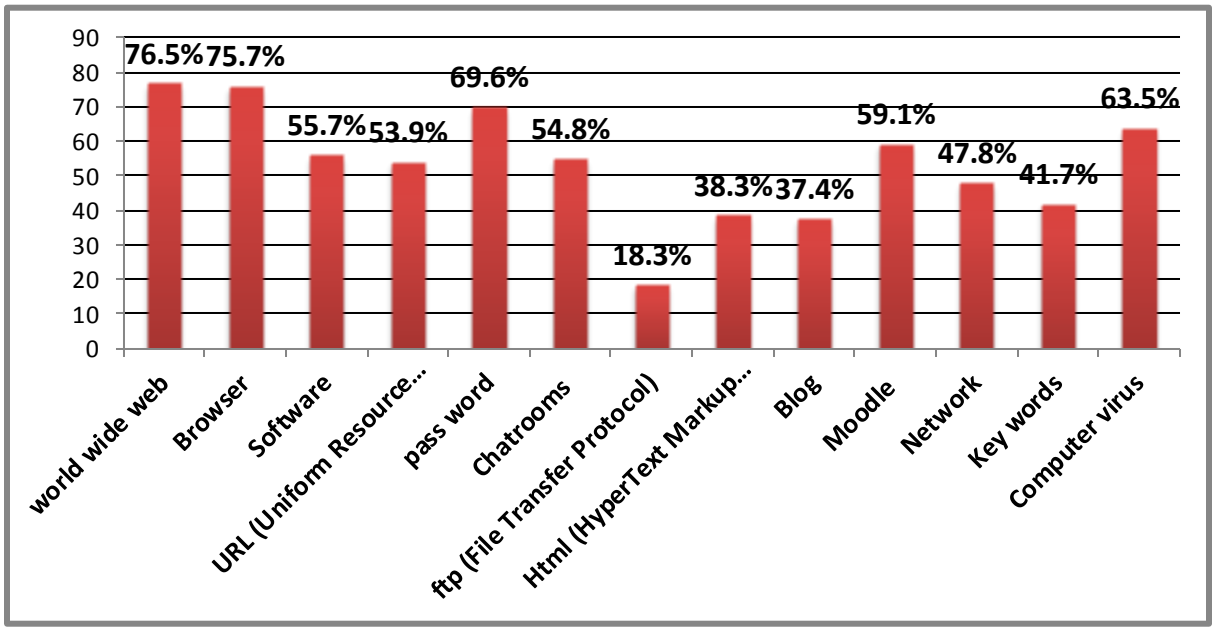

Figure 4.10: The Internet related terms which are familiar to respondents (n=115)

4.3.10. Reported activities on using the Internet

The result from this study revealed that respondents use the Internet for different activities. Out of 115 respondents, 96.5% (n=111) used the Internet for academic-related study, 86.1% (n=99) for finding personal information (health, hobbies), 82.6% (n=95) used it for communicating with other people, 71.3% (n=82) used it for pleasure/fun, 61.7% (n=71) for listening to music online, 60.9% (n=70) for watching

video online, 60.0% (n=69) for getting the latest news or weather, 53.9% (n=62) for work-related activity and 13.9% (n=16) for shopping (Figure 4.11).

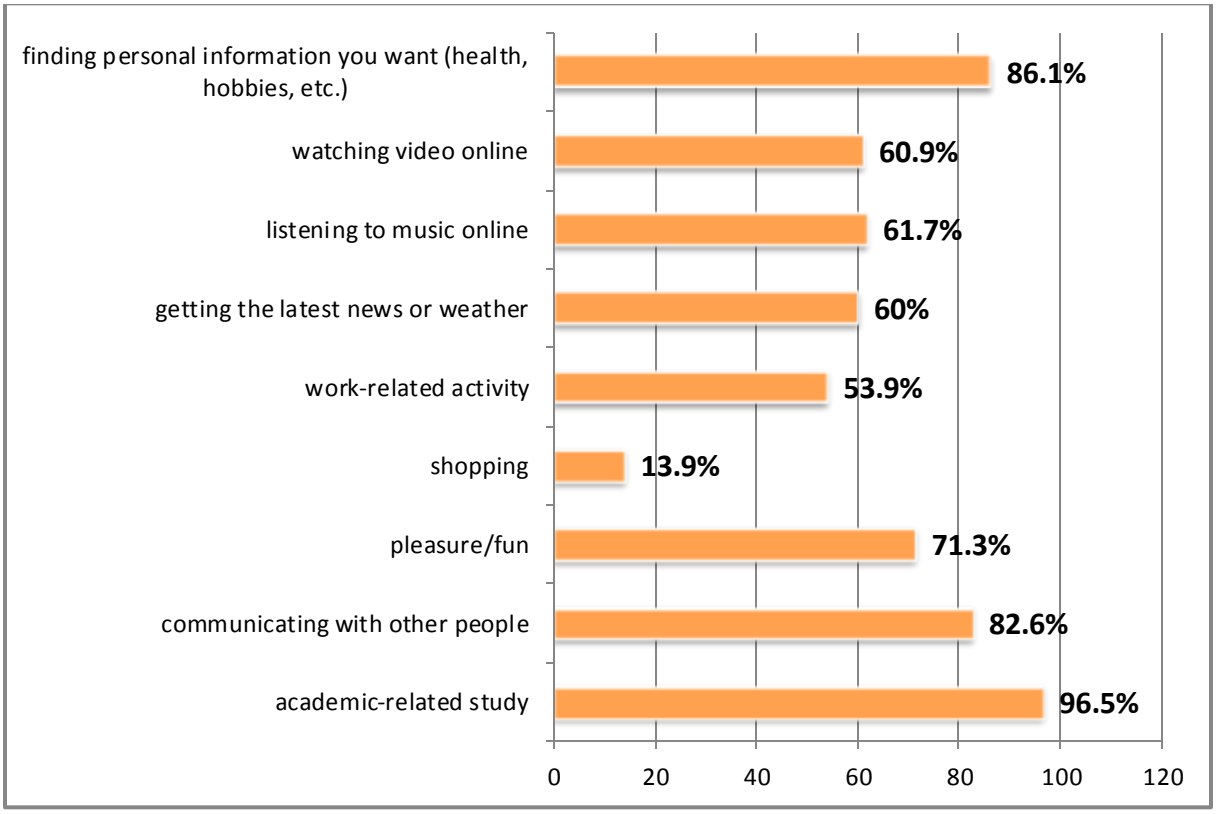

Figure 4.11: Reported activities done by respondents on the Internet (n=115)

To calculate the overall score of activities done by respondents when they access the Internet, 9 items above mentioned were considered. The minimum score was one and the maximum score was nine. The higher the score, the more the respondents used the Internet for various activities. The mean of participants responses score was 5,869, the mode 7 and the median 6 and the Standard Deviation 2.2. The results demonstrated that only 25% used interned for at least 4 of the mentioned activities and an average of 75% used the Internet for at least 8 of the mentioned activities.

4.3.11. The Internet services used by respondents

The findings from this study revealed that out of 115 respondents regarding the Internet services they used, 94.8 (n=109) mentioned e-mail, 80.0% (n=92) mentioned accessing websites, 64.3% (n=74) used search engines/directories (Altavista, Yahoo, etc., 63.5% (n=73) for playing audio or video over the Internet, 62.6% (n=72) mentioned the Internet use for courses (assigned), 62.6% (n=72) use the Internet for accessing courses (on their own), 58.3% (n=67) for downloading software (programs), 57.4% (n=66) for downloading music or video, 45.2% (n=52) used chat rooms, 23.5% (n=27) mentioned newsgroups/bulletin boards, 20.0% (n=23) used list serves (e-mail discussion groups), and 14.8% (n=17) for shopping online (Figure 4.12).

The above mentioned the Internet services were coded into 12 items in order to see the overall score in the utilization of the Internet serves. The mean of items score was 6,469 and the Standard Deviation was 3.1. Only 25% of the respondents had used the Internet for four aspects, and 75% had used the Internet for at least nine items.

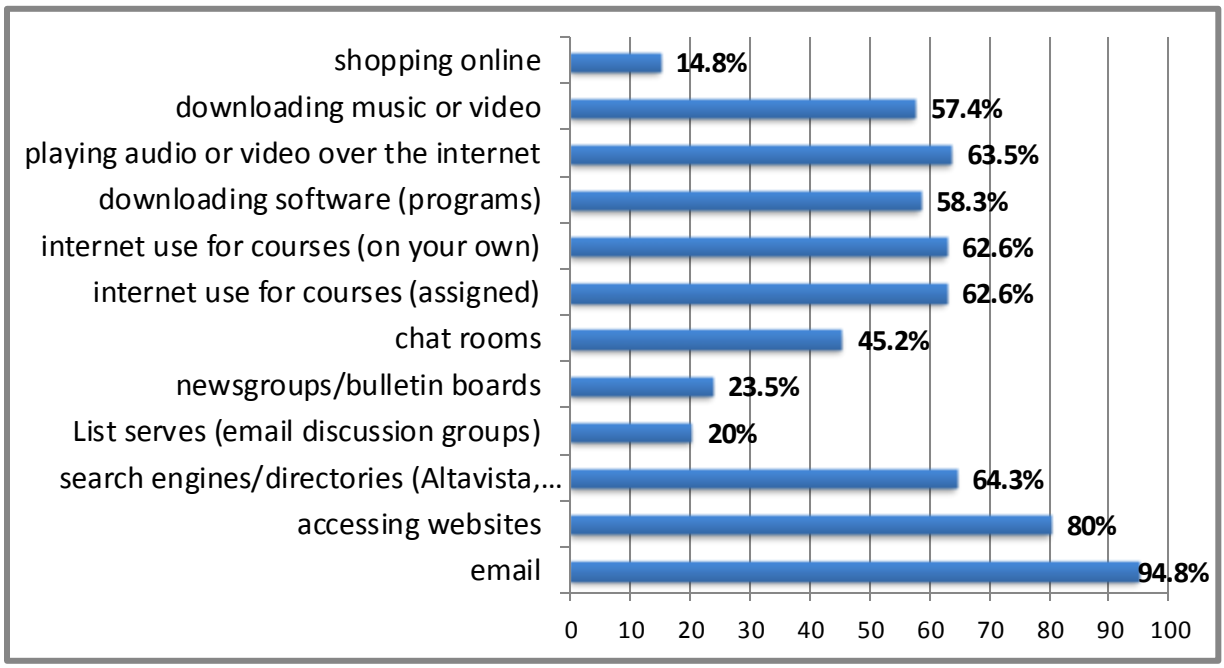

Figure 4.12: Services of the Internet used by respondents (n=115)

4.3.12. Awareness of electronic resources on the Internet

The findings from this study revealed that the majority of the respondents were aware on the existence of the electronic resources and their availability at the University (Table 4.6).

Table 4.6: Awareness of electronic resources on the Internet (n=115)

ELECTRONIC RESOURCES	YES		NO	
	Freq	%	Freq	%
Awareness of electronic resources	104	90.4%	11	9.6%
Awareness of online resources at the university	103	89.6%	12	14.4%

Out of 115 respondents, 90.4% (n=104) were aware of the existence of the electronic resources, and only 9.6% (n=11) were unaware of their existence... This study also revealed that the majority of the respondents were aware of the existence of the

electronic resources at the university. Out of 115 respondents 89.6% (n=103) were aware that the electronic resources can be found on campus and only 10.4% (n=12) were not aware of that. The standards deviation was 0.307 By year of study, the majority reported an awareness of the electronic resources at the university, being reported by 100% (n=13) from 4th year, 91.7% (n=22) from 3rd year, 91.4% (n=32) from 2nd year and 83.7% (n=36) from 1st year (Annexure 13). Fisher exact test was conducted to see the relationship between variables, awareness of the electronic resources and the year of the study of respondents, and the differences was not significant (P=0.0736).

4.3.13. How respondents are informed about the electronic resources

The findings from this study revealed that students knew about electronic resources from different sources. Out of 115 respondents, 62.6% (n=72) knew from the Library orientation, 60.9% (n=70) from their fellow students, 53.9% (n=62) from the lecturers, 48.7% (n=56) Google scholar, 40.9% (n=47) from the library web page, 20.9% (n=24) from Yahoo websites (Figure 4.13). To calculate an overall score of how respondents were informed about the electronic resources, nine items were considered. The minimum score was zero and the maximum was seven. The higher the score, the more respondents became aware of the electronic resources from different items. The mean of the respondent's scores was 2.913 and the Standard Deviation 1.7. Only 25% of the respondents mentioned at least one item, meaning that they about the electronic resources from one item, and average of 75% had mentioned at least four items as sources of information about electronic resources.

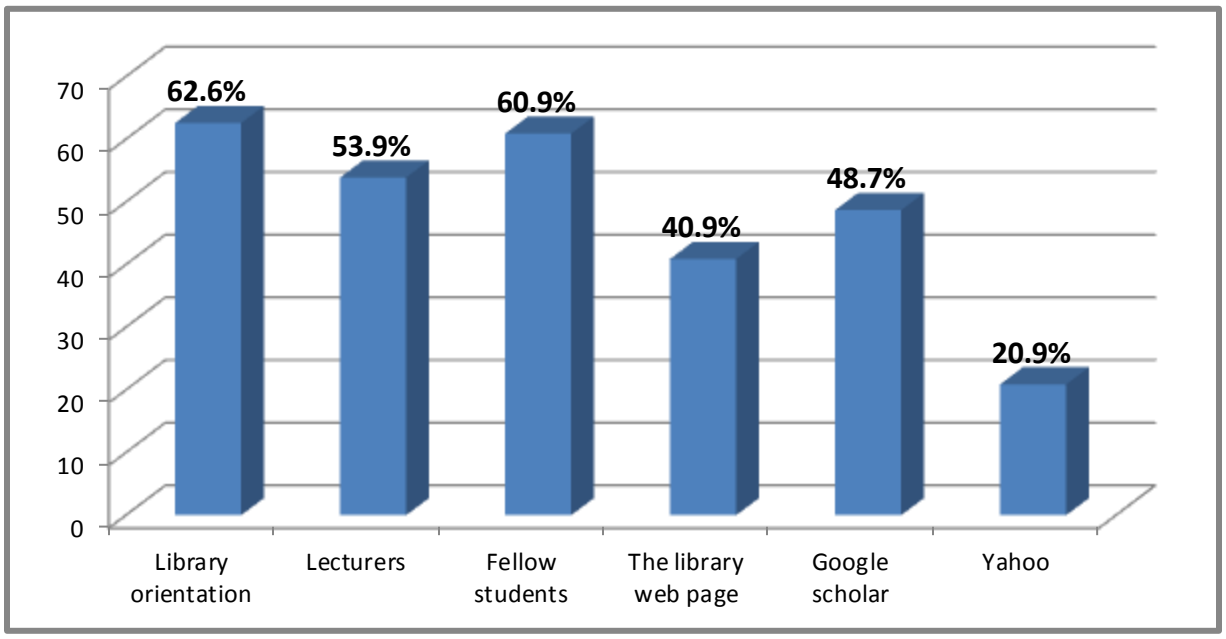

Figure 4.13: How respondents are informed about the electronic resources (n=115)

4.3.14. Search engines used by the respondents

The findings from this study revealed that the most used search engine by respondents was Google. Out of 115 respondents, 96.5% (n=111) used Google, 45.2% (n=52) used Yahoo, 18.3% (n=21) used Ask, 7.8% (n=9) used Being, 5.2% (n=6) used Alta Vista, 3.5% (n=4) used MSM, 2.6% (n=3) used Info Space, and 2.6% (n=3) did not have a search engine (Figure 4.14). In order to calculate the overall score of utilization of the search engines by the respondents, eight items above mentioned were coded. The minimum score was one and the maximum was eight. The higher the score, the more respondents used different search engines. The mean of the respondents score was 1,834 and the Standard Deviation 1.2. An average of 46.1% of the respondents had used one search engines and 39.1% had use two search engines. An average of 75 percent had used at least two search engines.

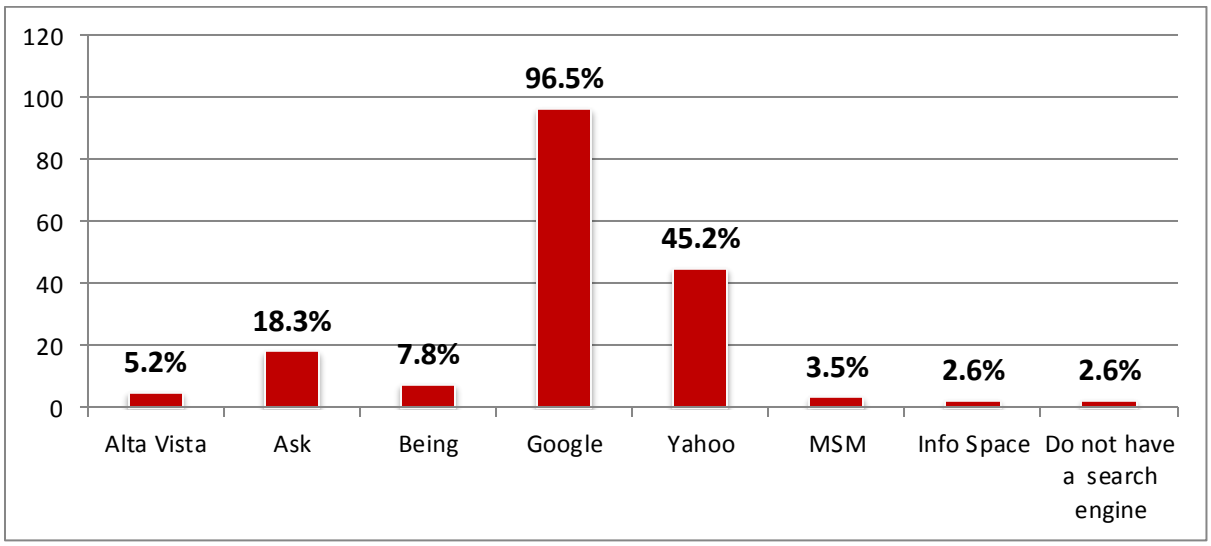

Figure 4.14: Search engines used by the respondents (n=115)

4.3.15. Comparative table of the use of yahoo and Google as a search engine and the year of the study of the respondents

The findings from this study (Table 4.7) demonstrated that 97.7% (n=42) of the respondents from first year used Google as a search engine and only 41.9% (n=18) reported to use yahoo, 97.1% (n=34) from the second year reported to use Google and 40% (n=14) used yahoo, 95.8% (n=23) from the third year used Google while 45.8% (n=11) used yahoo. In the fourth year, 92.3% (n=12) used Google and 69.2% (n=9) used yahoo as search engines. Fisher's exact test was conducted to see the differences between the year of the study of the students and their use of Google and yahoo as a search engines and was not significant, for Google (Fisher's exact test value of 1.733, P-value of 0.724 and for Yahoo (Fisher's exact test value of 3.534, p= 0.319).

Table 4.7: Comparative table of the use of yahoo and Google as a search engine and the year of the study of the respondents (n=115)

Year of the study			Google		Yahoo	
			Yes	No	Yes	No
1st Year	n=43	Freq	42	1	18	25
		%	97.7%	2.3%	41.9%	58.1%
2nd Year	n=35	Freq	34	1	14	21
		%	97.1%	2.9%	40.0%	60.0%
3rd Year	n=24	Freq	23	1	11	13
		%	95.8%	4.2%	45.8%	54.2%
4th Year	n=13	Freq	12	1	9	4
		%	92.3%	7.7%	69.2%	30.8%
Total	n=115	Freq	111	4	52	63
		%	96.5%	3.5%	45.2%	54.8%

4.3.16. Preferred search engines

Google was reported as the favorite search engine, and of the 115 respondents, 95.7% (n=110) preferred Google, 13.9% (n=16) preferred Yahoo, 0.9% (n=1) preferred Alta Vista, 8.7% (n=10) preferred Ask, 0.9% (n=1) preferred Info Space, 1.7% (n=2) said that they did not have a favorite search engine. It was also noted that Being and MSM were not considered as favorite by respondents (Figure 4.15). In order to calculate the score for the overall preferred search engines, three items were considered according to their percentages, 1=Google, 2=yahoo, and 3=ask. The minimum score was one and the maximum score was three. The higher the score, the more students have different preferred search engines. The mean score of preferred search engines by respondents was 1,217 and the Standard Deviation 0.5. An average of 82.6% had only one preferred search engines.

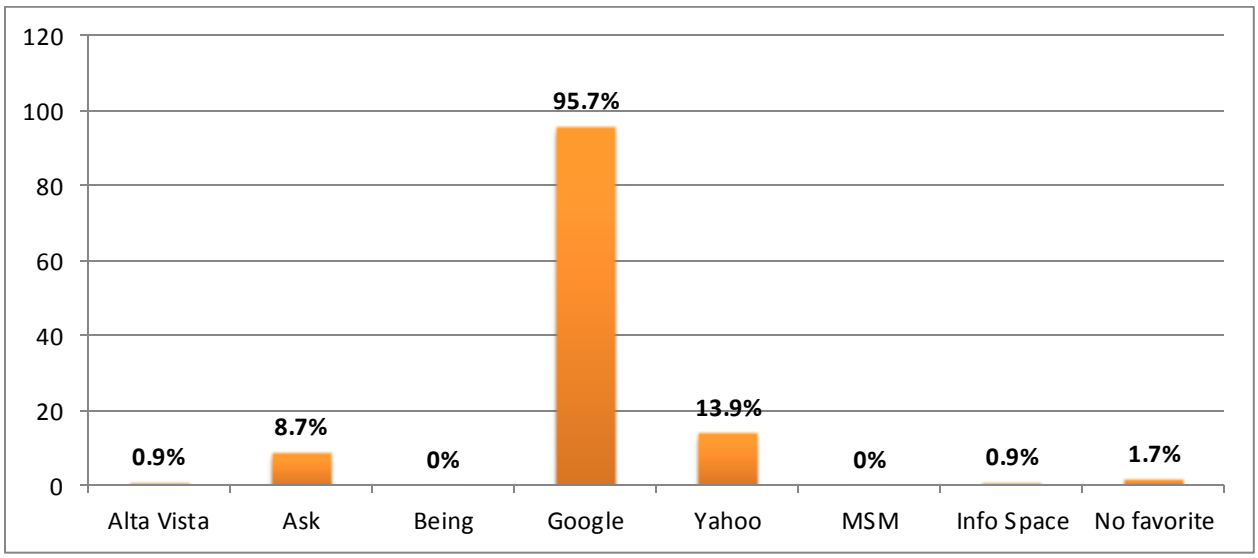

Figure 4.15: Preferred search engines (n=115)

4.3.17. The frequency of the Internet use for academic related activities

The findings from this study demonstrated that out of the115 respondents, 43.5% (n=50) never used the Internet to access fully WWW placed courses, 57.4% (n=66) never used the Internet to access major component of the course on the www, 62.6% (n=72) never used the Internet to access support on the WWW. 43.5% (n=50) never used the Internet to access WWW the information on the course. 43.5% (n=50) sometimes used the Internet for communication with the lecturer; 37.4% (n=43) sometimes used the Internet for electronic encyclopaedias, 33.0% (n=38) sometimes used the Internet for data base, 28.7% (n=33) sometimes used the Internet for mining information, 25.2% (n=29) sometimes used the Internet for online admission (Table 4.8).

Table 4.8: The frequency of the Internet use for academic related activities (n=115)

Types of the Internet usage	Always		Very often		Some times		Never	
	Freq	%	Freq	%	Freq	%	Freq	%
Fully WWW placed courses	15	13.0	19	16.5	31	27.0	50	43.5
Major component of the course on the WWW	15	13.0	5	4.3	29	25.2	66	57.4
Support in WWW	11	9.6	8	7.0	24	20.9	72	62.6
WWW contains only the information on the course	15	13.0	19	16.5	31	27.0	50	43.5
Online admission	15	13.0	5	4.3	29	25.2	66	57.4
Course registration	11	9.6	8	7.0	24	20.9	72	62.6
Tuition payment	10	8.7	6	5.2	11	9.6	88	76.5
Administrative tasks	9	7.8	13	11.3	17	14.8	76	66.1
Thematic student to student correspondence, including students from abroad	13	11.3	14	12.2	19	16.5	69	60.0
Communication with the lecturer	19	16.5	22	19.1	50	43.5	24	20.9
Creating hypermedia web pages	8	7.0	6	5.2	18	15.7	83	72.2
issuing of online journals	16	13.9	11	9.6	25	21.7	63	54.8
Mining information	16	13.9	13	11.3	33	28.7	53	46.1
Data base browsing	22	19.1	18	15.7	38	33.0	37	32.2
Electronic encyclopaedias	20	17.4	17	14.8	43	37.4	35	30.4
E-mailing question to the most famous experts	10	8.7	9	7.8	20	17.4	75	65.2
Virtual conferences or forums	5	4.3	9	7.8	14	12.2	87	75.6
Shared global search	10	8.7	10	8.7	26	22.6	69	60.0
collection and analysis of information	20	17.4	28	24.3	30	26.1	37	32.2
Exchange of experience and information via synchronous and asynchronous teleconferencing and discussion list	3	2.6	7	6.1	24	20.9	81	70.4

The overall purpose of using the Internet per frequency reported by respondents consisted of 20 items, and their score was calculated. The responses were ranged on ordinal scale that was from 1 to 4 (1=always, 2=very often, 3=sometimes and 4=never). The minimum score was 21 and the maximum was 109. The higher score indicated a low frequency use on the Internet, and the lower score indicated a high frequent use. The mean of respondents score was 63,287, the Median was 65 and the Mode 66. The standard deviation was 13.0 the average of respondents 50% had a moderate (2nd

quartile=56) frequent utilization for the indicated items. Only 25.5% reported to use the Internet relatively high for the items mentioned..

4.3.18. Social networking sites used by the respondents

The findings from this study demonstrated that Facebook was the most used social network by the students. Out of`115, 77.4% (n=89) used Facebook, 24.3% (n=28) used Twitter, 9.6% (n=11) used other social next work such as Whatsup, and the Mixt, 7.8% (n=9) used Student Village, 4.3% (n=5) used MySpace (Figure 4.16). In order to calculate the score for overall utilization of the social networks five items were considered. The minimum score was zero and the maximum was five. The higher the score was, the more respondents used different social network sites. The mean of the items score was 1,234 and the Standard Deviation was 1.0. An average of 53% had used one networking sites, and 20% reported not to use any social network sites. Overall, 95.7% of the respondents had used at least three social network sites.

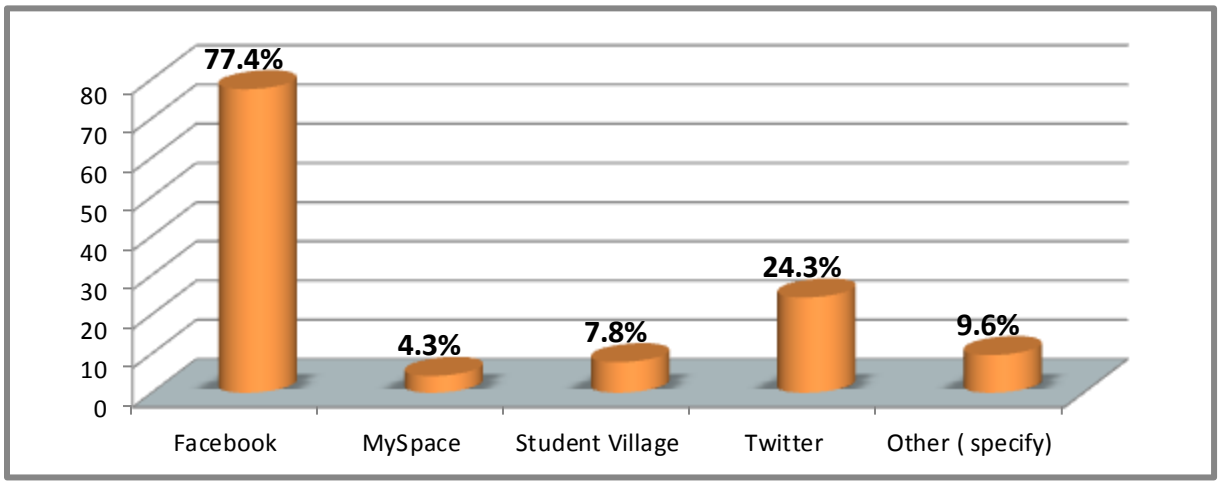

Figure 4.16: Social networking sites used by the respondents (n=115)

The findings from this study revealed that 83.7% (n=76) from Bachelors of Nursing reported to use Facebook, while 54, 2% (n=13) from Bachelors of Nursing Advanced Practice reported to use Facebook (Annexure 14). The Chi square test was performed to establish a relationship between the use of Facebook and the Nursing program of the respondents, and was significant at P=0.002. The age group of respondents under 20 years reported to use Facebook the most 93.1% (n=27), followed by those between 20 and 25 years (82.8%, n=4). It was also noted that the age group over 30 years of age used Facebook less as a social network compared to other groups. Only 45.5% (n=10) of respondents more than 30 years old reported to use Facebook (Annexure 15). Fisher's exact test was performed to establish the relationship between the use of Facebook and the age group of the respondents and the Fisher's exact test value was 16.696 and p-value=0.000. This indicated a significant difference among different age group and their use of Facebook.

4.3.19. Correlation of social networks, age, gender, level of the study and Nursing Program

To calculate the correlation of social networks, age, gender, level and nursing program of the study, Pearson Correlation was used (Table 4.9).

The findings from this study demonstrated that there was a strong correlation between the age and the use of Facebook (p-value<0.000). There was also a correlation with the use of Facebook and Nursing Program (p-value=0.002). There was a correlation also between the use of my space and Nursing program (p-value=0.005) (Table 4.9).

Table 4.9: Correlation of social networks, age, gender, year of the and Nursing Program

		Age	Gender	Year of of the study	Nursing program
Facebook	Pearson Correlation	.386**	.034	-.012	.285**
	Sig. (2-tailed)	.000	.715	.899	.002
	N	115	115	115	115
My space	Pearson Correlation	.037	.076	-.071	.005
	Sig. (2-tailed)	.691	.422	.450	.961
	N	115	115	115	115
Student Village	Pearson Correlation	-.010	.015	-.142	-.089
	Sig. (2-tailed)	.919	.871	.130	.342
	N	115	115	115	115
Twitter	Pearson Correlation	.116	-.047	-.166	.092
	Sig. (2-tailed)	.217	.620	.077	.329
	N	115	115	115	115
Other (whatsup. Mixit. etc))	Pearson Correlation	.163	.095	-.039	.167
	Sig. (2-tailed)	.083	.311	.681	.074
	N	115	115	115	115
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

4.4. THE PERCEIVED USEFULNESS OF THE INTERNET

This section covers the perceived usefulness of the Internet according to the respondents.

4.4.1. Importance of the Internet in the respondents 's life

Figure 2.21 displays the findings from this study related to the importance of the Internet in the student's life. Out of 115 respondents, 83.5% (n=96) perceived the Internet to be very important in their lives, 15.7% (n=18) said that the Internet was somewhat important in their lives. However a very small Percentage 0.9% (n=1) mentioned that the Internet was not important in their lives (Figure 4.17).

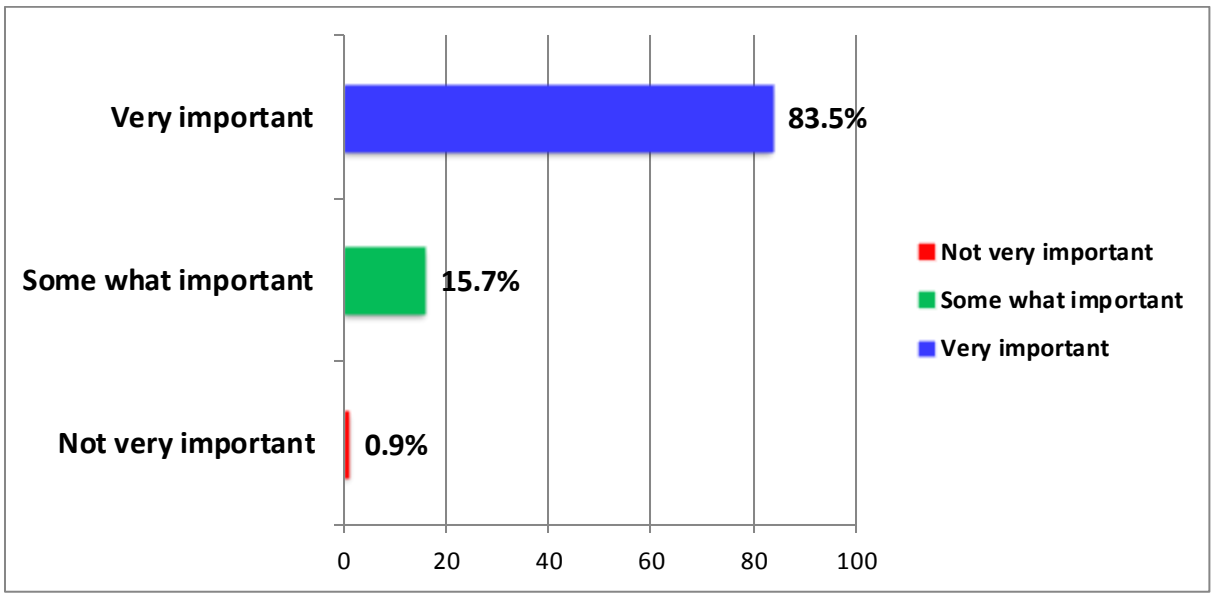

Figure 4.17: Importance of the Internet in the student's life (n=115)

4.4.2. Cross tabulation of the importance of the Internet in the students' life and the age groups of respondents

The findings from this study revealed that 86.4% (n=19) from a age group of more than 30 years old perceived the Internet to be very important in their lives, 86.2% (n=50) from the age group between 20 and 25 years perceived the Internet to be very important in their lives. It was found that 83.3% (n=5) from the age group between 26 and 30 years old perceived the Internet to be very important in their lives and 75,9% (n=22) from the age group under 20 years old perceived also the Internet to be very important in their lives. Fisher's Exact test was conducted to establish the differences among different age groups and their perception of the Internet and was not significant (Fisher's Exact test value of 3.550 and p-value=0.710) (Table 4.10).

Table 4.10: Cross tabulation of the importance of the Internet in the students' life and their age group (n=115)

Overall, how important do you consider the Internet in your life	Freq. %	Age				Total
		< 20	- 25	26 – 30	>30	
Not very important	Freq.	0	1	0	0	1
	%	0.0%	1.7%	0.0%	0.0%	0.9%
Somewhat Important	Freq .	7	7	1	3	18
	%	24.1%	12.1%	16.7%	13.6%	15.7%
Very important	Freq .	22	50	5	19	96
	%	75.9%	86.2%	83.3%	86.4%	83.5%
Total	Freq .	29	58	6	22	115
	%	100.0%	100.0%	100.0%	100.0%	100.0%

4.4.3. The Internet technologies perceived indispensable by respondents

The findings from this study revealed that 10 internet technologies were considered indispensable by respondents included World Wide Web, e-mail, chat or online discussion, the Internet phone, the Internet fax, streaming audio over the Internet, streaming video over the Internet, access to library catalogues and News Reader

Out of 115, 80.9% (n=93) considered use of worldwide as very important, while 2.6% (n=3) said that it was not important, 87.0% (n=100) considered the use of e-mail very important and only 0.9% (n=1) said it was not important, 33.0% (n=38) considered very important the use of chat/online discussion 29.6% (n=34) said it was important, and 17.4% (n=20) said it was not important. 28.7% (n=33) said it was very important to use the Internet phone and 20.9% (n=24) said it was not important. The use of the Internet fax was considered by 24.3% (n=28) to be very important, to 27.0% (n=31) important, to 26.1% (n=30) somewhat important and 22.6% (n=26) not important (Figure 4.18).

The findings from this study further indicated that the use of streaming audio over the Internet (real audio, etc.) was considered by 25.2% (n=29) very important, 20.9% (n=24) important, 31.3% (n=36) somewhat important, 22.6% (n=26) not important. Streaming video over the Internet was considered by 27.8% (n=32) very important, 20.9% (n=24) important, 27.0% (n=31) somewhat important, 24.3% (n=28) not important. Video conferencing over the Internet (net meeting, etc.) was considered by 27.8% (n=32) very important, 21.7% (n=25) important, 35.7% (n=41) somewhat important, 14.8% (n=17) not important. Accessing to library catalogue was considered by 70.4% (n=81) very important, 14.8% (n=17) important 12.2% (n=14) somewhat important, 2.6% (n=3) not important. Using news reader was considered by 47.8% (n=55) very important 25.2% (n=29) important, 18.3% (n=21) somewhat important, 8.7% (n=10) not important (Figure 4.18).

The Internet technologies considered indispensable reported by respondents consisted of 10 items, with responses ranging on ordinal scale that was 1=very important, 2=important, 3=somewhat important and 4=not important. The minimum score was 10 and the maximum was 38. The higher score indicated low importance of used the Internet technologies, and the lower score indicated the high importance of utilization of the Internet technologies. The mean of respondents was 20.252 and the Standard Deviation was 6.2. A relative percentage 52.2% of respond considered indispensable the Internet technologies.

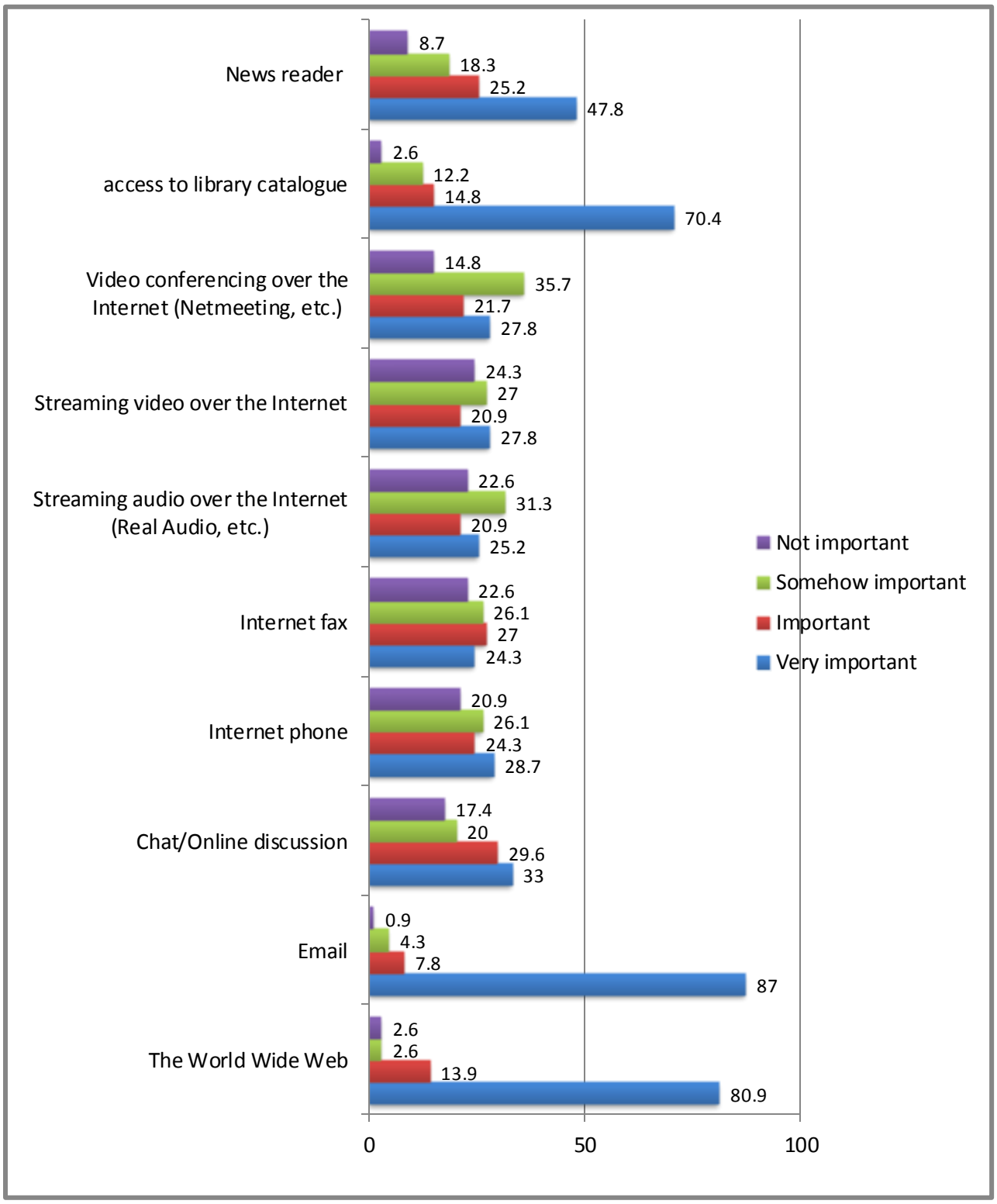

Figure 4.18: The Internet technologies perceived indispensable by the students (n=115)

4.4.4. The level of perception about the Internet technologies and the year of the study

The findings from this study indicated the level of perception of the Internet technologies and the year of the study. Four items which were perceived very important by the majority of the respondents were: 80.9% (n=93) reported that worldwide web was very important, and this was reported by 100.0% (n=13) from the 4th year, 83.3% (n=20) from 3rd year, 77.1% (n=27) from the 2nd year and 76.7% (n=33) from the 1st year. E-mail was perceived to be very important by 87.0% (n=100) of the respondents and according to the year of the study, this was distributed respectively by 86.0% (n=37) from the 1st year, 88.6% (n=31) from the 2nd year, 83.3% (n=20) from the 3rd year and 92.3% (n=12) from the 4th year (Figure 4.19).

Access to library catalogue was perceived to be very important by 70.4% (n=81) of the respondents and this was reported respectively by 65.1% (=28) from the 1st year, 68.6% (=24) from the 2nd year, 79.2% (=19) from the 3rd year and 76.9% (n=10) from the 4th year. Chat or online discussion was perceived to be very important by 33.0% (n=38) of the respondents, and this was reported respectively by 27.9% (n=12) from the first year; 28,6% (n=10) from the 2nd year; 33.3% (n=8) from the 3rd year; 61.5% (n=8) from the 4th year (Figure 4.19).

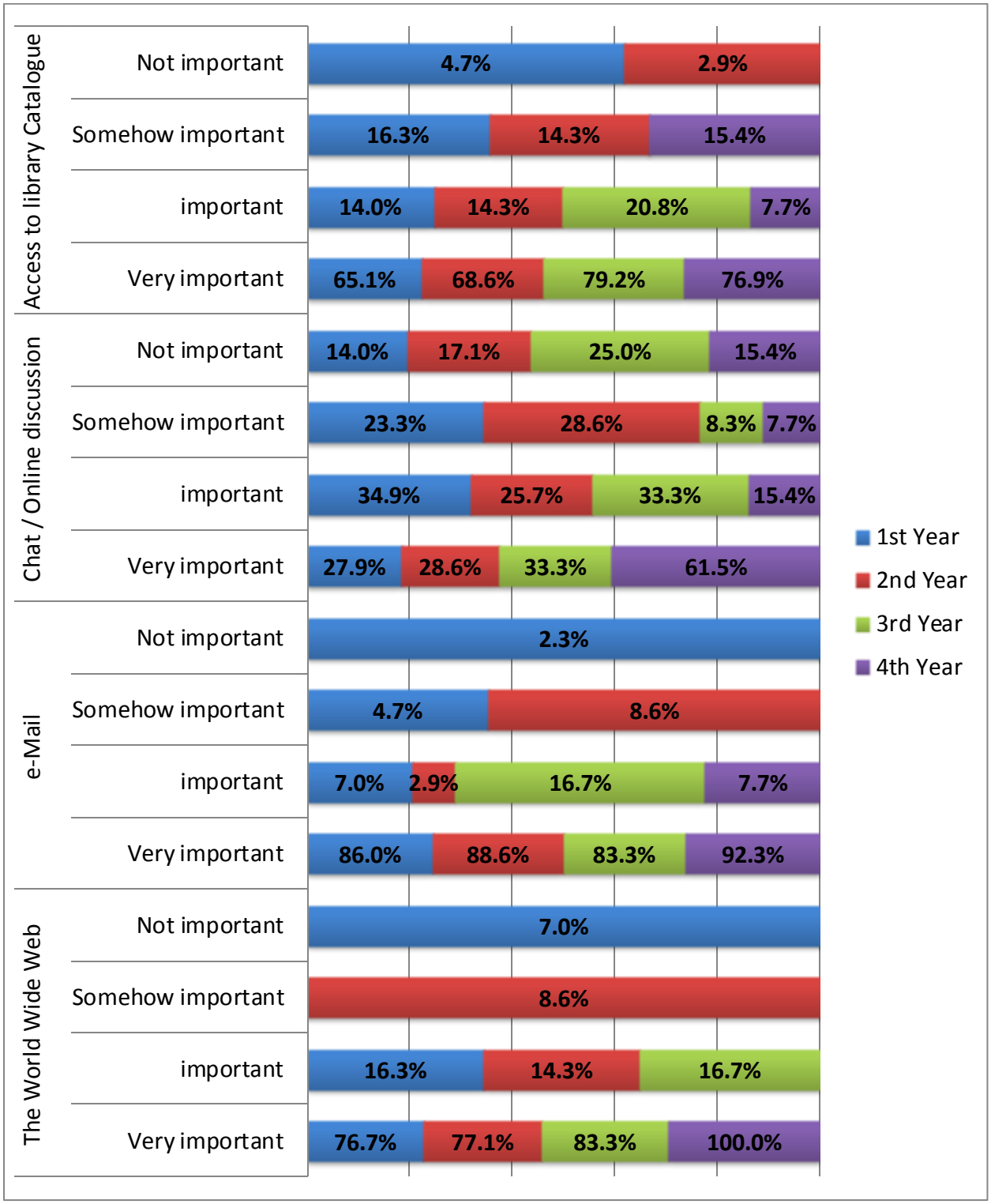

Figure 4.19: Comparative figure of the level of perception about the Internet technologies and the year of the study (n=115)

4.5. THE PURPOSE OF USING THE INTERNET

This section presents the findings on the purpose on using the Internet by respondents, and includes the performed activities on the Internet, reported reasons from using the Internet and their importance.

4.5.1. Activities usually done by the respondents when they access the Internet

The findings revealed that the majority of the respondents used the Internet to send messages. Out of 115 respondents, 92.2% (n=106) used the Internet to send or receive e-mail, 90.4% (n=104) used the World Wide Web for their school or work purposes,71.3% (n=82) used the World Wide Web for their own entertainment, 51.3% (n=59) for downloading music or video, 47.0% (n=54) used if for other computer applications, 36.5% (n=42) for writing on a word processor, 29.6% (n=34) used Instant Messenger, Microsoft NetMeeting, or other one to one conversation, 27.8% (n=32) used chat rooms and 24.3% (n=28) used it to play computer games (Figure 20).

The overall use of the Internet by activities mentioned above when they accessed the Internet were put into nine items and the score was calculated. The minimum score was one and the maximum score was nine. Higher score indicated higher utilization of the Internet for many activities, and lower score indicated low utilization of the Internet. The mean of response score was 4,704, the Median was four and the Standard Deviation was 2.1. An average of 50.2% relatively used the Internet for at least 4 activities. Only 6.1% reported to use the Internet for all the activities (9 items). This means that they had a very high utilization of the Internet.

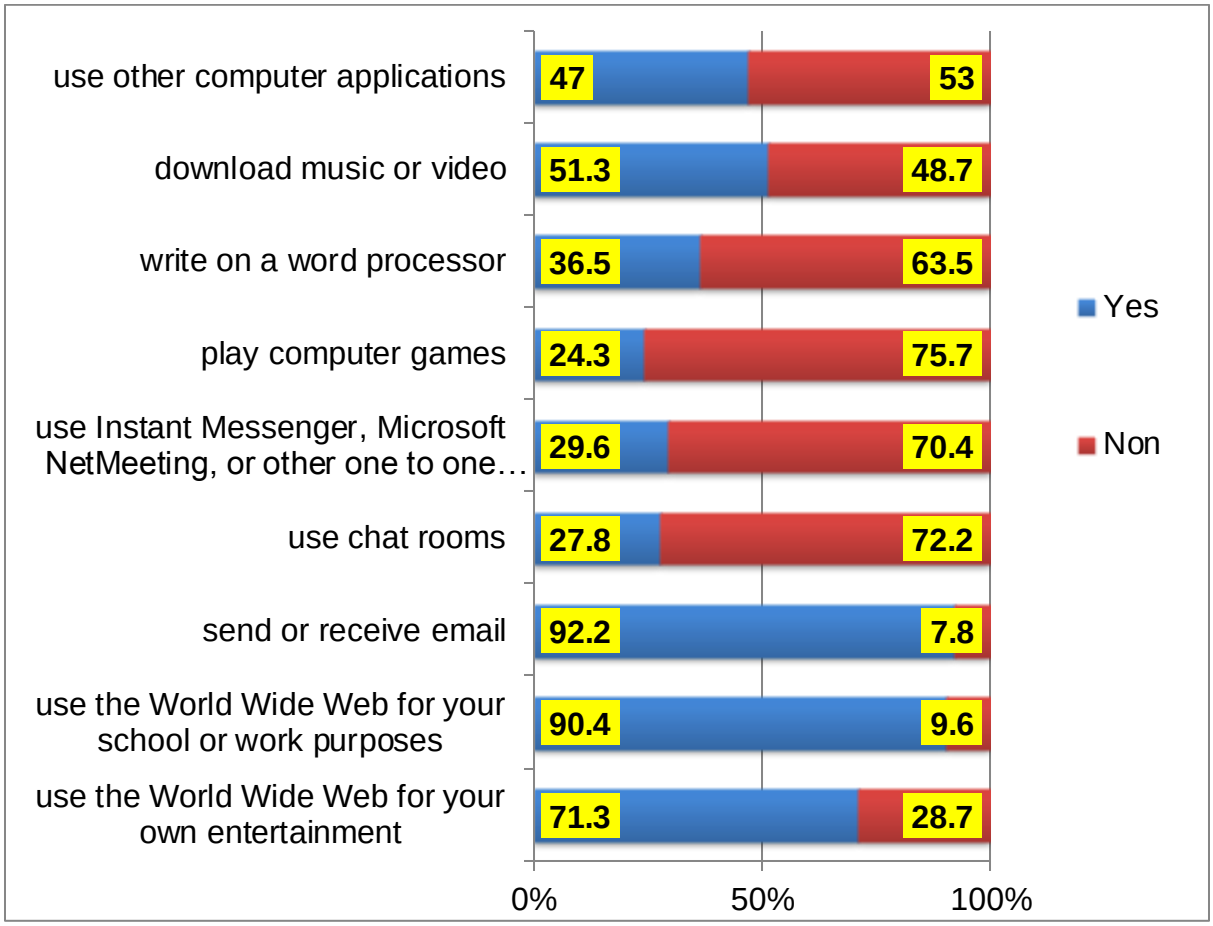

Figure 4.20: activities usually done by the respondents when they access the Internet. (n=115)

4.5.2. The Internet activities usually done by the students per year of the study

With respect to the use of the Internet for school or work related activities according to the year of the study, the majority of respondents were in 1st year 83.7% (n=36), 2nd year 91.4% (n=32), 3rd year 100.0% (n=24) and 4th year 92.3% (n=12) reported to (Figure 4.21). From the findings of this study on activities done by the respondents when accessing the Internet, a Pearson correlation (Annexure 16) demonstrated that the use of the world wide web for their own entertainment was correlated with age

(p<0.000), and gender of the respondents, and has also been significantly correlated with using chat rooms (p=0.005).

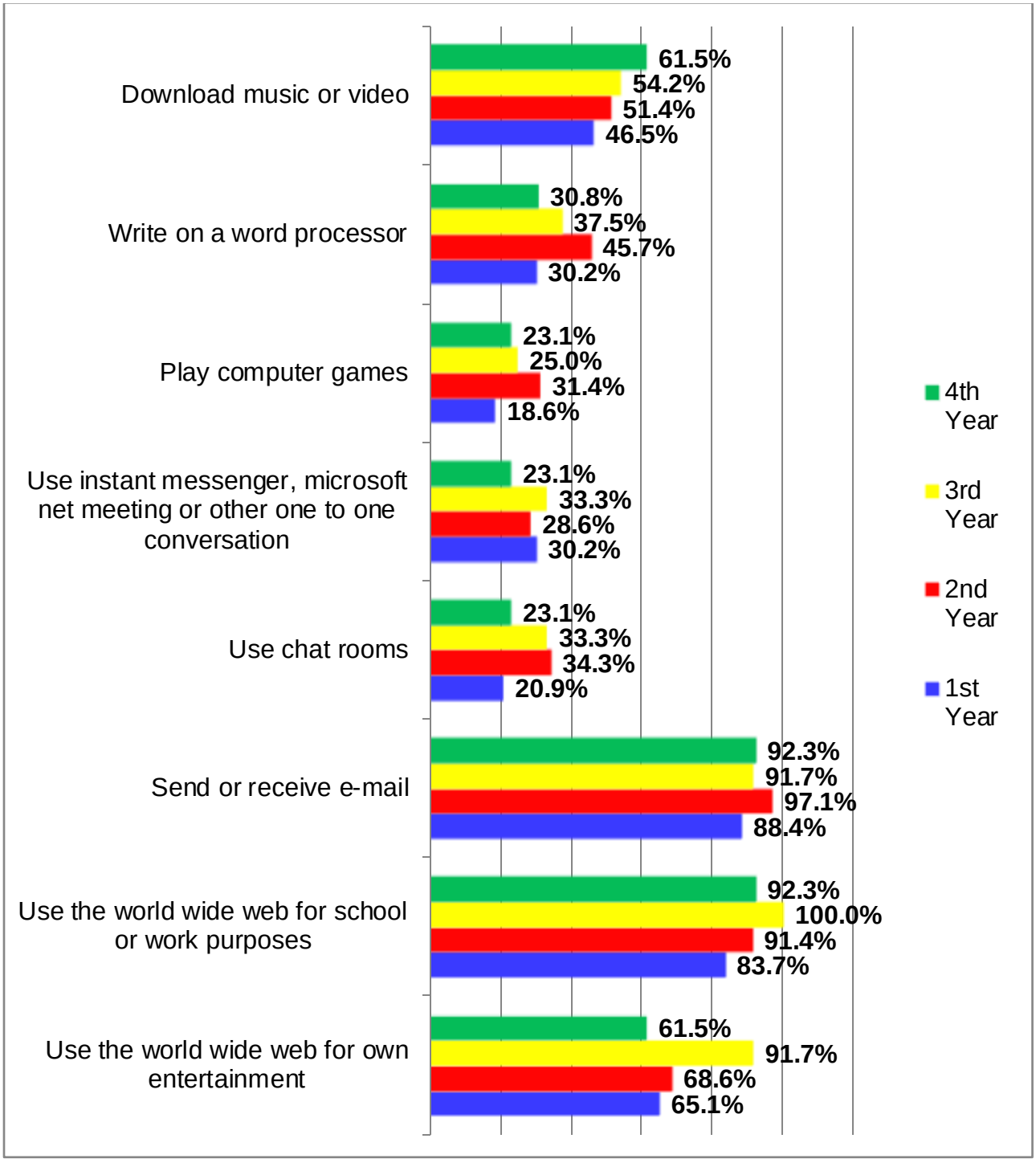

Figure 4.21: Activities usually done by respondents per year of the study (n=115).

4.5.3. Reported reasons for using the Internet and their importance by respondents

The findings from this study revealed that respondents use the Internet for a number of reasons including, access to academic related material and electronic data bases, searching the research engines, entertainment and sports, news and just browsing without any particular reason (Figure 4.22).

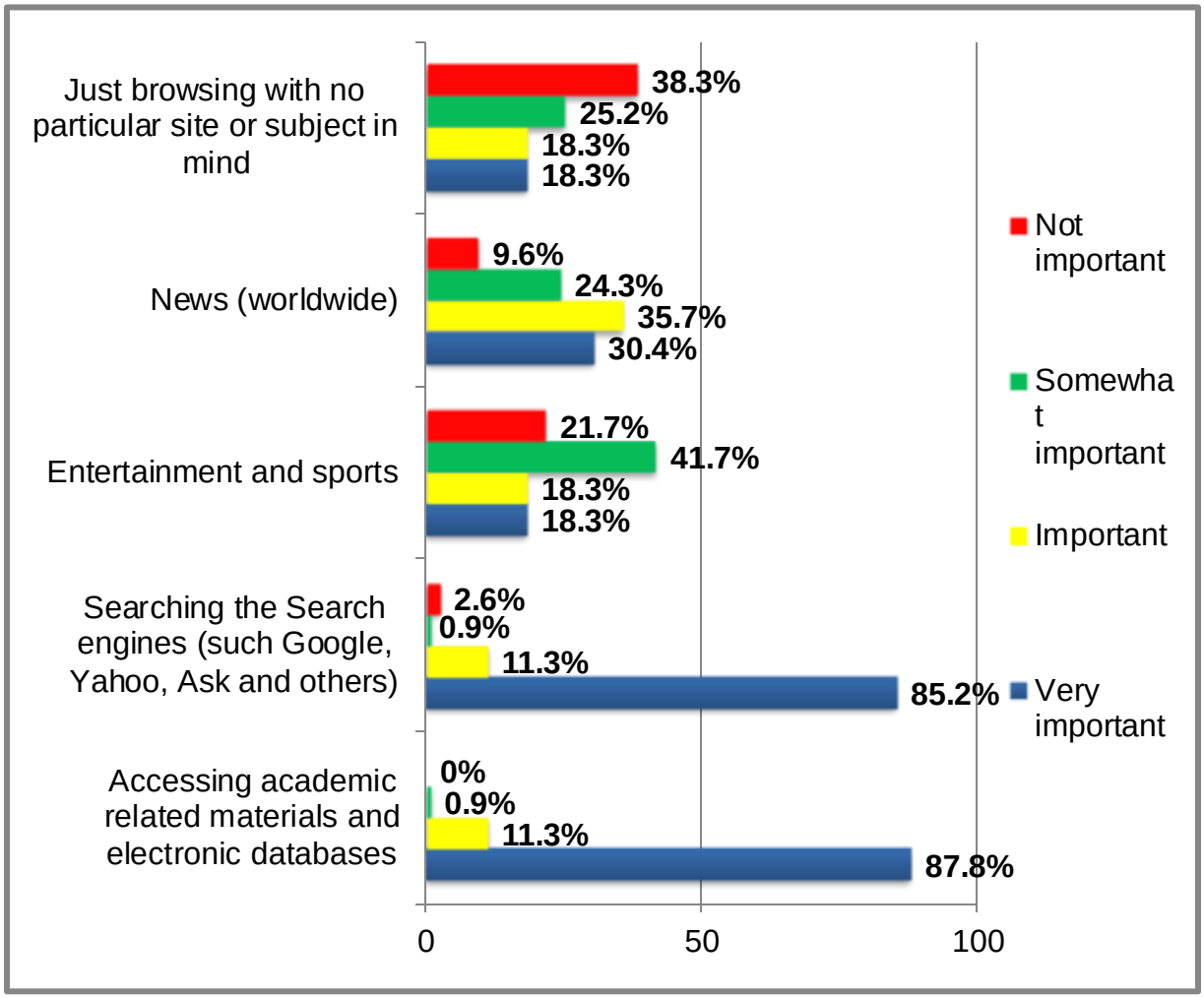

Figure 4.22: Reported reasons for using the Internet and their importance (n=115)

The findings from this study demonstrated that 87.8% (n=.101.) considered the Internet very important for accessing academic related materials and electronic databases.

85.2% (n=.98.) considered very important using the Internet for searching the search engines (such Google, yahoo, ask and others. 41.7% (n=.48) considered somewhat important using the Internet for entertainment and sports, and 18.3% (n=.21.) considered very important using the Internet for just browsing with no particular site or subject in mind (Figure 4.22).

The items score was calculated to measure the overall purpose of using the Internet per importance. Six items were considered and responses were ranged from 1 to 5, 1=very important, 2=important, 3=somewhat important and 4=not important. The minimum score was five and the maximum was 18. The higher score indicated a low importance of using the Internet, and low score indicated a high importance considered by respondents in using the Internet. The mean of the response score was 9,973 and the Standard Deviation was 2.5. An average of 61.7% had a moderate perception of the importance of using the Internet. Only 26.1% had a relatively high perception of using the Internet. T-test was performed and was significant (P <0.000).

4.5.4. Reported reasons for using the Internet per importance and year of the study.

The findings from this study revealed that academic related materials and electronic data bases were considered very important by 37 (86.0%) from 1st year, 30 (85.7%) from 2nd Year, 21 (87.5%) from 3rd Year and 13 (100%) of the 4th year respondents. Regarding the importance of using search engines such as Google, yahoo, they were considered very important by 40 (93.0%) from the 1st year, 24 (68.6%) from the 2nd Year, 21 (87.5%) from the 3rd Year and 13 (100%) from the4th Year (Figure 4.23).

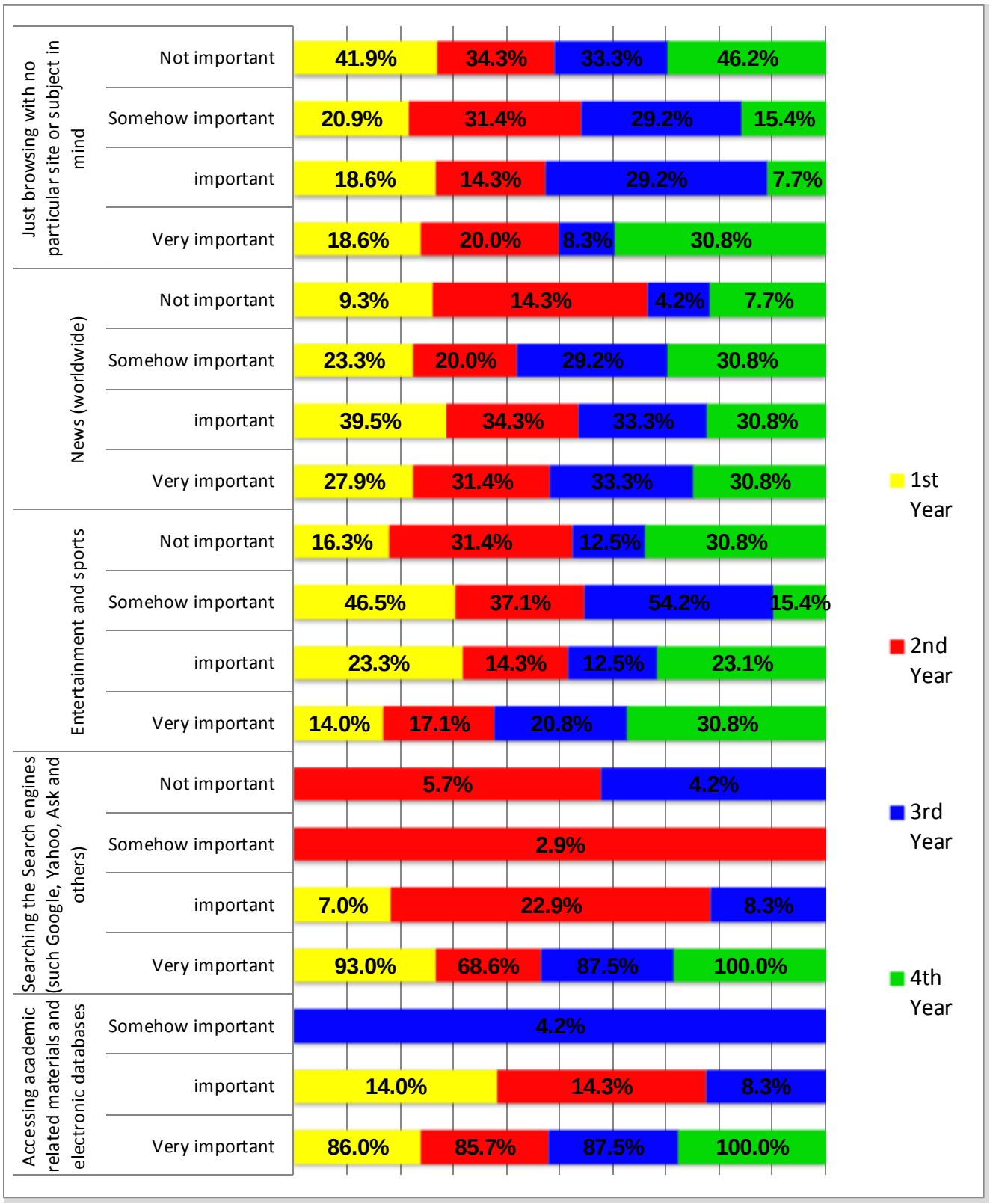

Figure 4.23: Reported reasons of using the Internet by their importance and year of study (n=115)

4.6. THE ACCESSIBILITY OF INTERNET RESOURCES

This section presents the findings related to the accessibility of the Internet by the respondents. This includes the accessed settings; the most used setting to access the Internet, areas of accessibility of the Internet on campus, the findings related to the access of the Internet off campus, the Internet services used by respondents off campus, and the frequency of using the Internet in the last month and last six months.

4.6.1. Settings accessed for the Internet services

It was found from this study that respondent access the Internet from various settings. Out of 115 respondents, 84.3% (n=97) accessed it from libraries 74.8% (n=86) accessed it from school, 63.5% (n=73) accessed it at home, 56.5% (n=65) access it at a friend's place, 44.3% (n=51) accessed it from cybercafé or other setting open to the public, and 27.0% (n=31) accessed it from work (Figure. 4.24).

The score of overall accessibility of the Internet was calculated by considering six items mentioned above. The minimum score was one and the maximum was six. The higher the score, the higher the accessibility of the Internet. The mean of the item score was 3,504 and the Standard Deviation was 1.4. An average of 52.2% of the respondents had an average accessibility to the Internet as reported to access the Internet from at least three settings. Only 26.1% had a high accessibility to the Internet as they reported to access the Internet from five to six locations.

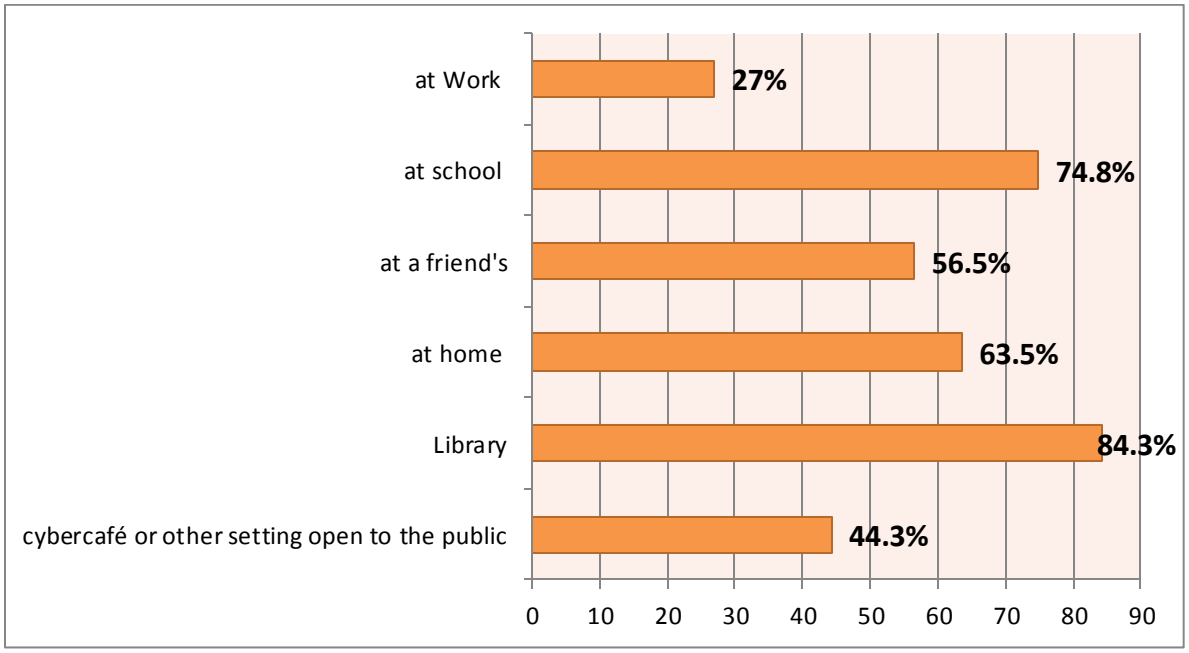

Figure 4.24: Settings accessed by respondents for the Internet services (n=115)

4.6.2. Areas of accessibility of the Internet on campus by respondents

The findings of this study demonstrated that respondents accessed the Internet in different areas on campus. Out of 115 respondents, 95.7% (n=110) reported to access the Internet from computer laboratories (LANs), 46.1% (n=53) from the Library, 26.1% (n=30) Residence (wireless hub) (Figure 4.25).

The overall score of accessibility of the Internet on campus was calculated and three items mentioned above were considered. The minimum score was one and the maximum score was three. The higher the score, the more respondents accessed the Internet on campus. The mean score of items was 1,678 and the Standard Deviation 0.7. The majority of the respondents 82.6% reported to access the Internet from at least two locations on campus while 49.6% mentioned only one location.

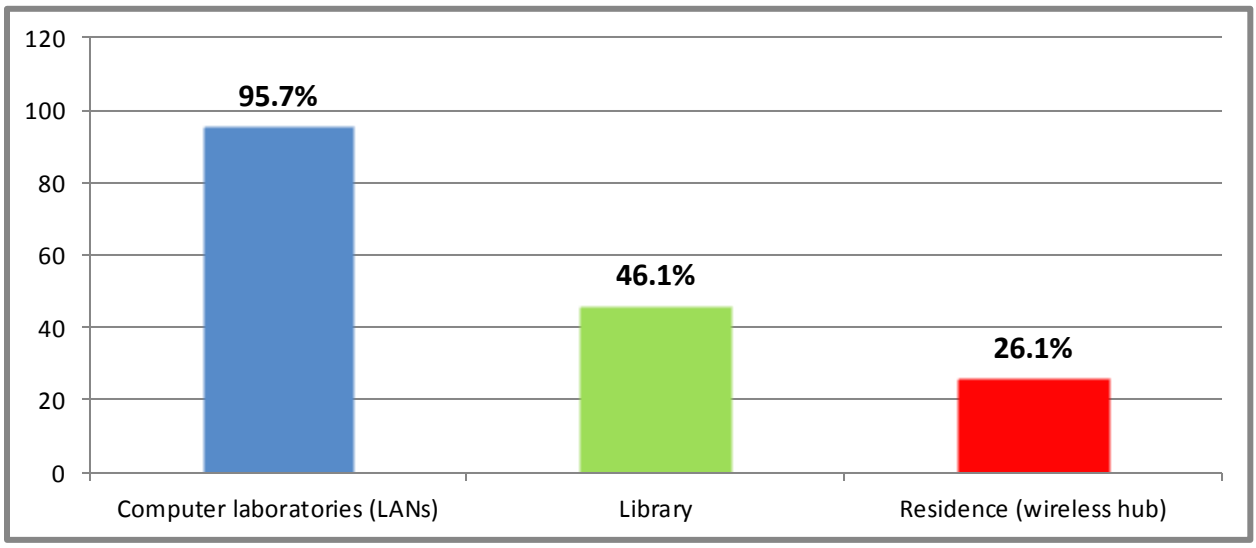

Figure 4.25: Areas of accessibility of the Internet on the campus by respondents (n=115)

4.6.3. Accessibility of the Internet on campus per Nursing Program

The findings from this study revealed that 94.5% (n=86) from Bachelors of Nursing and 100% (n=24) from the Bachelors of Nursing Advanced Practice reported to access the Internet from the computer laboratories. It was found that 50.5% (n=46) from the Bachelors of Nursing and 29.2% (n=7) from Bachelors of Nursing Advanced Practice reported to access the Internet from the Library. The Internet was also accessed from the residence wireless network by 28.6% (n=26) from Bachelors of Nursing and 16.7% (n=4) from the Bachelors of Nursing Advanced Practice (Figure 4.26).

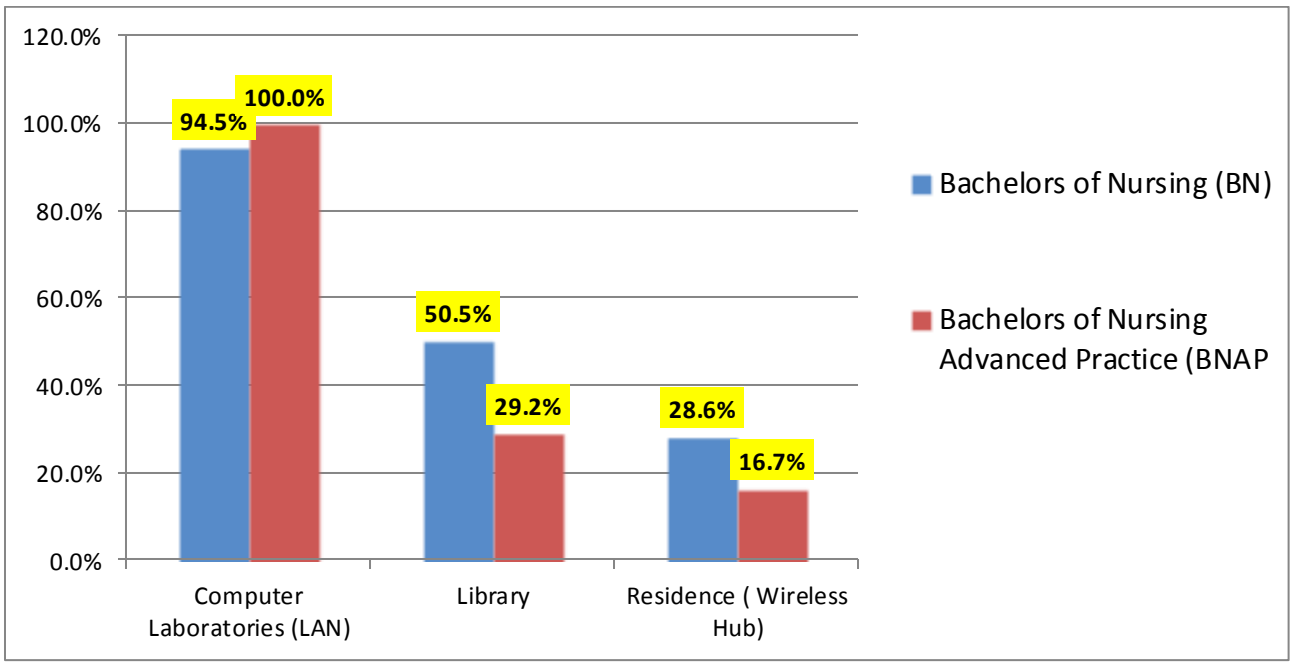

Figure 4.26: accessibility of the Internet on campus by nursing program of the respondents (n=115)

4.6.4. Accessibility of the Internet off campus

The findings from this study demonstrated that out of 115 respondents 72% (n=83) reported to access the Internet off campus, while 28% (n=32) mentioned they did access the Internet off campus (Figure 4.27).

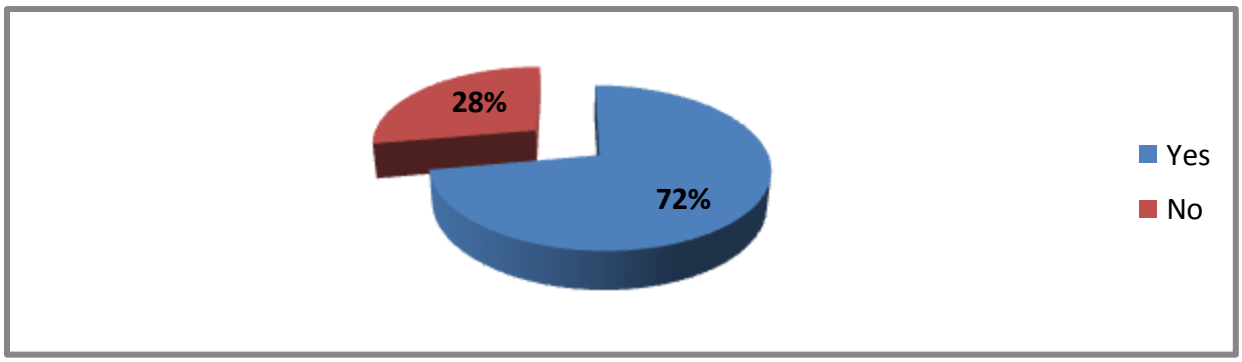

Figure 4.27: Accessibility of the Internet off campus (n=115)

4.6.5. Accessibility of the Internet off campus per year and nursing program of the study

The findings from this study revealed that the majority of respondents accessed the Internet off campus, this being reported by 74.4 (n=32) of the 1st year, 65.7% (n=23) of the 2nd year, 83.3% (n=20) of the 3rd year and 61.5% (n=8) from the 4th year. According to the nursing program of the respondents, 79.2% (n=19) from the Bachelors of Nursing Advanced Practice and 70.3% (n=64) from Bachelors of nursing reported to access the Internet off campus (Table 4.11).

Table 4.11: Off campus accessibility of the Internet per year and nursing program (n=115)

Off campus internet access		The year of the study of respondents				Nursing Program	
		1st Year	2nd Year	3rd Year	4th Year	BN	BNAP
Yes	Freq	32	23	20	8	64	19
	%	74.4%	65.7%	83.3%	61.5%	70.3%	79.2%
No	Freq	11	12	4	5	27	5
	%	25.6%	34.3%	16.7%	38.5%	29.7%	20.8%
n		43	35	24	13	91	24

BN=Bachelors of Nursing

BNAP =Bachelors of Nursing Advanced Practice

4.6.6. The Internet services used by the students while off campus

The findings demonstrated that while off-campus, students used the Internet for different purposes. Out of 115 respondents, 65.2% (n=75) used it for E-mail, 61.7% (n=71) for World Wide Web, 47.8% (n=56) for Social Networks (Facebook, MySpace, Student Village, YouTube, Twitter etc.), 33.9% (n=39) for accessing the library catalogue remotely (Figure 4.28).

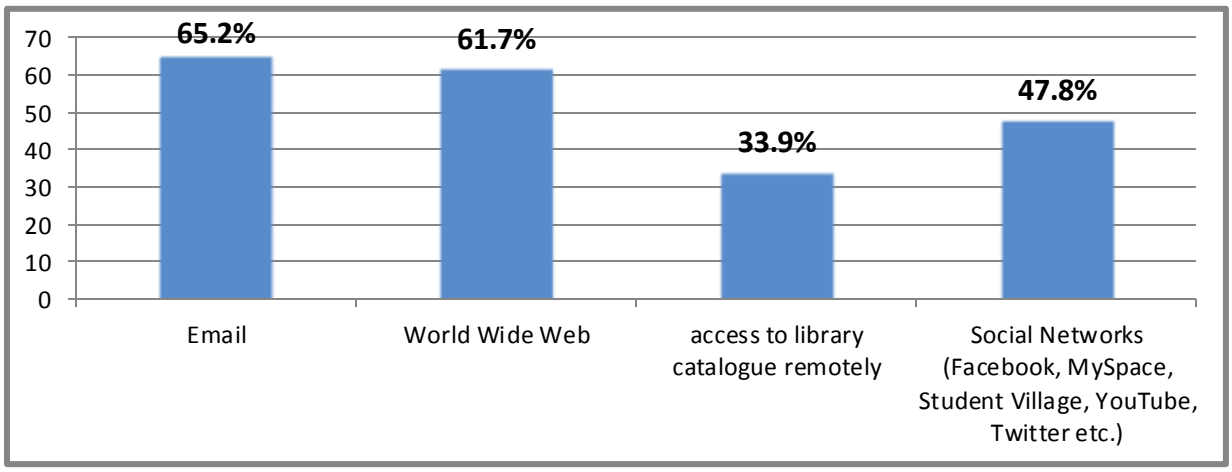

Figure 4.28: The Internet services used by the students while off campus (n=115)

The overall score of services used by respondents while accessing the Internet off campus was calculated using four items. The minimum score was zero and the maximum score was four. The higher the score, the more the Internet services were used off campus by the respondents. The mean score for the items for the Internet services used by the students while off campus was 2,087 and the Standard Deviation was 1.6. The average of 49.6% accessed between 3 and 4 of the Internet services while off campus. While 28.7% did not access the Internet for the items considered, it was also found that at least 21.7 had used at least two of the Internet services while off campus.

4.6.7. Visited websites by the respondents during the last month

The findings from this study revealed that during the last month, educational websites were reported to be visited by 82.6% (n=95), music, film, celebrities websites were 54.8 (n=63), news websites were visited 53.9% (n=62) and chat websites 39.1 (n=45). The standard deviation varied and for chat it was 0.4, for retail sales it was 0.2, for

educational school it was 0.4, for games it was 0.4, for music, film, celebrities it was 0.5, for religion it was 0.4, for sports it was 0.4 and for news it was 0.5 (Table 4.12)

Table 4.12: Visited websites by the respondents during the last month (n=115)

Type of website	Yes		No	
	Freq	%	Freq	%
Chat websites	45	39.1	70	60.9
Retail sales websites	6	5.2	109	94.8
Educational websites	95	82.6	20	17.4
Games websites	24	20.9	91	79.1
Music, Film, Celebrities websites	63	54.8	52	45.2
Religion websites	22	19.1	93	80.9
Sports websites	22	19.1	93	80.9
News websites	62	53.9	53	46.1

4.6.8. Visited websites per year of the study during the last month.

The findings from this study revealed that the majority of the respondents used the Educational or School website in the previous month, 86% (n=28) from the first year, 80% (n=28) from the second year, 79.2% (19) from the 3rd year and 84.6% (11) from the 4th year. It was also found that significant percentages of the respondents music, film and celebrities websites, respectively 51.2% (n=22) from the first year, 54.3% (n=19) from the second year, 58.3% (n=14) from the 3rd year and 61.5% (n=8) from the 4th year.

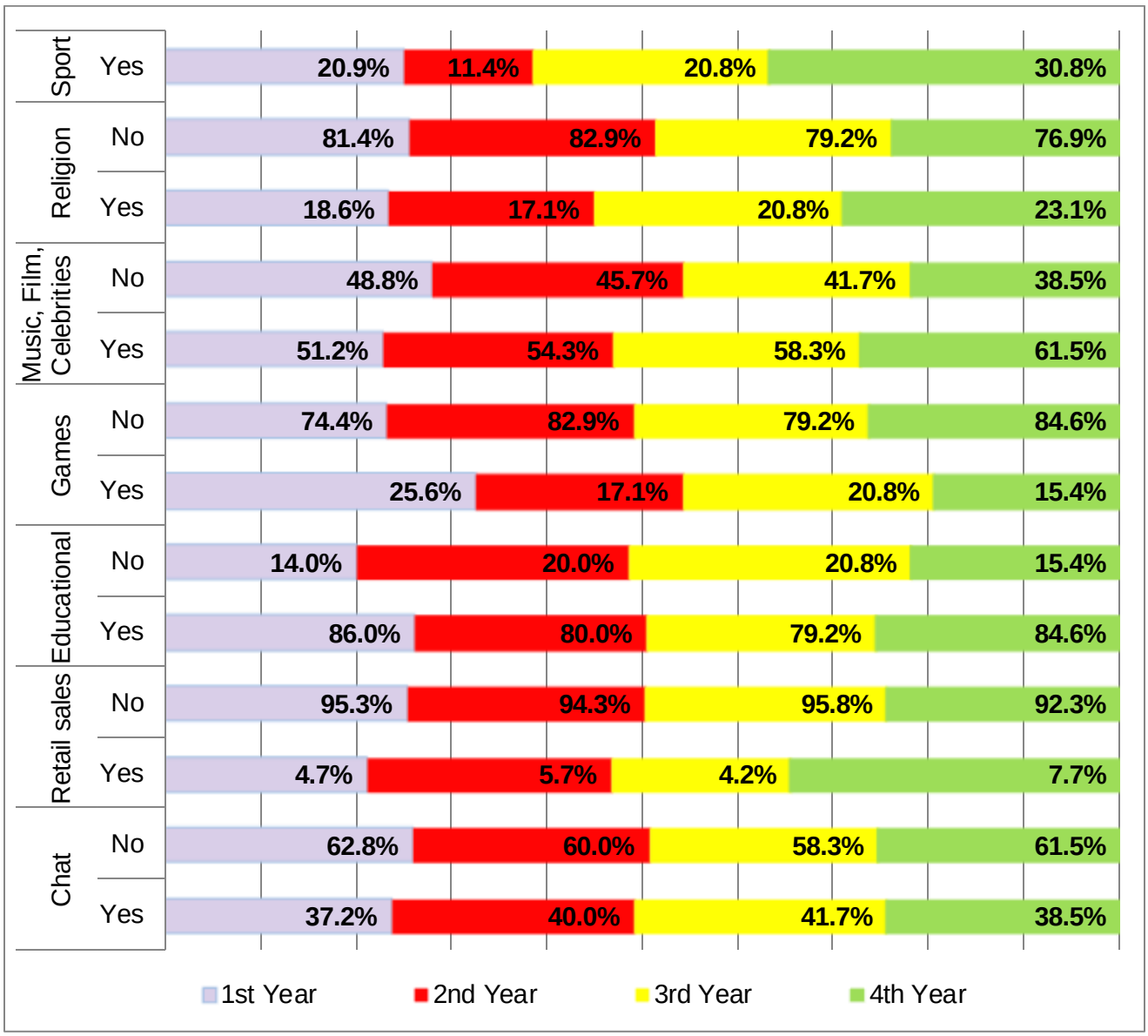

Figure 4.29: Visited websites during the last month per year of the study (n=115)

4.6.9. Frequency in the Internet usage during the last month by the respondents

The findings from this study demonstrated that out of 115 respondents, 46.1% (n=53) used the Internet every day, 29.6% (n=34) used the Internet several times a week, and 19.1% (n=22) used the Internet several times a day, 2.6% (n=3) used the Internet once a month or less, 2.6% (n=3) used the Internet once a week.

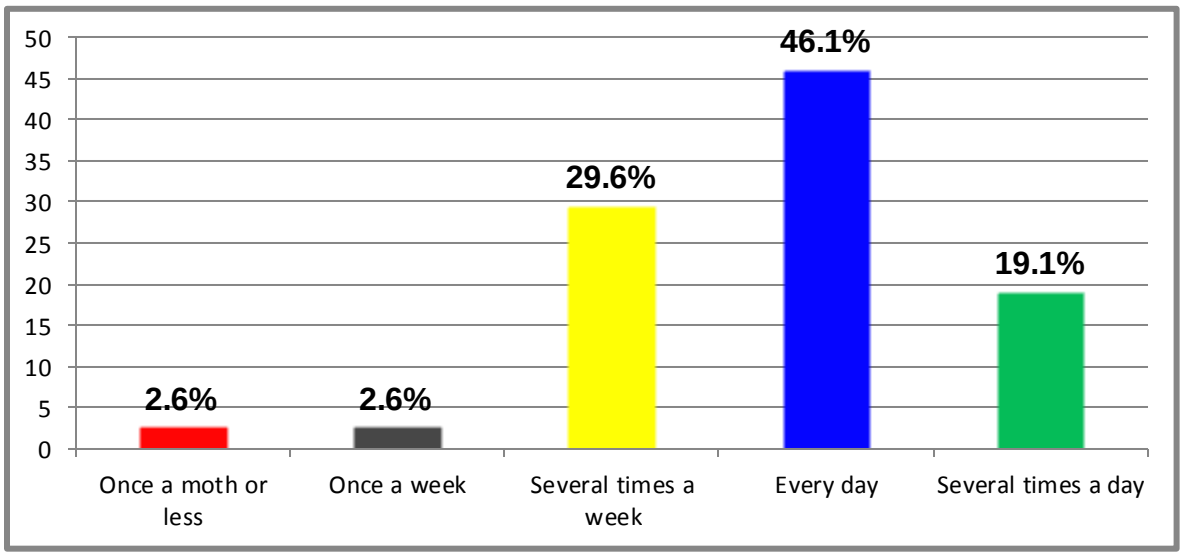

Figure 4.30: The Internet usage by the respondents during the last month (n=115)

4.6.10. Number of hours spent on the Internet per week

The findings from this study revealed that respondents spent various numbers of hours on the Internet per week. Out of 115 respondents, 39.1% (n=45), spent between 1-5 hours on the Internet per week,17.4% (n=20) spent 6-10 hours per week, 11.3% (n=13) spent between 11-15 hours on the Internet per week, 11.3% (n=13) spent more than 30 hours on the Internet per week, 9.6% (n=11) spent Less than an Hour on the Internet per week, 5.2% (n=6) spent between 16-20 hours, 0.9% (n=1) spent on the Internet between 21-25 hours per week, 5.2% (n=6) spent between 26-30 hours on the Internet per week (Figure 4.31).

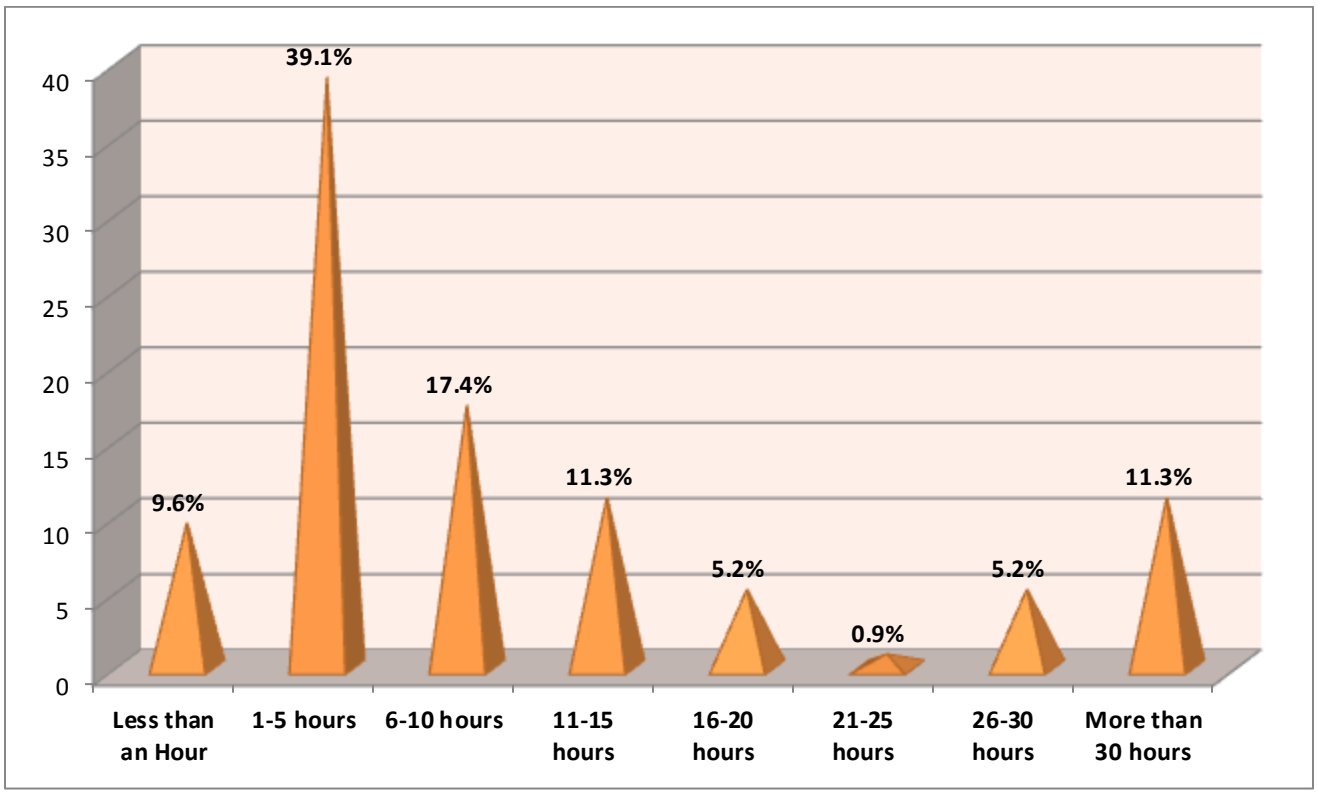

Figure 4.31: Number of hours spent on the Internet per week by respondents (n=115)

4.6.11. Number of hour spent on the Internet week per year of the study

The results from this study revealed that the majority of the respondents used the Internet for one to five hours per week, and respectively 41.9% (n=18) from the 1st year, 28.6 (n=10) from the 2nd year, 58.3% (14) from the 3rd year and 23.1% (n=3) from the 4th year. It was also noted that some respondents reported to use the Internet for more than 30 hours a week, 11.6% (n=5) from the 1st year, 14.3% (n=5) from the 2nd year, 8.3% (n=2) from the third year and 7.7% (n=1) from the 4th year. (Figure 4.32)

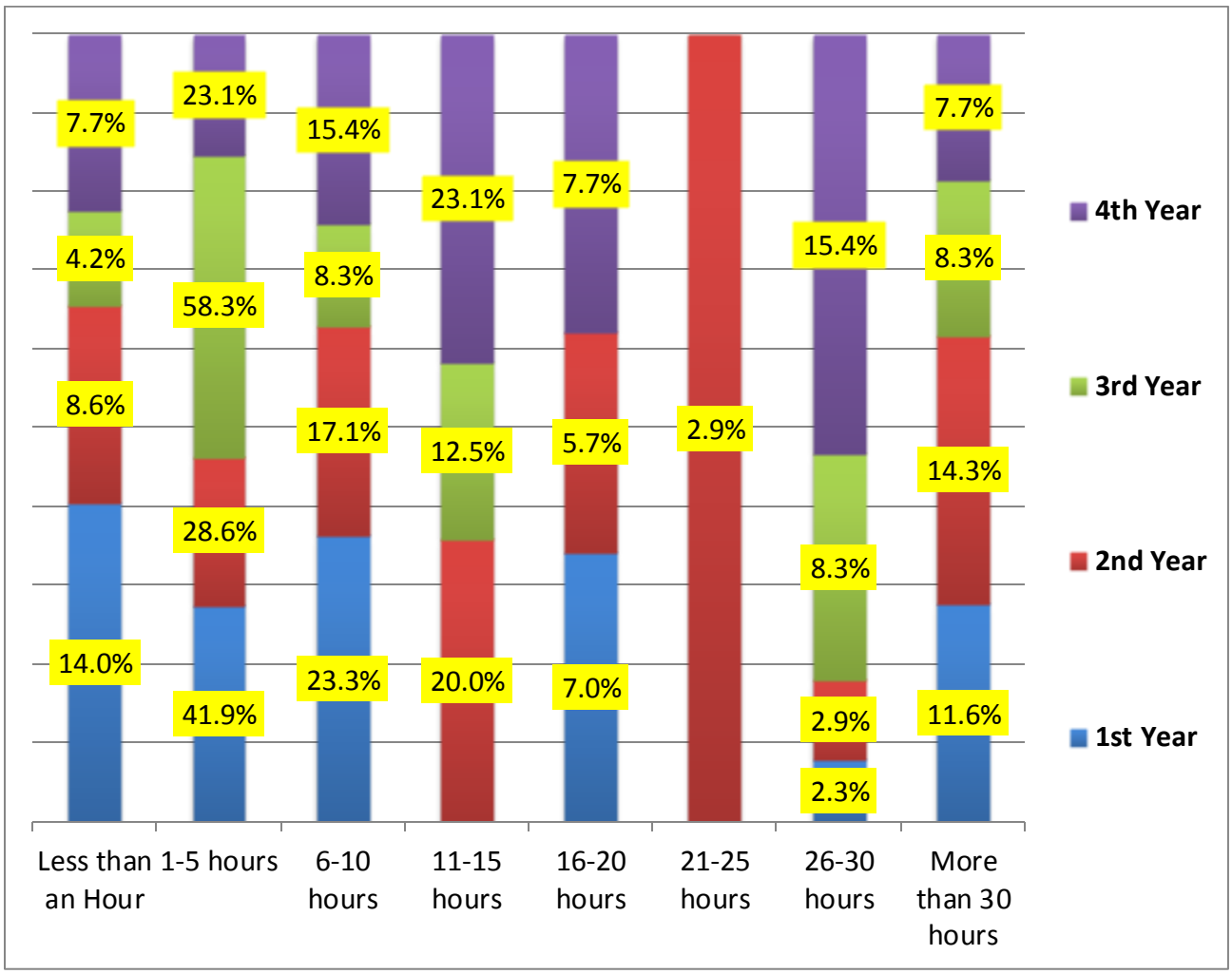

Figure 4.32: Number of hour spent on the Internet per week and per year of the study (n=115)

4.6.12. The frequency of activities on the Internet in the past 6 months

The results in Table 4.13 show the frequency in using the Internet activities in the past six months. Out of 115 respondents, 42.6% (n=49) reported to use the Internet for accessing reference materials weekly, 39.1% (n=45) used the Internet to send and receive information daily. 27.8% (n=32) used the Internet weekly to retrieve, organize, manage and create information. 24.3% (n=28) used the Internet daily to do research

and solve problems, 22.6% (n=26) reported to have done it weekly and 26.1% (n=30) reported to have done it monthly.

The score for overall use of the Internet in the last six months was calculated, with21 items being considered, and responses ranging from 1 to 5. 1=daily, 2=frequently, 3=monthly, 4=less than once a month and 5=never. The minimum score was 38 and the maximum score was 117. The mean score of computed items was 71,600, Median was 73,000 and the Standard Deviation was 1.6. An average of 55% used relatively the Internet in the past 6 months, an estimate of 17% used less interned in the last six months. Only 27% reported a high usage of the Internet in the last 6 months. T-test was performed and was significant ($p<0.000$).

Table 4.13: The frequency of activities on the Internet in the past 6 months (n=115)

	Daily		Weekly		Monthly		Less than once a month		Never	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
to access newsgroups	11	9.6	26	22.6	13	11.3	17	14.8	48	41.7
to access online news?	15	13.0	32	27.8	13	11.3	21	18.3	34	29.6
to access information about commercial products/services?	6	5.2	11	9.6	18	15.7	28	24.3	52	45.2
to purchase commercial products/services?	1	.9	9	7.8	7	6.1	16	13.9	82	71.3
to access reference materials?	18	15.7	49	42.6	22	19.1	18	15.7	8	7.0
to access research reports & projects?	20	17.4	41	35.7	21	18.3	13	11.3	20	17.4
to access financial information?	5	4.3	19	16.5	20	17.4	24	20.9	47	40.9
to access health/medical information?	30	26.1	32	27.8	20	17.4	17	14.8	16	13.9
.to access online chat groups?	24	20.9	11	9.6	11	9.6	19	16.5	50	43.5
...to access online job listings?	6	5.2	8	7.0	10	8.7	32	27.8	59	51.3
to access online home/rental listings?	8	7.0	8	7.0	4	3.5	21	18.3	74	64.4
to access online telephone listings?	5	4.3	9	7.8	6	5.2	8	7.0	87	75.6
to access online maps?	11	9.6	17	14.8	17	14.8	33	28.7	37	32.2
Create and share information	15	13.0	18	15.7	15	13.0	14	12.2	53	46.1
Locate and evaluate information	16	13.9	22	19.1	26	22.6	25	21.7	26	22.6
Research and solve problems	28	24.3	26	22.6	30	26.1	12	10.4	19	16.5
Send and receive information	45	39.1	31	27.0	19	16.5	12	10.4	8	7.0
Retrieve , organize, manage and create information	19	16.5	32	27.8	21	18.3	15	13.0	28	24.3
Navigate through screens of information	23	20.0	16	13.9	28	24.3	20	17.4	28	24.3
Make multimedia presentation	9	7.8	15	13.0	23	20.0	16	13.9	52	45.2

4.7. THE FACTORS INFLUENCING EFFECTIVE USE OF THE INTERNET AS AN ACADEMIC TOOL

From the findings of this study, it was noted that respondents reported a number of constraints and problems which hinder their use of the Internet as an academic tool. These constraints include restricted access to certain networking sites, very slow internet connection (takes too long to load pages), and very little training in the use of the Internet facilities is offered to students, very few internet computers and lack of training on how to use the Internet facilities. This section presents the findings on the constraints and problems of using the Internet, and the areas of training reported by the respondents.

4.7.1. Constraints encountered by the students while using the Internet facilities on campus

The findings from this study showed that respondents reported different constraints in using the Internet. Out of 115 respondents, 62.6% (n=72) said that they had restricted access to certain networking sites, 55.7% (n=64) mentioned there was a very slow the Internet connection (takes too long load pages), 38.3 (n=44) mentioned that they had very little training in the use of the Internet facilities is offered to students, 37.4% (n=43) mentioned very few internet computers and 27.0% (n=31) mentioned that there was no training on how to use internet facilities. The mean score of items related to Constraints encountered by the students while using internet facilities on campus was 7, 7913 and the Standard Deviation was 1.1 (Figure 4.33). Annexure 17 demonstrate a cross tabulation of the encountered constraints and the year of the study of the respondents The Fishers exact test was performed to see the differences between the year of the study and encountered constraints and was not significant (p-value=0.243).

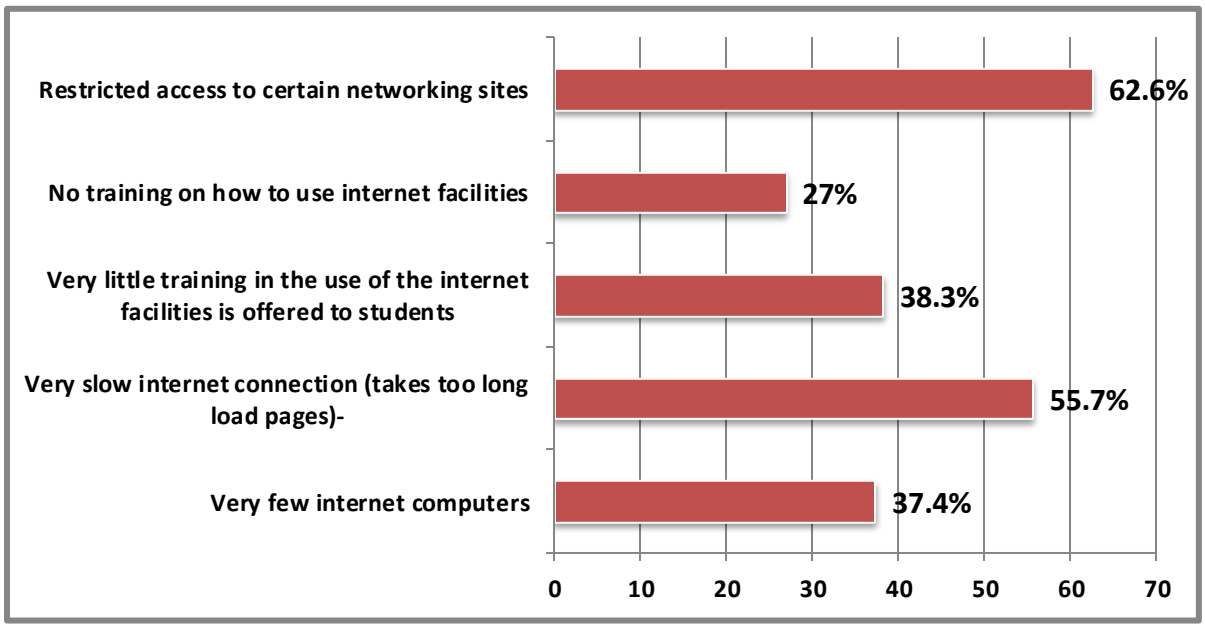

Figure 4.33: Constraints encountered by the students while using the Internet facilities on campus (n=115)

4.7.2. Perceived problems in using internet by respondents

The findings from this study demonstrated that respondents perceived a number of problems limiting the use of internet. Out of 115 respondents, 76.5% (n=88) mentioned sites that require to register with them, 57.4% (n=66) mentioned encountering sites that want me to pay to access information, 53.0% (n=61) said that it was a problem not being able to find the information they are looking for, 48.7% (n=56) mentioned having problems with their browser (e.g. freezing up, poor interface, getting disconnected, timing out), 45.2% (n=52) indicated that it takes too long to view/download pages. 45.2% (n=52) said the problem was encountering links that do not work (i.e., Linkrot), 45.2% (n=52) said that there are too many "junk" sites, 44.3% (n=51) mentioned advertising banners that take too long to load, 35.7%, 42.6% (n=49) mentioned getting errors from pages that use Java, Javascript, ActiveX, et. (Table 4.14).

Table 4.14: Perceived problems in using internet by respondents (n=115)

	Yes		No	
	Freq	%	Freq	%
Not being able to find the information I am looking for	61	53.0	54	47.0
Not being able to efficiently organize the information I gather	45	39.1	70	60.9
Not being able to find a page I know is out there	41	35.7	74	64.3
Not being able to return to a page I once visited	25	21.7	90	78.3
Not being able to determine where I am (i.e., 'lost in hyperspace' problem	16	13.9	99	86.1
Not being able to visualize where I have been and where I can go (e.g., view portions of a web site, view clickstream)	19	16.5	96	83.5
It takes too long to view/download pages	52	45.2	63	54.8
It costs too much	25	21.7	90	78.3
Encountering links that do not work (i.e., linkrot)	52	45.2	63	54.8
Encountering pages with bad HTML	41	35.7	74	64.3
Getting errors from pages that use Java, Javascript, ActiveX, etc	49	42.6	66	57.4
Having problems with my browser (e.g. freezing up, poor interface, getting disconnected, timing out)	56	48.7	59	51.3
Sites that are not compatible with all browsers	37	32.2	78	67.8
Too many "junk" sites	52	45.2	63	54.8
Sites that require me to register with them	88	76.5	27	23.5
Sites with too many graphics or useless graphics	42	36.5	73	63.5
Advertising banners that take too long to load	51	44.3	64	55.7
Encountering sites that want me to pay to access information	66	57.4	49	42.6

In order to calculate an overall score of the items mentioned as perceived problems, 19 items were considered. The minimum score was one and the maximum was nine. The mean was 7.278, media was 6 and the mode was 6. The Standard Deviation was 4.6. Only 25% of the respondents reported at least four items, and 50% had mentioned at least six of the items, and 90% of the respondents had mentions at least 14 of the items related to problems related to the use of internet. This shows that the majority of the respondents had a number of problems using internet. The T-test was performed to see the differences within the variables of the data set and was significant (t=72.124, p=0.000).

4.7.3. Perceived the need for orientation for internet use

Participants to this study said that there was a need for orientation to utilize internet as an academic tool. Out of 115 respondents, 89% (n=102.) agreed, while 11% (n=13) did not see the need for such a course.(Figure 4.34).

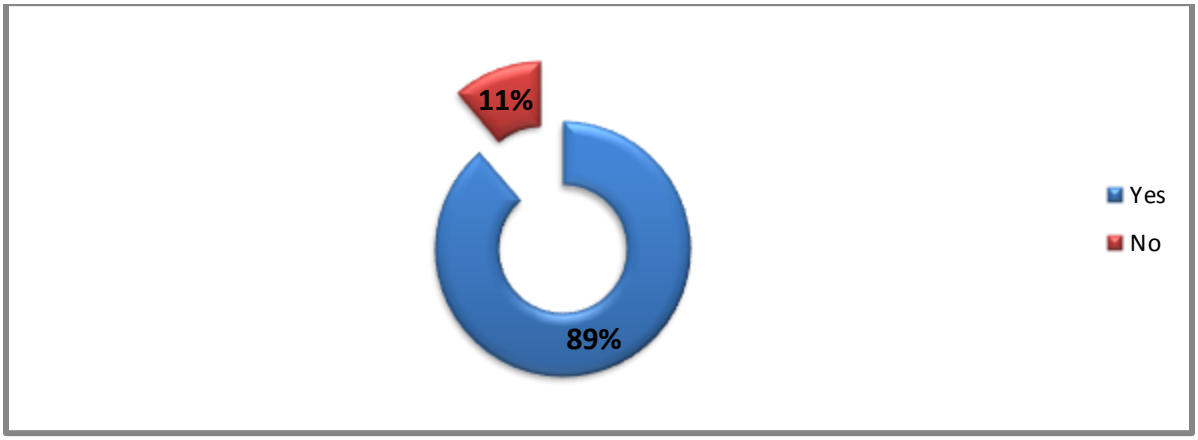

Figure 4.34: The need for an orientation for internet utilization as an academic tool (n=115)

The findings from this study revealed that the majority of the respondents, according to the nursing program and the year of the study, reported a need for orientation in the use of internet as an academic tool, 95.8% (n=24) from Bachelors of nursing advanced practice (BNAP), 86.8% (n=79) from Bachelors of Nursing. According to the year of study, orientation in using internet was requested by 95.8% (n=23) of the respondents from the third year, 88.4% (n=38) from the first year, 85.7% (n=30) from the second year, and 84.6% (n=11) from the fourth year (Annexure 18).

4.7.4. Areas in which respondents think they should get an orientation in

The findings from this study demonstrated that respondents said they should get orientation in various ICT fields. Out of 115 respondents, 72.2% (n=83) mentioned basic IT skills (Microsoft word, excel, PowerPoint, Internet, etc), 70.4% (n=81) mentioned access academic related materials such as Journals, software etc, 51.3% (n=59) mentioned using Moodle, 35.7% (n=41) mentioned using turnitin, 33.9% (n=39) mentioned using Endnote (Figure 4.35).

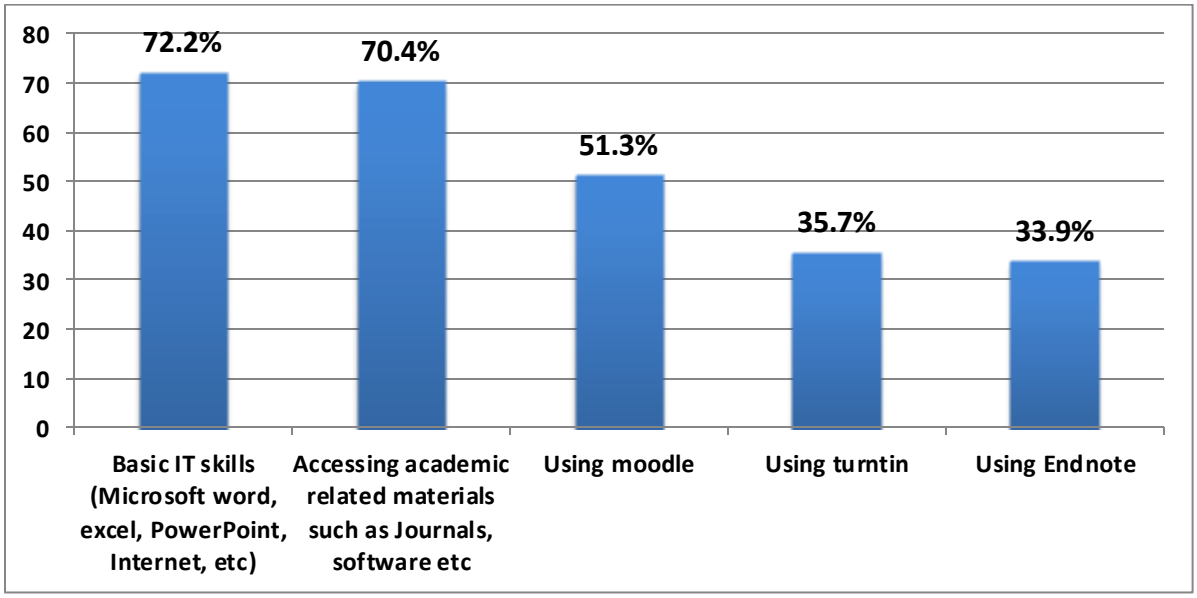

Figure 4.35: Areas in which respondents indicated the need for internet orientation (n=115)

An overall score of items related to the areas in which respondents thought they should get an orientation was calculated, and five items were considered: Basic IT skills (Microsoft word, excel, PowerPoint, Internet, etc), access academic related materials such as Journals, software etc, using Moodle, using turnitin, using Endnote. The minimum score was zero and the maximum was five. The higher the score, the more

respondents mentioned different areas of orientation. The mean score of items was 2.634; the median was three and the mode five. An average of 66.6% mentioned at least three scores, which indicate the need for orientation. However, 25% had five scores, which indicate a very high need for orientation, and only 11.3% scored zero, meaning that they did not mention any item for orientation. T-test was performed to see the differences within the variables of the data set and was significant (t=16.163, p=0.000).

4.7.5. Requested areas of orientation per Nursing program and academic year

The figure 4.36 summarizes the requested areas for orientation per year of study and nursing program of the respondents. An orientation on basic IT skills was mentioned by 83% (n=20) from the BNAP, 69% (n=63) from the BN. The majority of the respondents 83% (n=20) from BNAP and 67% (n=61) from BN mentioned an orientation on how to access academic related materials such as electronic journals and software.

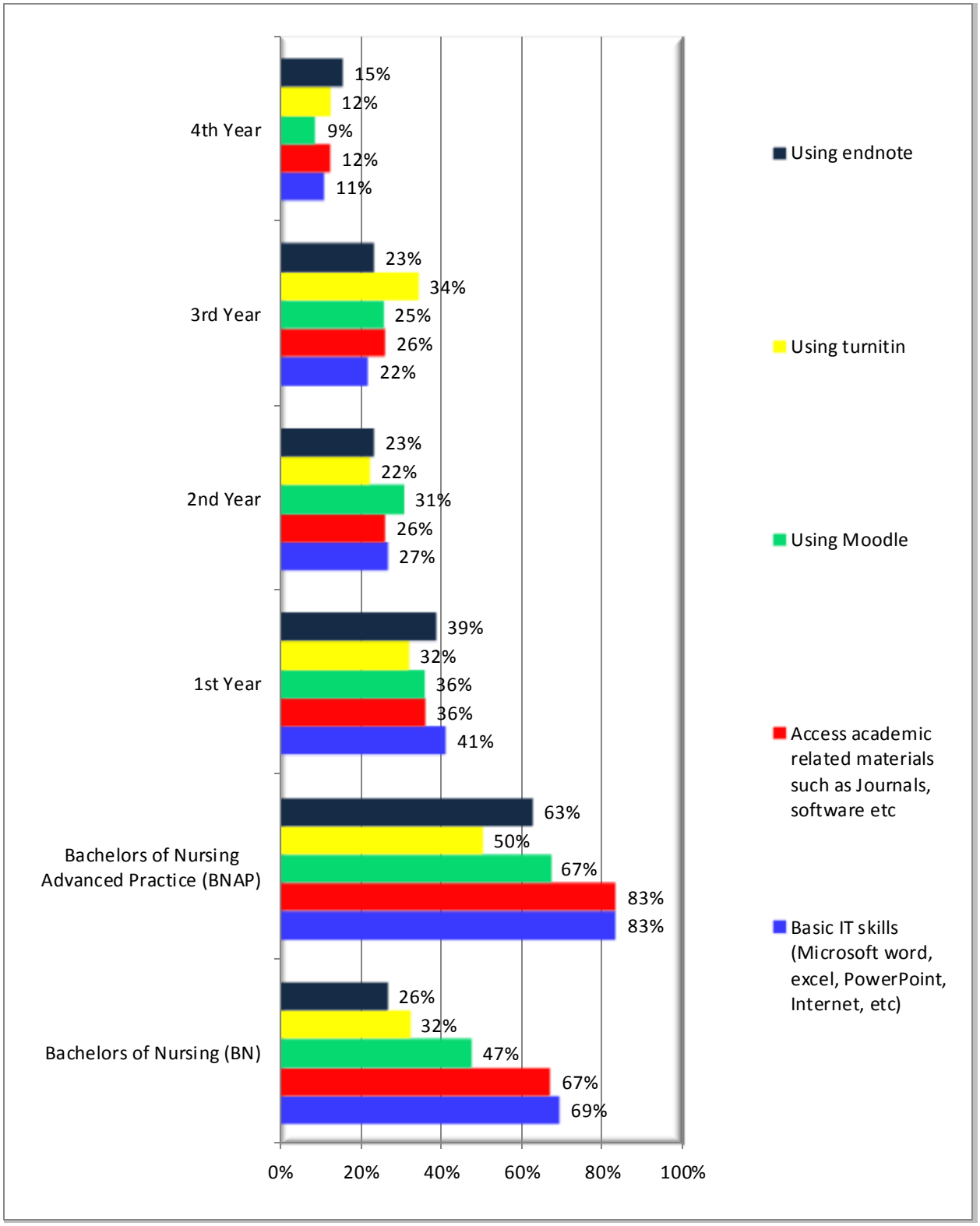

Figure 4.36: Requested areas of orientation per Nursing program and academic year (n=115)

4.8. CONCLUSION

This chapter presented the findings for the study. They were grouped into demographic findings, knowledge and skills of respondents on internet, perceived usefulness, access and frequency of using internet, challenges and problems reported by respondents regarding the use of internet and the areas the respondents suggest they should get training into.

It was found that 79.1% (n=91) were registered in Bachelors of Nursing (BN) and 20.9% (n=24) were registered in Bachelors of Nursing Advanced Practice (BNAP). The findings demonstrated that Internet was used for academic purposes among undergraduate nursing students, with 96.5% using it for academic-related studies. 83.5% perceived internet to be very important in their lives, 90.4% were aware of the existence of the electronic resources and 96.5% used Google as the main search engine. A number of challenges related to utilization of internet were reported, with 38.3% mentioning that they had very little training in the use of the Internet facilities. Finally, respondents demonstrated a need for training in order to use ICT. 89% said that there is a need for an orientation for internet utilization as an academic tool. Having presented the results, the following chapter will contain discussion of the findings, conclusion and recommendations.

CHAPTER FIVE

DISCUSSION OF RESULTS AND CONCLUSION

5.1. INTRODUCTION

This chapter presents a discussion of the findings of this research and the conclusions drawn. To reiterate, the purpose of the study was to explore utilization of internet as an academic tool among undergraduate nursing students at a selected University in KwaZulu Natal, in order to in order to establish ways of enhancing its use. The research aimed to meet the following research objectives:

- Explore knowledge and skills of nursing students on using internet academically
- Describe the perceived usefulness of the Internet to nursing students
- Describe the purpose of using internet among nursing students
- Explore the frequency of using internet resources among nursing students
- Explore factors influencing effective use of internet as an academic tool

Therefore in this chapter the following points re discussed: socio demographic data, the purpose of using internet, perceived usefulness of internet, the frequency of using internet and factors influencing effective use of internet as an academic tool.

5.2. SOCIO DEMOGRAPHIC CHARACTERISTICS

The findings from this study revealed that the majority of the participants were from the Bachelors of Nursing (BN) program 79.1% (n=91) while 20.9% (n=24) were from Bachelors of Nursing Advanced Practice program (BNAP). All the BNAP students

(100%, n=24) and the majority of BNAP students (95.6%, n=87) used the Internet for academic related activities. Over half of the BN respondents (58.2%, n=53) reported to have a good ability to use the World Wide Web as did 54.2% (n=13) respondents from BNAP.

The mean age of the 115 respondents was 24.7 years; the range of age was from 17 years to 50 years of age, with 75.7% (n=87) being aged 25 years and younger. The findings of this study on age of the respondents are similar to these from a study conducted by Blackman et al. (2007), where age range from the combined data sets was 17 to 68 years of age, with just over half of this population (51%) under 25 years of age. In the current study the group age under 20 years old, 51.7% (n=15) reported that they were good in internet use and 41.4% (n=12) were very good. The group age between 20 and 25 years old, 60.3% (n=35) reported they were good in internet use and 29.3% (n=17) reported they were very good in internet use. In the group age between 26 and 30 years of age 83.3% (n=5) reported that they were good in internet use. In those older than 30 years, 50% (n=11) reported to be good at using the Internet and 22.7% (n=5) reported that their ability was poor.

These findings are in line the World Internet Project (WIP) findings that in general, internet use increases as age decreases. In all of the WIP countries, large percentages of respondents under age 24 use the Internet, with all the reporting countries except Mexico reported that 79 percent or more of adults between 18 and 24 years old go online (Pierce, 2010). This study found that the age differences are driven by the two course programs (BN and BNAP) which are very different in the target group. It was found that of the BN program, 93.4% (n=85) were aged 25 years and below, while the

majority of those registered in the BNAP program were older. Out of 24 respondents from the BNAP, 87.5% (n=21) were older than 30 years. This study indicated that the majority of the younger people were registered in BN program, while the majority of old people were registered in the BNAP program.

The majority (90.4%, n=104) of students were females and 9.6% (n=11) were males. These findings are similar to these from a study conducted by WetterichI and Antonietto da Costa Melo (2007), where most of the students (94.42%, 356) were females, against only 5.57% (21) who were males. These findings are also similar to another study conducted by (Edwards and O"Connor, 2011) where seven students were males and eighty three were females. The findings from this study are also in line with Trossman (2003) who argues that nowadays men still only make up between 5%–10% of the nursing workforce in the United States, United Kingdom, and Canada. Although it is a small percentage, today's statistics actually represent an over 20% increase in the number of male nurses in the past two decades (Sridevy, 2011; Trossman, 2003)

According to Sridevy (2011) nursing being a female dominated carrier has its origin from Nightingale's philosophy of nursing, who considered it a suitable job for women because it was an extension of their domestic roles. Her image of the nurse as nurturing, domestic, humble, and self-sacrificing became prevalent (Sridevy, 2011). Qualities associated with women, like compassion and dependency, align with those often attributed to nurses (Evans, 1997). In modern times, the social construction of the role of a nurse has typically meant a caring, hardworking woman. Nursing, in the span of Nightingale's lifetime, became identified as a profession deeply embedded in the female gender (Sridevy, 2011; Meadus, 2000).

The findings from this study revealed that the majority of the females 97.1% (n=101) reported to use internet for academic related studies and 90.9% (n=10) of the males reported as well using internet for academic related studies. However, these findings are not in line with World Internet Report (2012), where males were reported to use internet more than the females, this difference possibly being a function of the small sample size of this study. In four of the WIP countries in 2009, six percent or more men than women use the internet: Colombia, Hungary, Mexico, and the United States. The gender gap was the largest in Mexico with regard to internet use (18% more men than women) and Colombia (16% more men than women). In five of the WIP countries in 2010, 6% or more men than women went online: Chile, Cyprus (Greek-Cypriots), Israel, Poland, and Portugal (World Internet Project, 2012). However, in eight of the WIP countries, the gap in internet use between men and women was 4% or less: in 2009, Australia, New Zealand, Taiwan, the United Arab Emirates and the United Kingdom; in2010, Cyprus (Turkish-Cypriots), Japan, Sweden, and the United States (World Internet Project, 2012).

5.3. KNOWLEDGE AND SKILLS TO USE THE INTERNET

The knowledge and skills to use the Internet consisted of the following components: ability to use the computer, ability to use internet e-mails and e-mail facilities, internet browsers and social networks, used search engines and awareness about electronic resources. The students reported to have the knowledge and skills to use internet which included: good ability to use the Internet (57.4%, n=66) and a very good ability to use e-mail services (50.4%, n=58). It was found that 11.3% (n=13) reported to have a poor ability, and 1.7% (n=2) a very poor ability to use internet. These figures reveal that there

are respondents who have difficulties to use internet, which may have an impact on their academic performances.

The students showed a good ability to use internet browsers, such as internet explorer (92.2%, n=106), awareness of electronic resources (90.4%, n=104), and using search engines and Google search engine was used by 96.5% (n=111). The respondents reported to use social networks such as Facebook when they use internet. Although the findings from this study reveals there were fewer respondents who cannot use internet technologies for educational purposes. The findings shows that it is important to integrate everyone around the Internet technologies by helping them develop operational internet skills. Deursen and Dijk (2009) explained that operational Internet skills include: operating an internet browser: opening websites by entering the URL in the browser's location bar; navigating forward and backward between pages using the browser buttons; saving files on the hard disk; opening various common file formats (e.g., PDF); bookmarking websites; and changing the browser's preferences. Internet skills also includes the ability to operate Internet-based search engines such entering keywords in the proper field; executing the search operation; and opening search results in the search result lists. Operating internet-based forms: using the different types of fields and buttons and submitting a form (Deursen and Dijk, 2009).

5.3.1. Ability to use a computer

The findings from this study revealed that respondents perceived themselves to be at different levels of using computers, 29.6% (n=34) at a competent level, 19.1% (n=22) at an advanced level, and only 1.7% (n=2) considered themselves to be at an expert level. One third of the participants (32.2%, n=37) perceived themselves to be at an

intermediate level, and 17.4% (n=20) at a beginner's level. This means that respondents being at different levels to use computers, may have a big influence of their academic achievement, as they are required to type their assignment, projects and class presentations. The findings from this study also revealed that 31.9% (n=29) of the BN perceived themselves to have competent level in using computers compared to 20.8% (n=5) from the BNAP. In order to minimize the gap of internet literacy, a special IT course should be offered to the undergraduate nursing students at the beginning of each academic year. Similar findings have been reported from a study conducted by Deltsidou, Gesouli-Voltyraki, Mastrogiannis, and Noula (2010), where undergraduate nursing students were requested to rank the level of their competence in using a computer. It was observed that 12.6% reported a very good knowledge on PC use, 30.0% reported a Good knowledge, 27.4% reported to have an efficient knowledge and 24.8% reported to have a beginner's knowledge.

The findings indicate that participants had adequate ability to use computers. Disputing In a study conducted on 183 first year medical and nursing students of the University College Hospital of Ibadan in Nigeria by Ajuwon (2003), it was found that only 42.6% of the sample could use a computer, and 57.4% could not. Ternus and Shuster (2008) argue that computer literacy is critical to the success of undergraduate students.

5.3.2. Ability to use internet facilities

The finding from this study regarding the ability to use internet showed that out of 115 respondents 57.4% (n=66) said they had a good ability to use internet, 29.6% (n=34) said that it is very good ability, 11.3% (n=13) had a poor ability, and 1.7% (n=2) said they had a very poor ability. These results mean that the majority have abilities to use

internet facilities, although fewer reported to have poor and very poor ability to use internet. Implication of these results should be that a special attention should be paid to these having difficulties in using internet, and which might be related to the poor abilities to use computer reported by the respondents from this study.

These results were generally in line with the findings from a comparative study conducted by Bond (2010) on internet use in 2001 and 2007, where it was discovered that 30.8% of students viewed themselves as expert in 2001, this number increasing to 40% in 2007. 54.4% of the students viewed themselves as good in using the Internet in 2001 and the number increased to 53.4% in 2007. However, two thirds (68.8%) of students said they had basic skills in using the Internet in 2001 compared to 84.1% in 2007. Findings from a study conducted by Ajuwon (2003), demonstrated that only 12.5% of nursing students had used the Internet.

Regarding the use of internet and gender of the respondents, the results from this study revealed that 63.6% (n=7) of the males and 56.7% (n=59) of the females reported to have a good ability to use internet. The findings on the ability to use internet by nursing program revealed that 58.2% (n=53) of the respondents from BN and 54.2% from BNAP reported to have a good ability to use internet. Regarding the ability to use internet and the year of the study, the majority reported to have a good ability to use internet, 46.2% (n=6) from the fourth year, 70.8 (n=17) from the third year, 62.9% (n=22) from the second year, and 48.8% (n=21) from the first year. Almost similar findings were reported from a study conducted among nursing students in Turkey, where it was found that 61.5% of students from the first year, 83.8% from the second year, 84.9% from the third

year and 83.3% from the fourth reported to have a good skills to use internet (Tastan, Tastan, Iyigun and Ayhan, 2011).

5.3.3. Ability to use e-mail facilities

The results from the current study showed that respondents reported to use e-mail but that their ability varied. Out of 115 respondents, 50.4% (n=58), reported to have a very good ability to use e-mail facilities, 40.9% (n=47) said they had good abilities to use e-mail, while 8.7% (n=10) indicated to have poor ability to use e-mail services. Although the majority had ability to use e-mails, fewer reported to have poor ability. This might be due to the poor ability to use computers and internet reported in this study. The high proportion of the respondents reporting to have ability to use e-mails, reveals the importance to use them, in to promote academic communication, between the students and the lectures and among the students as well. Academic materials can be exchanged among peers which in return can promote peer teaching and learning. These findings are similar to these from a study by Ajuwon (2003), where the E-mail was the most popular of internet services used by the students (76.4%), of whom 81.3% were medical and 73.4% were student nurses.

The findings from this study indicated that 63.6% (n=7) of the males reported to have a very good ability to use e-mails and 49.0% (n=51) of the females also reported to have a very good ability, while 9.6% (n=10) of the females reported to have a poor ability to use e-mail facilities. The findings from this study further revealed that 51.6% (n=47) of the respondents from BN reported to have a very good ability to use e-mail facilities and 45.8% (n=11) of the respondents from the BNAP perceived themselves to have a very good ability to use e-mail facilities. These results indicate that in general, respondents

had ability to use e-mail facilities, although there were a few who reported to have poor ability.

5.3.4. Types of internet browsers used by respondents

The findings from this study revealed that respondents used different internet browsers to access internet. Out of 115 respondents regarding the type of the browser used, 92.2% (n=106) used internet Explorer. In line with the findings of this study, Kripanont (2007) found that the web-browser that participants used most was Microsoft Internet Explorer (95.1%).

A study conducted by Campus Technology (2007) indicated that almost half of respondents preferred to use internet explorer (45%). According to Anderson (2010), a browser is a web tool for retrieving and displaying information resources from the web such as web pages, images and videos, each information resource or website having an address called a URL (short for Uniform Resource Locator). A common feature of web browsers are bookmarks or favorites that allow you to record the addresses of any website you want to revisit. UNESCO (2003), indicated that MS Explorer is used to access the internet resources, was developed to navigate the distributed distant resources of the internet and to work with numerous documents off-line, if these documents can be read in HTML format. Using Microsoft internet explorer is one of the best methods to access online resources(UNESCO, 2003).

5.3.5. Awareness of the electronic resources on internet and at University

The findings of this study revealed that the majority of respondents (90.4%, n=104) were aware of the existence of the electronic resources such as e-journals and e-books, and only 9.6% (n=11) were not aware of their existence. The majority of the respondents (89.6%, n=103) were aware that the electronic resources could be found on campus and only 10.4% (n=12) were not aware of that. Similarly to this study, the findings from a study conducted by Okon (2010) found that respondents accessed and used online resources, with 43.6% using electronic journals and 43.6% using online databases. Kheswa (2010) found that 62.6% of students regarded accessing academic materials and e-databases on the Web as essential. University libraries have been increasing their electronic collections for decades. Numerous studies have indicated that students prefer using resources in electronic format than those in printed format. However, studies have also shown that not all students were aware of the available of electronic resources and their usage (Ming-der and Ssu-Tsen, 2012).

The study indicated that the majority of respondents, according to their nursing program, 91.7% (n=22) from BNAP and 90.1% (n=82) from BN, were aware of the existence of the electronic resources on internet, and 90.1% (n=82) of the BN and 87.5% (n=21) of the BNAP were aware that many of the online resources were available at their university. From the findings of this study, it was found that all fourth year respondents 100% (n=13), 91.7% (n=22) from third year, 91.4% (n=32) from second year and 83.7% (n=36) from first year were aware that the many online resources were made available for students at their university.

Although the majorities in this study were aware of electronic resources, there might be difficulties to access them due to lack of internet and computer skills as it was revealed from this study thus a need to develop skills among leaners in using ICT technologies in general. Tella, Tella, Ayeni and Omoba (2007) argued that the students' ability to find and retrieve information effectively is a transferable skill useful for their future life as well as enabling the positive and successful use of the electronic resources while at university. They noted that in this digital era, any student at the higher level who intends to be an achiever should have the ability to explore the digital environment. Students are increasingly expected to use electronic information resources while at the university, as they are invaluable research tools that complement print-based resources in any traditional library. Their advantages include access to information that might be restricted to the user because of geographical location or finances, access to current information, and provision of extensive links to additional resources or related content. E-resources could be stored electronically thereby saving space, while the risk of loss, theft or damage is lessened, and costs are significantly reduced (Okello-Obura and Ikoja-Odongo, 2010; Dadzie, 2005).

5.3.6. How respondents are informed about the electronic resources

The findings from this study indicated that respondents knew about electronic resources from different sources. Out of 115 respondents, 62.6% (n=72) knew about it from the library orientation, 60.9% (n=70) from fellow students, 53.9% (n=62) from lecturers, 48.7% (n=56) from Google scholar, 40.9% (n=47) from library web page, and 20.9% (n=24) from the Yahoo website. These findings are in line with a study conducted by Nwezeh (2010) on the source of information used by the student, which demonstrated

that 85% said they obtained information from the Library, and 56% from the Internet. Similar findings were reported in a study conducted by Kelley and Orr (2003) on how students are communicated about electronic resources, where it was found that they became aware of electronic resources from students' publications, direct mailings, UMUC instructors, (4) materials at the teaching sites, online information via the university internet home page, and their colleagues. The findings from same study revealed that 60% of respondents indicated that they thought their instructor was one of the best ways to learn about the library resources.

This study revealed that 67% (n=61) of the BN and 45.8% (n=11) of the BNAP reported to know about the electronic resources from the Library orientation, while 54.9% (n=50) from BN and 50% (n=12) from BNAP reported to know about the online resources from their lecturers. Half the respondents (54.9%, n=50) from BN and 25.0% (n=6) from BNAP reported to know about online resources from Google scholar. The findings from this study revealed that 48.8% (n=21) from first year 57.1% (n=20) from second year, 58.3% (n=14) from third year and 53.8% (n=7) from fourth year reported to know about the online resources from their lecturers. The findings from this study revealed that the majority of the respondents, 60.5% (n=26) from the 1st Year, 60.0% (n=21) from the 2nd Year, 62.5% (n=15) from the 3rd Year and 76.9% (n=10) from the 4^{th} year reported to know the on lines resources from the library orientation.

The results from this study highlights the need to continue using Library orientation as it has been reported be a way of knowing about electronic resources. Lectures and fellow students have been reported to be helpful. From the results of this study, one would argue that, a good facilitation in using internet from the lecturers, especially informing

the learners about the required academic resources is important in developing competent learners. Facilitation recognizes that the prior learning and life experiences of learners are valuable foundations for constructing new knowledge and skill sets (Smith and Blake, 2006; The South African Institute for Distance Education (SAIDE), 2006). Peer teaching and learning is important, as the students are at different level of competences in using internet and computers, they may help their fellow students to access the required online resources. Peer learning is an active view of learning that focuses on how people learn together in different groups (Ferguson, 2010).

5.3.7. Search engines used by the respondents

The findings from this study revealed that the majority of respondents 96.5% (n=111) used Google as a search engine followed by Yahoo 45.2% (n=52). Other search engines were not reported to be used significantly by respondents, only 18.3% (n=21) used Ask, and 2.6% (n=3) used Info Space. Similarly to the findings of this study, Malik and Mahmood (2009) realized found that Google was the most frequently used search engine, used by 97%, followed by Yahoo's 72% users of the population. This is also in line with the most recent study conducted in October 2011, by Experian Hitwise (2011), where it was found that Google was the leading search engines providers at 65.38%.

The majority of the participants to the current study regarded Google as their favorite search engine 95.7% (n=110). In line with the findings of this study, George et Al. (2006) cited by Balakrishnan (2010), reported that students preferred using Google search (73%). The findings from this study revealed that the Majority of respondents, 96.7% (n=88) from Bachelors of Nursing (BN) and 95.8% (n=23) from Bachelors of Nursing Advanced Practice (BNAP) reported to use Google as the search engine. The

findings from this study revealed that the majority of the respondents according to the year of the study, 97.7% (n=420 from the 1st year, 97.1% (n=34) from the 2nd year, 95.8% (n=23) from the 3rd year and 92.3% (n=12) from the 4th year reported to use Google as search engine.

This study found that Google is used by the majority of the respondents, and this might be due to the facts that it is reliable search engines, and it might be recommended by lecturers or fellow students, as it was observed from the findings of this study. Google scholar is a search engine than has got a link to the university website. Encouraging the use of Google scholar among undergraduate nursing would be important to access up to date and credible information, as it offers opportunities to get to many Journal and e-books data bases.

5.3.8. Social networking sites used by the respondents

The use of social networks in education permit the publication and sharing of information; self-learning; teamwork; communication, both between students and between pupil-teacher; feedback; access to other sources of information that support or even facilitate constructivist learning and collaborative learning; and contact with experts (Gómez, Roses and Farias, 2012). The findings from this study demonstrated that the majority of respondents (77.4%, n=89) used Facebook for social networking, followed by 24.3% (n=28) who used Twitter, with only 7.8% (n=9) using Student Village. Similar results were reported from a study conducted by Kheswa (2010) which indicated that a majority of 78% students had used Face Book while 26.8% students used Twitter, 54 (21.3%) used Student Village and only 13.4% used MySpace. These results are similar to the study done by Kader (2007) which found that 80% of the respondents had

accessed Facebook and 10% did not use social networks. Students mainly accessed these social networks in order to keep in contact with friends and as suggested by Philips (2007), also used the social networks as a means to find new friends and establish social relationships.

The findings from this study further revealed that the majority of the respondents 83.5% (n=76) from Bachelors of Nursing (BN) and 54.2% (n=13) from Bachelors of Nursing Advanced Practice (BNAP) reported to use Facebook as a social network. The findings from this study further revealed that 81.8% (n=9) of the male respondents and 76.9% (n=80) of the female respondents reported to use face book.

The high percentages of the respondents using social networks and in particular Facebook and Twitter, show that social media can be used for academic purposes, on top of being used to find new friends and to establish relationships. At the selected University where this study was conducted, Facebook is neither allowed, nor accessible during working hours. This might be due to the number of the computers and the number of the students being disproportional, and that some student might tend to use computers for social networking and limiting others to use it. Using social media for educational purposes would be important in creating a dynamic learning environment where people can share information and learn from each other. This might be possible because social medial are very popular and are visited several times a day by different categories of people. Social networking is a means by which people communicate with friends, family and others in an online community (Kader, 2007). Social networking sites are designed to foster social interaction in a virtual environment. In general, communication is facilitated through information posted in the profile (i.e., the user's

personal page), which often includes a photograph of the member and personal information describing his or her interests, both of which provide information about one's identity. Members can view one another's profiles and can communicate through various applications similar to e-mail or online message boards. Such interactions can potentially address many concerns of adolescence and emerging adulthood, such as the need for friendship and peer feedback (Pempek, Yermolayeva and Calvert, 2009).

As an indication of how popular social networking has become, a Nielsen online survey in Australia 2009, reports that Facebook was the fourth most visited site in the preceding month (Google was the most popular). It is reported that “on average, one quarter of all internet use in Australia is on Facebook” (Anderson, 2010). This amounts to 6.5 hours of an average 26.5 hours spent online each week. Interest in Twitter is also experiencing remarkable growth. According to the same report, visits to it by Australians in the preceding 12 months grew almost 1,000 percent compared with the previous period. The number of people who visit social networking sites on their mobile phones is also rapidly increasing, according to the same online survey (Anderson, 2010).

5.4. THE PERCEIVED USEFULNESS OF THE INTERNET

This section covers the discussion about the importance of internet in the students’ lives and aspects of internet technologies considered indispensable. The findings from this study revealed that respondents considered internet very important in their lives. Regarding aspects considered important, they included using World Wide Web, e-mail, library catalogues and news readers.

5.4.1. Importance of internet in the respondents' lives

The findings from this study demonstrated that the majority of respondents 83.5% (n=96) perceived that internet was very important in their lives, 15.7% (n=18) said that internet was somewhat important in their lives. The literature reveals also that internet is perceived to be important in the respondents' life. A new technology research survey has found that one-third of college students considered the internet as important as air, food, shelter and water. About half of those surveyed said the internet is close to the importance of air, food, shelter and water, the Cisco report found (Skelton, 2011; Cisco, 2011). The 2011 Cisco Connected World Technology Report asked students and young professionals in 14 countries about their media consumption habits and impact on the workplace. Cisco surveyed 1,441 18- to 24-year-old college students and about 1,400 young professionals in their 20s. More than half of the college students and young professionals said, "they could not live without internet, it is an integral part of their daily life."(Skelton, 2011; Cisco, 2011).

The younger generation also cannot live without their mobile devices including smart phones, laptops and tablets 66% of students and 55% of young professionals said mobile devices are the "most important technology in their lives."(Skelton, 2011). Royal College of Nursing (2006), argues that today all nurses recognize the importance of evidence-based practice, where every care decision is informed by accurate and up-to-date knowledge, which can be accessed by using internet.

The majority of the respondents, according to the nursing program, indicated that 83.5% (n=76) of the BN) and 83.3% (n=20) of the BNAP nurses reported that internet was very important in their lives. The importance of internet according to the gender was 90.9%

(n=10) of male and 82.7% (n=86) of females respondents reported that internet was very important in their lives. The findings from this study revealed that the majority of the respondents according to the year of study perceived very importance the use of internet in their lives, 86.0% (n=37) from the first year, 71.4% (n=25) from the second year, 87.5% (n=21) from the third year and 100% (n=13) from the fourth year. Similar findings have been found from a study conducted by Tastan, Tastan, Iyigun and Ayhan (2011) on the perception of the nursing students on internet use. It was found that the majority of the respondents perceived internet to be useful. 98.7% from the first year, 100% of the respondents from the second year, 99.1% from the third year and 99.4% from the fourth year.

Although the results from this study revealed that the majority of the respondents considered internet important in their lives, there are these who don't see their important. This might be related to lack of knowledge and skills reported by the respondents. In line to this study, the findings from a study in the United Kingdom, revealed that out of 44% of people who did not want to use the internet, 43% claimed that they were not interested in using it, 25% had no means of access to the internet, 21% did not feel that they had the confidence or the skills required to use the Internet and 17% felt that they had no need to access the internet (17%) (RBC, 2012).

5.4.2. Aspects of internet technologies perceived indispensable

The findings from this study revealed that the majority of the respondents 80.9% (n=93) considered use of world-wide to be very important and 87.0% (n=100) considered the use of e-mail very important. Accessing to the library catalogue was considered by 70.4% (n=81) very important, 47.8% (n=55) said it was very important using news

reader, while 33.0% (n=38) considered very important the use of chat/online discussion. The findings from the current study are in line with these reported by Kheswa (2010), where 74.8% of the students ranked e-mail as essential, and 70.5% of students ranked the Web as essential. As was empirically demonstrated in (Hannemyr, 2003), “the adoption rate of the internet has exceeded that of earlier mass communication technologies by several magnitudes,” making it an “irreversible” innovation. Studies have also shown that for the generation of U.S.-based youth who grew up with the internet, it is gradually displacing television as their main source of entertainment, communication, and education (Lenhart, A et al, 2001 cited in Hoffman, Novak and Venkateshi, 2004). Karaman (2011), found that that nurses regard learning using internet as an opportunity suitable for their working conditions and needs. This was related to the flexibility and convenience of online learning.

The results from this study revealed that the majority of the respondents according to their gender, 81.7% (n=85) of the female and 72.7% (n=8) of the male respondents considered the use of World Wide Web as very important. The findings of this study indicated that 87.5% (n=91) of the female and 81.8% (n=9) of the male respondents considered the use of e-mail very important. The results from this study further demonstrated that 81.3% (n=74) from BN and 79.2% (n=19) from BNAP, considered the use World Wide Web as very important for what. The majority of the respondents 87.9% (n=80) from BN and 83.3% (n=20) from BNAP considered the use of e-mail very important.

5.5. THE PURPOSE OF USING INTERNET

Participants to this study were requested to mentions the reasons for using internet, and several items emerged such as using internet for academic-related studies, communication and entertainment, as was reported by (Ceyhan, 2011; Shaw and Gant, 2002). According to Morahan-Martin and Schumacher (2000) internet is used for additional reasons such as recreation, non-real-life social contacts, and emotional support. Considering these internet use purposes, individuals generally use the Internet to obtain information, entertain themselves, establish communication with acquaintances or with relatives, and establish social relationships with unfamiliar people (Ceyhan, 2011).

Évora (2004) argue that in nursing the Internet can be used as a tool for research by accessing to available resources. Special attention should be given for the search sites, electronic mail, database access, forums and discussion lists, transfer of files (FTP), homepages and videoconferencing. It is concluded that the internet is a valuable resource for who do not have the information needed when findings answers in for nursing problems. The computer allows the person to easily find every type of information. When the information is on-line, an appropriate search can recover the information that is needed much faster than when accomplished manually (Évora, 2004).

5.5.1. Access to courses and academic related materials

The findings revealed that the majority of respondents 96.5% (n=111) used internet for academic-related studies. The findings from this study are different from the results of Shezi (2005) who found that 47.1% of respondents were using the WWW for accessing

academic related materials. In the current study, the majority of participants (62.6%, n=72) reported to use internet for accessing courses (assigned), 62.6% (n=72) for accessing courses (on their own). This was in contrast to the results from a study conducted by Gürol and Aysun (2010), where it was found that only 48.4% of the students use internet for academic purposes.

The results from this study revealed that 87.8% (n=101) considered very important using internet for accessing academic related materials and electronic databases. These results are in line with the findings from a study conducted by Kader (2007) where students used the Internet firstly for research for the courses they offer. Students reported that they researched information for projects and researched for IT, as well as for on-line coursework. Some of the responded reported that they did not need to go for a lecture because they could access the lectures contents and notes. Lubans(1998), Ciolek (1998), and Rena et al. (2007) reported that academic use of the internet by university students was increasing.

Although the respondents reported to use internet for academic related activities, the results demonstrated that the frequency varied depending on the activity being done, a small percentage of the respondents 27.0% (n=31) sometimes using internet to access fully web-based courses. Almost half (43.5%, n=50) reported that they never used internet to access fully web-based courses and 25.2% (n=29) sometimes used internet to access major component of the course. However, 57.4% (n=66) never used internet to access major component of the course on the WWW, and 20.9% (n=24) sometimes used internet to access support in WWW. The findings from this study revealed 97.1% (n=101) of the females and 90.9% (n=10) of the males reported to use internet for

academic related activities. This was also reported by all respondents, 100.0% (n=24) from BNAP and 95.6% (n=87) of BN students. This study found that the majority of the respondents used internet for academic activities, and this should be encouraged, by encouraging the students to take online modules, by the use of Moodle. The university would also put in a plat form where all the course modules, and materials could be accessible via internet, as well as the assessment should submitted via turnitin.

The findings from this study are in line with these from World Internet project (2010), where it was found that very large percentages of internet users who are students go online to find information for their study-related work. In all of the WIP countries and regions except Italy, more than two-thirds of students went online for study-related work at least weekly. In six of the WIP countries and regions, more than 30% of internet users who were students went online at least daily to get information for work; Mexico reported the highest daily use (76%). Although a large percentage of students went online for study-related work in all of the WIP countries and regions, a surprising number of students never went online for study work, or did so less than monthly. All of the WIP countries and regions except Chile, Mexico, and the United States reported double-digit percentages of these students (Pierce, 2010).

5.5.2. Access to e-mail

The findings from this study revealed that the majority of the respondents 94.8% (n=109) used internet for e-mails, and 87.0% (n=100) considered the use of e-mail very important. From these findings one would argue that e-mail has been considered very important by respondents in the current study. The findings are similar to these from other studies conducted on the use of e-mail facilities. In a study conducted by Kheswa

(2010), it was found that the majority (99.6%) reported to have used e-mail. According to the study conducted by Kader (2007), students reported that they had accessed coursework through e-mail, and that they had used it to write to the lecturer for clarification. It was also discovered from a study conducted by Kheswa (2010) that 63.6% of the students said that using e-mail to communicate with lecturers was essential, while for 19% of students regarded communicating with students in and outside SA using e-mail as essential, and 30.8% of students regarded communicating with friends in and outside SA via e-mail as essential. The findings from this study also showed that 20.0% (n=23) used internet to access list serves (e-mail discussion groups). In line with the findings from this study, the World Internet Project Report (2012) revealed that a large percentage of users check their e-mail at least daily in all of the WIP countries except Taiwan, where 60% or more of users reported that they check their e-mail daily or several times a day. Users in Japan check their e-mail most often, with 70% age 18 and older checking their e-mail several times a day. The percentages of users who check e-mail daily or several times a day were: New Zealand and the United Arab Emirates (85 percent); the United States in 2009 and 2010 (83 percent); Australia (82 percent).

5.5.3. Access to websites / Internet surfing

The findings from this study demonstrated that 80.0% (n=92) said they used internet to access the websites, and 86.1% (n=99) of respondents said they accessed these websites to finding personal information (health, hobbies), 82.6% (n=95) used it for communicating with other people, 71.3% (n=82) used it for pleasure/fun, 61.7% (n=71) for listening to music online, 60.9% (n=70) for watching video online, 53.9% (n=62) for

work-related activity. Regarding the importance of using WWW, a significant percentage considered it very important 80.9% (n=93).

In line with the findings from this study, the World Internet report (2012) revealed a wide range of internet use for "surfing" or browsing of websites. One-half or more of internet users in Australia, Chile, Cyprus, Hungary, Israel, New Zealand, Poland, Portugal, Taiwan, the United Arab Emirates, the United Kingdom, and the United States in 2009 and 2010 reported going online at least weekly to generally browse the internet. Percentages range as high as 90 percent in Taiwan, 83 percent in New Zealand, and 79 percent in the United States in 2009 and 2010 (World Internet Project, 2012). However, in some WIP countries, the percentages of users who went online at least weekly to browse the internet were much lower, such as 37 percent in Sweden in 2009, 31 percent in Colombia, and 29 percent in Japan (World Internet Project, 2012).

5.5.4. Entertainment (Music, Video and Sports)

The results from this study demonstrated that 63.5% (n=73) used internet for playing audio or video over the Internet, and this was reported the majority of females 65.4% (n=68) and 45.5% (n=5) of male to use internet for playing video or audio files. The findings from this study further revealed that 57.4% (n=66) used internet for downloading music or video, this being done by 59.6% (n=62) of the females and 36.4% (n=4) of the males. It was observed from the findings of this study that the majority of the 3rd year respondents (75.0%, n=18) used internet for downloading audio or video files, followed by 60.0% (n=21) of the 2nd Year, 53.8% (n=7) of the 4th Year and 46.5% (n=20) of 1st Year. Nearly half of the respondents (41.7%, n=48) considered it to be somewhat important using internet for entertainment and sports and 18.3% (n=21)

considered this to be very important. The use of streaming audio over the Internet (real audio, etc.) was considered by 25.2% (n=29) as very important and 20.9% (n=24) as important. Streaming video over the Internet was considered by 27.8% (n=32) as very important and 27.0% (n=31) as somehow important. Similar findings were reported by Ojedokun's (2001) in the University of Botswana study, where the percentage was significantly higher with 16.9% of respondents downloading music files. In the present study, it was found that 5.8% of the respondents indicated that they downloaded pornographic related materials.

The literature reveals that there are respondents who use internet for non-academic activities, and not for academic purposes. From a study conducted by Kader (2007), it was found that in terms of entertainment or fun, respondents admitted to using the internet for games, gambling, watching pornography, viewing their horoscopes. From the same study in relation to accessing pornography, the following responses were received: "... *when I was in school, I used to go onto pornography sites ... ", "... I know some people that go onto pornography sites..* " and another participant who in addition to visiting other types of sites mentioned "... *as well as pornography sites .. .".* Similar findings to this study have been reported by Tastan, Tastan, Iyigun and Ayhan (2011) where is was found 68.6% of nursing students who participated in their study reported to use internet for entertainment. Although in the current study playing and downloading music and video from interne might be referred to as entertainment and was considered important, it might also be used to get educational materials, related to languages, and nursing practice in general. The university should make available the recorded

educational videos audios for the learners. This would be very important to meet the learning styles for all respondents.

From the results the current study and the literature, it important to encourage the students to use internet for healthy activities, as using internet for entertainment mainly may cause student to lose focus on their studies. The university policies should as well reinforce the existing policies on safe internet utilization as well as copy rights policies. The findings from this study are also in line with Pew, the study conducted by internet and American Life Project (2003), where it was found that 78% of college internet users say that at one time or another they have gone online just to browse for fun or entertainment, compared to 64% of all internet users. The World Internet Project Report (2012) revealed that large percentages of internet users in most of the WIP countries said the internet was an important or very important source of entertainment for them. In every WIP country except New Zealand, more than 40 percent of users said the Internet is an important or very important source of entertainment. The largest percentages of users who said the internet is an important source of entertainment were reported by Poland (79 percent), Colombia and Portugal (73 percent), the United Arab Emirates (72 percent), the United States in 2010 (70 percent), Cyprus (Turkish-Cypriots 69 percent), Chile (65 percent), Taiwan and the United States in 2009 (63 percent), and Mexico (62 percent) (World Internet Project, 2012).

In line to the findings of the World Internet Project Report (2012) that reported at least 30% of users going online at least weekly to download or watch videos were the United Arab Emirates (55 percent), Cyprus (Greek-Cypriots 43 percent), Israel (41 percent), the United States in 2010 (37 percent), Chile (33 percent), Colombia (33 percent),

Australia (31 percent), Taiwan and the United States in 2009 (30 percent). The findings from World Internet Project report (2012) revealed that overall 20% or more of users download or listen to music online at least weekly.

5.5.5. School administrative reason

The results from this study revealed that respondents used internet for educational administrative reasons, such as applying for admission, paying tuition fees, course registration, and for completing administrative tasks. A significant percentage of the respondents (25.2%, n=29) sometimes used internet for online admission; and 13.0% (n=15) always used internet for online admission, while 57.4% (n=66) reported to have never used internet for online admission. It was also found that 20.9% (n=24) sometimes used internet for course registration, and 62.6% (n=72) reported to have never used internet for course registration and 14.8% (n=17) sometimes used internet for administrative tasks. This study found that the majority of the respondents never used internet for school administrative reasons such as online application, tuition fees' payment and course registration. These results reveal the need to promote the use of internet for school administrative reasons among the university students.

Goldfarb (2006) cited in Kheswa (2010) argued that many universities required students to use the Internet for various administrative and course-related functions, which impelled students to use a technology they may not have had the inclination to try or incorporate into their academic lives. Goldfarb (2006) further argued that universities may also have aided in the diffusion of the Internet by emphasizing its value and its potential uses for "online commerce, online communication and online information searching."

5.5.6. Communication

The findings from this study revealed the majority of the respondents 82.6% (n=95) reported to use internet to communicate with other people. A significant percentage of the respondents 43.5% (n=50) reported that they sometimes used internet to communication with the lecturer and 19.1% (n=22) did it very often. However, 20.9% (n=24) never used internet for communication with the lecturer. Similarly, in a study conducted by Nachmias, Mioduser and Shemla (2000), it was reported that 52.6% of students used frequently internet for communication purposes. From the findings of the current study that 17.4% (n=20) sometimes used internet for e-mailing question to the most famous experts and 12.2% (n=14) sometimes used internet for virtual conferences or forums. The findings from the current study further revealed that 16.5% (n=19) sometimes used internet for correspondence with other students including those abroad.

From the findings of this study, it is evident that respondents used internet to communicate in the search for information for the lecturer or a famous experts, and this should be encouraged. Similarly, Kader (2007) found that respondents used internet mainly for communications, including communication with their teachers and colleagues. The internet has a potential to become an important tool for communication, information and in the longer perspective, a new tool for participation in a democratic process. It can be utilized to receive and publish information by anyone, at any time, for whatever purpose. This quality of internet makes it possible for the users to bypass all traditional and official channels for information and communication. This is particularly

relevant in a context where freedom of expression is limited and tolerance to opposition and is low (Belcastro, 2002).

The majority of the respondents, according to their gender, indicated that 83.7% (n=87) of females and 72.7% (n=8) of males reported to use internet to communicate with other people. The findings from this study further revealed that the majority of the respondents, according to the year of the study, with 92.3% (n=12) from the 4th year, 91.7% (n=22) from the 3rd year, 80.0% (n=28) from the 2nd year and 76.7% (n=33) from 1st year reported to use internet for communication. Similar findings were also reported by Tastan et al. (2011), who reported that overall, 78.9% of the nursing students who participated in their study reported to use internet for communication, with 69.2% from the first year, 78.4% from the second year, 83.6% from the third year and 83.2% from the fourth year.

5.5.7. Research

The findings from this study revealed that 85.2% (n=98) perceived using internet very important for accessing search engines such as Google, yahoo, ask and others. The majority of respondents according to the year of the study perceived very important for using search engines by 100.0% (n=13) of the respondents from the 4th year, 93.0% (n=40) from the 1st year, 87.5% (n=21) from the 3rd year and 68.6% (n=24) from the 2nd year. It emerged from this study that a less than half (42.6%, n=49) reported to use internet weekly to look for reference materials, 35.7% (n=41) reported to use internet weekly to access research reports and projects, 26.1% (n=30) reported to use internet daily to look for health and medical related information. The results further revealed that 26.1% (n=30) sometimes used internet for collection and analysis of information and

24.3% (n=28) had done it very often, and 22.6% (n=26) sometimes for shared global search.

The findings for this study revealed that the respondents used internet for research, and perceived it to be important. It shows that internet plays an important role in research as it provided a wide range of information which can be accessed from any place. However the findings of this study showed that there were fewer respondents who did not use internet for research purposes, this might be to the fact that some respondents reported poor ability to use computers, internet technologies, and were not aware of the existence of electronic resources over the Internet. A special attention should be taken, to ensure that everyone use up to date information from the Internet. This could be done by providing ICT basic skills to the learners, and by strengthening the importance to use electronic resources.

In support to the findings of this study, the World Internet Report (2012), revealed that internet information sites were accessed weekly, daily, and several times a day, and that users in the WIP countries reported a wide range of online access. In addition, the percentage of users who went online at least weekly to search for products in 2010 ranged from a low of 17% in Sweden to a high of 49% in the United States.

In line with the findings of this study, Kader (2007) reported that respondents used internet to look or search for information on a particular topic. The study revealed that all students spent their time searching for information on the internet by using some form of search. One participant even said, "...*research - anything - Google it...* "; the same participant in the focus group even went on to say "...*research anything out of*

boredom... Research project analysis - due to my interest in IT ... These statements clearly reveal that, apart from doing research related to course content, students often spend time searching for information on any topics of interest (Kader, 2007).

The findings from this study further revealed that the use of search engines for accessing the library catalogues was considered very important by 70.4% (n=81). In line with the findings of this study, George et al. (2006) cited by Balakrishnan (2010), reported that 73% of the students generally used search engines for searching, 68% for finding web pages, 50%, for getting journals, and 48% for citation chaining. Similar findings to this study were also reported by Tastan, Tastan, Iyigun and Ayhan (2011) in a study conducted on the use of internet among nursing students where it was discovered that 97.0% reported using internet for researches.

5.5.8. Downloading software

The findings from this study revealed that the majority of the respondents 58.3% (n=67) used internet for downloading software (programs). The majority of respondents according to their gender, 54.5% (n=6) of male and 58.7% (n=61) of female, respondents reported to use internet to download software. This was also reported by 63.7% (n=58) of the respondents from the BN and 37.5% (n=9) from BNAP.

Although these findings showed that the majority downloaded the software, there were 42.5% (n=48) who did not download software from the Internet. This might be due to the fact that some respondents reported poor ability to use computers and internet, and were not aware of the electronic resources. The use of academic software is important and would improve the ability of the students to perform well academically and produce

an academic work of quality. At the university where this study was conducted, there are a number of software available for the students from the university website, such Endnote, Nvivo, SPSS, Microsoft office, computer operating system, antiviruses, etch. Offering training at the beginning of each academic year would be important to overcome the gap in the ability to access and to use computer software for academic purposes.

The findings from this study are contrary to these reported by Ojedokun (2001), where only 14.9% of the respondents used internet to download computer software. Software consists of computer programs (coded instructions) that control the functions of computer hardware. There are two main categories of software: systems software and application software. Systems software manages the hardware resources of the computer system and functions between the hardware and the application software. Systems software includes the system control programs (operating systems) and system support programs. Application software enables users to perform specific tasks and information-processing activities. Application software may be proprietary or off-the-shelf (Rainer and Cegielski, 2012).

The major types of application software are spreadsheet, data management, word processing, desktop publishing, graphics, multimedia, communications, speech recognition, and groupware. Software suites combine several types of application software (e.g., word processing, spreadsheet, and data management) into an integrated package (Rainer and Cegielski, 2012). There are many academic software programs on the website of the selected university which students might use for academic purpose such as Endnote, SPSS, Nvivo, Microsoft office, etc.

5.5.9. Accessing chat rooms

The findings from this study revealed that less than half of the respondents (45.2%, n=52) used internet for chat rooms. The results from this study further revealed that 33.0% (n=38) considered this to be very important while 29.6% (n=34) said it was important. The use internet for accessing chat rooms was mentioned by 63.6% (n=7) of the male respondents and 43.3% (n=45) of the female respondents. It was found that the majority of the 2nd year (n=18, 51.4%) and 3rd year (n=13, 54.2%) respondents used chat rooms more than 1st year (n=16, 37.2%) and the 4th year (n=5, 38.5%).

The findings from this study on the use of chat rooms are a bit higher compared than those reported by the World Internet Project Report (2012), where it was noted that that a very small percentages of users reported participating in chat rooms, with less than 25% of users reported participate in chat rooms at least weekly. According Dillner (2000) cited by Kader (2007), chat rooms allow users to communicate with others in an on-line environment. Each user has a nickname by which he or she is identified. Users can chat with individuals they know, as well as individuals that are unknown. In order to avoid possible problems that could occur, some schools and even universities do not allow access to open chat rooms, however, students still have access to these sites when they access the Internet at home (Cutajarm, 2004 cited in Kader, 2007).

5.5.10. Access to newsgroups/bulletin boards

The results from this study demonstrated that 60.0% (n=69) used internet for getting the latest news or weather, and 23.5% (n=27) used internet to access newsgroups/bulletin boards. Using news reader was considered very important by 47.8% (n=55) of the respondents. Furthermore, 35.7% (n=41) said it was important using internet for news

(worldwide). The findings from this study revealed that the majority of the respondents according to the nursing program, 61.5% (n=56) from BN and 54.2% (n=13) from BNAP reported to use internet to access the latest news, this being mentioned by 72.7% (n=8) of the males and 58.7% (n=61) of the females.

The findings from this study are in line with these from World internet project, where it was found that large percentages of internet users in most of the WIP countries and regions go online to seek local, national, or international news. In all of the reporting countries and regions other than Colombia, more than 25% of users went online to look for news at least daily, and more than half went online for news at least weekly. The highest percentages of users who went online at least weekly were in Macao (80 percent), Chile (74%), Italy (71%), and Sweden (70%) (World Internet Project, 2012).

5.5.11. Just browsing without any particular reason

The findings from this study revealed that 25.2% (n=29) reported somewhat important using internet for just browsing with no particular site or subject in mind, and 18.3% (n=21) considered it very important. The finding from this study further revealed that 36.4% (n=4) of the male respondents and 16.3% (n=17) of the female respondents considered very important the use internet without a particular reason. The use of internet without a particular reason was also considered very important by 16.5% (n=15) of the BN and of 25.0% (n=6) of the BNAP. In line with the findings from this study, Pew Internet and American Life Project (2006) reported that surfing the Web has become one of the most popular activities that internet users will do online on a typical day. Some 30% of internet users go online on any given day for no particular reason, just for fun or to pass the time. This makes the act of hanging out online one of the most

popular activities tracked by the Pew. Internet and American Life Project and indicates that the online environment is increasingly popular as a place for people to spend their free time. Compared to other online pursuits, the act of surfing for fun now stands only behind sending or receiving e-mail (52% of internet users do this on a typical day) and using a search engine (38% of internet users do this on a typical day), and is in a virtual tie for third with the act of getting news online (31% of internet users do this on a typical day).

Internet and American Life Project (2006) argues that in aggregate figures, this development is striking because it represents a significant increase from the number of people who went online just to browse for fun on a typical day at the end of 2004 when approximately 25 million people went online on any given day. In the Pew Internet Project survey in December, 2005, that number had risen to about 40 million people.

5.6. FREQUENCY AND THE ACCESSIBILITY TO INTERNET

This section covers the following components: places where respondents accessed internet from both on campus and off campus, internet services accessed by the respondents in the previous month and 6 months, and number of hours spent on internet per week.

5.6.1. Areas of access to internet by respondents.

According to Tella (2007), internet access refers to the means by which users connect to the Internet. Place of access to internet includes libraries, internet cafes, university LAN etc. The findings from this study revealed that respondents accessed the Internet facilities at campus and at off campus settings. At the University campus, the settings

include a computer LAN, library and residencies. The majority of the respondents 95.7% (n=110) reported to access internet from computer laboratories (LANs), 46.1% (n=53) from the library and 26.1% (n=30) Residence (wireless hub). Similar results have been reported by Kheswa (2010), where 98.4% of students reported to have accessed the Internet from computer laboratories (LANs), while 49.2% students reported to have accessed it from the library and only 11.9% students reported to have accessed the Internet from residences through wireless hubs or connections.

The findings from this study revealed that a majority of the respondents (72%, n=83) reported to access internet off-campus, while 28% (n=32) mentioned they did not access internet off-campus. In contrast to these findings, a study conducted by Kheswa (2010) indicated that 61.8% students reported that they did not access the Internet off-campus, while only 38.2% accessed the Internet off-campus, the reported reasons were luck of computers, no internet connections and the Internet being costly in Cybercafé. In the current study it was found that the majority 63.5% (n=73) accessed internet at home, 56.5% (n=65) accessed it at a friend's place, 44.3% (n=51) accessed internet from cybercafé or other setting open to the public, and 27.0% (n=31) accessed internet from work.

However when respondents were asked about the setting mostly used to access internet the majority, reported to frequently access internet from university 69.6% (n=80), 48.7% (n=56) from the libraries, 40.9% (n=47) from home and only 8.7% (n=10) reported to access frequently internet from cybercafé or other setting open to the public. Although the results from the current study reveal that respondents reported to use less internet café, Ojedokun (2002) argue that in Nigeria, as in many African countries,

cybercafés are commonplaces in major cities and towns offering access to internet at affordable rates (Ojedokun, 2002; Omotayo, 2006). Such cybercafés offer opportunities for low income people to access the internet. Cybercafé users in Africa are mainly youths (Adetoro, 2010).

The findings from this study demonstrated that while off-campus, the majority of the respondent (65.2%, n=75) used internet for e-mail, 61.7% (n=71) for World Wide Web, 47.8% (n=56) for social networks (Facebook, MySpace, Student Village, YouTube, Twitter etc.), 33.9% (n=39) for accessing the library catalogue remotely. These findings are similar to those from a study conducted by Kheswa (2010), which reported that 97% of the students who reported to have accessed the Internet from off-campus, 85.6% students indicated that they used e-mail from off campus, while 73 (75.3%) reported to have used social networks, 61.9% students used the Web.

5.6.2. Frequency of internet usage by the respondents during the last month

The findings from this study demonstrated that out of 115 respondents, 46.1% (n=53) used internet every day, 19.1% (n=22) used internet several times a day, 29.6% (n=34) used internet several times a week, and 2.6% (n=3) used internet once a week. These findings revealed that the nearly half of the respondents used internet every day, however there was a big number of the respondents who reported that they do not use internet every day. The Internet being part of the academic world, its use should be frequent especially in communication with lecturers and peers, and to learn new innovations in the field of nursing.

These results are almost similar to those from a study conducted by Malik and Mahmood (2009), were the majority of students (67.5%) used the Internet daily. Similar findings reported by Kheswa (2010) demonstrated over one third of respondents (38.6%) reported to use internet daily, 40.9% used it two to four times a week, and 15.7% used it once a week. In line with the findings of this study, Jagboro (2003) found in the study conducted at the University of Nigeria that 22.06% of students accessed the internet on a daily basis, 38.24% weekly, 11.76% monthly, 11.76% bi-monthly and 16.17% quarterly.

5.6.3. The reported activities on internet in the past six months

The findings from this study revealed that in the past six months, the majority of respondents (93%, n=107) reported to have frequently accessed the Internet for reference materials, 93% (n=107) for sending and receiving information, 86.1% (n=99) for health and medical information, 82.6% (n=95) for research report and projects, 70.4% (n=81) for online news, 56.5% (n=65) for online chat groups, 54.8% (n=63) for information about commercial product. This study found that the majority respondents used internet for different activities in the previous 6 months, and this should be encouraged, and a special attention should be taken to ensure that all the students have ability to access internet for various activities. Similar results were by Cooper (2012) who reported internet use by respondents during the last six months ranged from 80.6% and to 12.9%. The findings indicate that some respondents use the Internet for a variety of purposes.

5.6.4. Number of hours spent on internet per week by respondents

The findings from this study revealed that 39.1% (n=45) spent between 1-5 hours on internet during the week, 17.4% (n=20) spent 6-10 hours, and overall 33.9% (n=39) reported to spend 11 hour and more on internet. These findings demonstrated they spent a considerable amount of hours on internet, however there fewer respondents 5.2% (n=6) who reported to use internet between 26-30 hours per week, and this could cause internet dependence. Similarly findings were reported by Shezi (2005), who found that 20.6% students reported that they were spending 10 hours or more per week on the internet and could be regarded as internet dependent. Internet dependency is defined by Homes (1997), cited in Shezi (2005), as students having at least three out of 10 problems that paralleled chemical dependencies and who averaged 11 hours per week online.

This percentage of 33.9% (n=39) of the respondents who spend 11 hours and more on internet per week was higher than findings in similar studies done elsewhere. For example, in the study by Holmes (1997), 531 students at the University of Austin Texas were surveyed, and 381 students used the internet at least once per week, 13% of these were classified as internet dependent because averaged 11 hours per week online, while the average for the entire sample was eight hours. Similarly, Scherer (1997) in his study found that the percentage of students who could be classed as internet dependent was also 13%.

5.7. THE FACTORS INFLUENCING EFFECTIVE USE OF THE INTERNET AS AN ACADEMIC TOOL

This section covers the constraints and problems encountered by the respondents while using the Internet.

5.7.1. Constraints encountered by the respondents while using internet facilities on campus

The findings from this study showed that 62.6% (n=72) reported restricted access to certain networking sites, 55.7% (n=64) mentioned there was a very slow internet connection (takes too long to load pages), 38.3 (n=44) mentioned that they had very little training in the use of the Internet facilities, 37.4% (n=43) mentioned very few internet computers and 27.0% (n=31) mentioned that there was no training on how to use internet facilities. These reported constraints to use internet may have a negative impact to the academic performances of the students, and there is a need for Basic ICT training to the learners, and equipping the computers facilities with enough computers, with a good access to internet. Restriction over social websites such as Facebook during working hours should be removed and the university should see a way this website might be used for academic purposes.

Similarly, in the study conducted by Kheswa (2010), 72% students reported that slow internet connection was a problem. The results from the same study revealed that more than half the students (65%) regarded restricted sites (for example social networks) as one of the problems they had encountered. A similar number (60.6%) reported that a limited number of computers with internet access were available on campus, while 55.5% students pointed out that little training in the use of internet facilities was offered

on campus. These results were in keeping with the UKZN Pietermaritzburg campus Director's response concerning the availability of computers where he stated that the ratio of students to computers was 8:1 (Kheswa, 2010).

Similar results were also found from a study by Shezi (2005), who demonstrated that 17.6% (34) students mentioned a lack of training. Given that these 34 students were already using the internet, the little-mentioned problem of lack of training is possibly not surprising. Shezi further argued that a lack of training is a problem in general, given that this was the most cited reason mentioned earlier for students not using the internet, and that the majority of students who were using the internet learnt how to do so by means other than formal training. Lack of formal training in the use of the internet is also borne out by the University of Botswana study (Ojedokun, 2001), which found that only 18.8% of the respondents who had used the internet for one to two years had received prior formal training.

Moule, Ward and Lockyer (2010) discovered from a study they conducted that issues related to limited computer access in clinical and placement settings inhibited internet use. A small number of students reported difficulties accessing the internet from home and in the university. The respondents also reported their computing skills adversely affected engagement. In the same study, students recalled technical difficulties in the use of some packages and online resources, particularly when attempting access off site. In some cases, students were frustrated by the lack of group commitment to collaborative online learning. This led some to believe that the online work was an extra, superfluous and created a negative experience.

5.7.2. General problems perceived by respondents in using the Internet

The findings from this study revealed that the majority of respondents 76.5% (n=88) reported sites that require them to register, 57.4% (n=66) encountering sites that want them to pay to access information, 53.0% (n=61) it was a problem not being able to find the information they are looking for, and 42.6% (n=49) mentioned getting errors from pages that use Java, Javascript, ActiveX, etc.

The findings from this study demonstrated that 39.1% (n=45) reported not being able to efficiently organize the information they gather was a problem, 36.5% (n=42) mentioned sites with too many graphics or useless graphics, 35.7% (n=41) encountering pages with bad HTML, 21.7% (n=25) mentioned it was a problem not being able to return to a page they once visited, and 13.9% (n=16) complained of not being able to determine where they were (i.e., 'lost in hyperspace' problem). This study found that there are general problems perceived by the respondents while using the Internet, and might be due to the poor ability to use computers and internet as reported. This means that a number of respondents might fail to get resources needed for academic activities and may have a negative impact on them. Providing the ICT skills would reduce the gap among the leaners.

Findings similar to this study were reported by Deursen and Dijk(2009), who found that saving a file to the hard disk (in this case the online tax declaration program) was problematic for 37% of the subjects. The largest percentage of the subjects who failed this test saved the whole web page (12%) or had no clue on how to proceed (11%). Other mistakes included assuming that the file was automatically saved after opening the save dialog, making website shortcuts to the desktop or adding a website to the

favorites. In one task, subjects were asked to open an online PDF file and save it in an existing folder on the desktop (Deursen and Dijk, 2009). From the same study by Deursen and Dijk (2009), it was also discovered that 49% of the subjects experienced problems and did not succeed, 25% had absolutely no idea, and 15% were only able to save the PDF in the automatically opened 'My documents' folder.

In line with the findings from this study, Verhoeven, et al. (2010) reported that on number of challenges which were reported by nurses in using internet, with 59.4% not being able to remember a relevant website and using an internet search engine. For 70.2%, one term was entered, while in most scenarios, basic searching was carried out with 68.3% only selecting one hit. The challenges reported from a study conducted by Deltsidou, et al (2010) on the use of internet among undergraduate nursing students reported various challenges: including an inability to find what to look for in the Internet (8.4%), sharing the pc with other family members (9.0%), little value of information in the Internet regarding their classes (6.8%), did not know how to use it appropriately (17.7%), and difficulty to have access to a computer at institution (12.6%).

5.7.3. Perceived need for an orientation to use of internet as a academic tool

Many of the respondents 89% (n=102.) indicated that there was a need for an orientation for internet use as an academic tool at both BN and BNAP levels, indicating a lack of skills that could affect their academic performance., while 11% (n=13) did not see the need for orientation on using internet as an academic tool. Many 72.2% (n=83) also wanted to be trained in basic IT skills (Microsoft word, excel, PowerPoint, Internet, etc), 70.4% (n=81) mentioned access academic related materials such as Journals,

software etc, 51.3% (n=59) mentioned using moodle, 35.7% (n=41) mentioned using turnitin, 33.9% (n=39) mentioned using Endnote.

Similarly In the study conducted by Nkosi, Asahmis and Pillay (2011), respondents reported that lack of computer skills was one of the major factors that hinder access to computers. The literature on the internet indicated that many tertiary institutions now require high school graduates to have basic computer skills in preparation for college and life skills (Elder and Koehn, 2009), the assumption being that students have the requisite basic computer skills when entering college courses. Maag (2006) recommends that college programs assess student computer competencies upon admission and provide educational opportunities to develop the needed skills.

However, students enter college with a wide variety of computer skills and may not be able to perform the tasks specific to higher education (Elder and Koehn, 2009; Sinclair and Gardner, 1999). Lack of computer skills has been linked to delayed learning and an increase in frustration for students in college classes (Atack, 2003 cited in Elder and Koehn, 2009). Elder and Koehn (2009), argues that there appears to be a lack of consensus regarding what constitutes basic computer skills. Typically, basic skills include basic computer operation, word processing skills, limited spreadsheet and database experiences, and internet skills including the ability to use e-mail (Saranto&Leino-Kilpi, 1997). However, some courses demand formatting of papers, the use of spreadsheet and database programs within a specific field of study, or using computer simulations in learning experiences.

Many college courses also require students to use library databases and search engines to find research articles (Atack, 2003). According to the survey carried out in 46 institutions, compulsory ICT curriculum consists mainly of basics of computer (100%), Windows operating system (97.8%) text processing (Microsoft Word, 97.8%), multimedia presentation (Microsoft PowerPoint, 97.8%), internet usage (71.7%), spreads sheets (Microsoft Excel, 87%), and database (76.1%). Image Processing (37%), Web technology (43.5), and service applications (30.4%) are included (Uyanga and Munkhtuya, 2011).

5.8. CONCLUSION

From the findings of this study, respondents reported to have good ability to use computers, internet and e-mails. The majority of respondents were aware of the electronic resources and their availability on campus. Respondents to this study reported that they became aware of electronic resources from different sources, such library, fellow students, lecturers, library web page, from Google scholar or from yahoo web page. The majority of the respondents reported to use Google as search engine followed by Yahoo. It emerged from this study that social network sites were used by respondents mainly Facebook and Twitter, and very few used my space and student village.

The findings from this study demonstrated that the majority of respondents perceived that internet to be very important in their lives. It emerged from this study that the undergraduate nursing students used internet for different purposes, including academic-related studies, access to e-mail, access to the websites, playing audio or video over the Internet, downloading music or video, communication with other people,

research, downloading software, chat rooms, and getting the latest news or weather. Some of the respondents reported that they use internet for just browsing with no particular site or subject in. However the findings revealed that fewer respondents do not use internet for the above mentioned purposes. Areas of accessibility to internet by respondents included libraries, universities, home, cybercafé or other setting open to the public, and work place. The majority of the respondents reported to access internet from computer laboratories (LANs), average reported the library and few reported access to internet from Residence (wireless hub). The results demonstrated that respondents reported to access internet off campus.

Although the majority of the respondents reported to have good ability to use internet technologies in education, there are significant percentages who reported to have poor ability to use internet and e-mail facility, and who consider themselves at beginner's level as computer users. It was also noted that few respondents did not considered internet important in their lives., and relative percentages were not familiar with internet related terms such World wide web, Browser, pass word, Computer virus, Moodle, Software, Chatrooms, URL (Uniform Resource Locator), Network, Key words, Html (HyperText Markup Language), Blog, ftp (File Transfer Protocol). There are considerable numbers of the respondents who mentioned that they were not aware of electronic resources. The findings revealed that significant percentages of the respondents never used the Internet to access online courses, online admission, Course registration, neither for Tuition payment. Although the findings revealed accessibility to internet at campus and off campus, there are respondents who reported

lack of access from these areas. The majority of the respondents could not access internet from their residences and from the library.

The reported poor ability to use internet technologies may be explained by the reported constraints and problems. The majority reported constraints related to very little training in the use of the Internet facilities is offered to students slow internet connection (takes too long load pages), few internet computers, or no training on how to use internet facilities. General problems were also reported in using internet such as website requesting registration, sites requesting payment before accessing information, not being able to find information, having problems with browsers, difficult to download pages, links which do not work, many junk sites. Finally the majority of respondents requested an orientation in various ICT fields, including basic IT skills which would include Microsoft word, excel, internet, etc. They also mentionned how to access academic related material such as journal and software, how to use turnitin, moodle and endnote. The next chapter provides the recommendations related to the findings of this study.

CHAPTER SIX

RECOMMENDATION AND LIMITATIONS

6.1. INTRODUCTION

This chapter presents the recommendations and conclusion to the study. To reiterate, the aim of the study was to explore use of the Internet as an academic tool among undergraduate nursing students at the University in KwaZulu-Natal, in order to establish ways of enhancing its utilization.

The present study will enable future policy makers to provide internet facilities to future generations. The study reveals that computer and internet is playing pivotal role in educational projects and especially for research. It is easier to search through internet as compare to sit in the library and collect information. The present study will send a strong message to publishers and writers to shift from their attention from hard binding books to soft copies of their finding and make available on the internet so that more people can get access to this invaluable information. This study showed that the majority of the student is using internet in their educational life. The internet use will encourage our younger generations to make use of modern technologies to accomplish their ambition.

In order of enhancing the Internet utilization as an academic tool, recommendations and conclusions were made.

6.2. RECOMMENDATIONS

The findings from this study clearly indicate the use of the Internet as an academic tool and the need ICT skills developments among nursing students. The following recommendations are made:

- The number of computers in the LANs should be increased as the majority of students accessed the Internet from the LANs.
- The number of computers in the library should be increased to support access to the Internet facilities on campus.
- In order to improve the use of the Internet by students, the university should provide wireless hubs or connections in all residences (on campus and off campus) and surrounding campus areas to facilitate access to the Internet in these venues.
- The University should increase the bandwidth and this might resolve the issue of slow internet connections reported by the respondents. Improved bandwidth could result in lifting the restrictions on social networks allowing access during office hours.
- ICT department should keep statistics of students' internet usage in order to ensure that the service is used to support educational activities.
- There should be more training offered to students on how to use the Internet and its services to support educational activities as some students rated their ability to use the Internet as poor and thus requested more training. The training should include Microsoft or similar tools to enable the students to complete and communicate their work, as well as how to access academic related material

such as journal and software,. It should also include the use of turnitin, Moodle and Endnote.

- Teachers and lecturers should be in a position to educate the students on safe internet practices. Educational institutions should make it their duty to provide staff with appropriate training that will enable them to equip the students with the relevant information which will ensure that they become responsible internet users From the findings of this study one would argue that educators need to prepare future nurses for the technology enriched environment with basic knowledge of ICT competencies.
- Students should be educated on safe internet practices. Generally, students must be made to realize that when they access the internet at an educational institution, they should do so for the purpose of complementing or enhancing their education as well as the culture of teaching and learning. Behavior which is not acceptable must be emphasized; at the same time, acceptable behavior (including netiquette, or chat rooms) must be highlighted. Copyright and privacy issues should also be included in this document.
- Students need to be made aware that downloading music, videos and other non-academic material is not be in line with copy right policies and is not allowed in terms of the Universities policy For that reason ethical policies on online resources and copy right should be reinforced, by educating the students to be responsible and moral citizens.
- Encourage the use of the Internet technologies in nursing education: From the findings of this study it is necessary to encourage the use of the Internet in education. Such use would put an emphasis on adopting web based courses,

major component of the course to be put on web. Straightening the use of the Internet in educational administration such has online admission, course registration, tuition payment, administrative tasks. Develop communication skills among students and even between students and teachers, encourage the use of the Internet in research, and promote professional networking. Informatics education should be implemented throughout the curriculum to ensure students have the skills and ability to perform assignments, communicate effectively, and research data for evidenced based practice.

- Conducting further research studies: The findings from this study revealed that the respondents use social network on the Internet such as Facebook and twitter, thus a recommendation to school and university would to conduct a research on how the social media may be used for academic purposes, and how these may be beneficial to teaching and learning. Another future research would be to investigate the misuse of the Internet by the students. The current study revealed that many students spend more hours on the Internet, getting music and videos, or using chat rooms. Many of them might be classified as the Internet addict. The future research would be to address misuse of the Internet by students. It is very serious problem and affects both students and parents. Instead of stop using the Internet it is the duty of the future researcher and scholars to find out safe and sound ways of using the Internet. The current study was conducted among undergraduate nursing students, and further studies should include, the use of the Internet in post graduate nursing students, the use of the Internet among all undergraduate students from the same university and the use of the Internet among the post graduate students from all campuses from the same University.

6.3. LIMITATION TO THIS STUDY

A study including members of staff could bring more insight into the problem investigated.

Access to participants was a challenge, as some of the respondents were part-time students and others were full-time, and the only time the researcher could access them was when they were having classes. This accessibility of the respondents made it very difficult to get all the questionnaires which were distributed, and only 115 questionnaires out of 141 distributed were collected.

The length of the questionnaires might have posed some difficulties to complete, which might have influenced the way of responding to the questions.

Due to time constraints, and convenience of the researcher, a selection of one school from different schools of the selected University might limit the generalization of the findings of this study to the entire selected University.

6.4. CONCLUSION

The study produced valuable information and the researcher was in a position to propose recommendations which, it is hoped, will be used by institutions to promote a healthy culture of the Internet use. The wealth of knowledge produced from this study can be used in curriculum development to integrate ICT into the teaching and learning process, by putting into consideration identified strength and weaknesses in using the Internet. From the body of knowledge from this study, it is envisaged that students at all levels of education, would access the Internet for specific reasons, from an informed

point of view and not just out of boredom. The use the Internet as an academic tool, it would contribute to the quality of nursing education as it would develop problem-solving skills, creative and critical thinking skills, self-directed learning skills in the students. The students would assume the role of researchers by sharing knowledge with other student researchers through online learning environments. This study provided information for nursing students and other health care professionals regarding the use of the Internet, and this would encourage research and evidence-based practice, so that decisions can be made to improve the quality of health care by using the Internet technologies.

All stakeholders, including the University management, nurse educators, lecturers and parents should be involved in the process of enlightening the students. Students should therefore be encouraged to conform to the regulations and guidelines, in order to enjoy the freedom of exploring and surfing the Internet. Students not only want to learn as much as they can, but they also want to enjoy it and feel competent while doing it.

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ANNEXURES

Annexure 1: Raosoft Sample size calculator

What margin of error can you accept? 5% is a common choice	5%	The margin of error is the amount of error that you can tolerate. If 90% of respondents answer yes, while 10% answer no, you may be able to tolerate a larger amount of error than if the respondents are split 50-50 or 45-55. Lower margin of error requires a larger sample size.
What confidence level do you need? Typical choices are 90%, 95%, or 99%	95%	The confidence level is the amount of uncertainty you can tolerate. Suppose that you have 20 yes-no questions in your survey. With a confidence level of 95%, you would expect that for one of the questions (1 in 20), the percentage of people who answer yes would be more than the margin of error away from the true answer. The true answer is the percentage you would get if you exhaustively interviewed everyone. Higher confidence level requires a larger sample size.
What is the population size? If you do not know, use 20000	222	How many people are there to choose your random sample from? The sample size does not change much for populations larger than 20,000.
What is the response distribution? Leave this as 50%	50%	For each question, what do you expect the results will be? If the sample is skewed highly one way or the other, the population probably is, too. If you do not know, use 50%, which gives the largest sample size. See below under **More information** if this is confusing.
Your recommended sample size is	**141**	This is the minimum recommended size of your survey. If you create a sample of this many people and get responses from everyone, you're more likely to get a correct answer than you would from a large sample where only a small percentage of the sample responds to your survey.

Annexure 2: Cross tabulation of the year of the study of respondents and nursing program

			Nursing program		
			Bachelors of Nursing (BN)	Bachelors of Nursing Advanced Practice (BNAP)	Total
The year of the study of respondents	1st Year	Freq	31	12	43
		%	27.0%	10.4%	37.4%
	2nd Year	Freq	31	4	35
		%	27.0%	3.5%	30.4%
	3rd Year	Freq	16	8	24
		%	13.9%	7.0%	20.9%
	4th Year	Freq	13	0	13
		% l	11.3%	.0%	11.3%
Total		Freq	91	24	115
		% of Total	79.1%	20.9%	100.0%

Annexure 3: Consent form

STUDY TITLE: A DESCRIPTIVE STUDY ON THE UTILIZATION OF INTERNET AS AN ACADEMIC TOOL AMONG UNDERGRADUATE NURSING STUDENTS, AT A SELECTED UNIVERSITY IN KWAZULU NATAL

Please answer the following questions:

Questions	Yes	No
Have you read and understood the information sheet about this study		
Have you been able to ask questions about this study		
Have you received enough information about this study		
Do you understand that you are free to withdraw from this study?		
At any time?		
Without giving a reason for your withdrawal?		
Your responses will be anonymised before they are analysed		
Do you give permission for members of the research team to have access to your anonymised responses?		
Do you agree to take part in this study		

Your signature will certify that you have voluntarily decided to take part in this research study having read and understood the information in the sheet for participants. It will also certify that you have had adequate opportunity to discuss the study with an investigator and that all questions have been answered to your satisfaction.

Signature of participant : **Date :**

Signature of investigator : **Date :**

Annexure 4: information leaflet

RESEARCH TITTLE:

A DESCRIPTIVE STUDY ON THE UTILIZATION OF INTERNET AS AN ACADEMIC TOOL AMONG UNDERGRADUATE NURSING STUDENTS, AT A SELECTED UNIVERSITY IN KWAZULU NATAL

You are entitled to take part in this research study. This information leaflet is to help you decide if you would like to participate. If you have any questions regarding this study please do not hesitate to ask the researcher. You participation is appreciated and important for the improvement of Nursing education standards.

WHAT IS THE PURPOSE FOR THIS STUDY?

The purpose for this study is to exploring utilization of internet as an academic tool among undergraduate nursing students, at a selected university in KwaZulu natal in order to improve quality of education using internet.

WHAT IS EXPECTED OF YOU DURING THIS STUDY?

You are expected to complete a research questionnaire. The researcher will be available to answer questions you might have regarding the questionnaire.

HAS THIS STUDY RECIEVED ETHICAL APPROVAL

The study protocol will be submitted to the research ethical committee at the University of Kwazulu Natal. The faculty will guarantee the written approval. A written permission will be granted in order conduct the research

WHAT ARE MY RIGHTS AS A PARTICIPANT IN THIS STUDY?

Your participation in this study is entirely voluntary and you can refuse to participate.

MAY ANY OF THESE STUDY PRODECURES RESULT IN DISCONFORT OR INCONVENIENCE?

Except for the time to complete the questionnaire, which is estimated to be 20 minutes, there is no known discomfort or inconvenience related to this study. We appreciate your time. All the information obtained during the course of this study is strictly confidential. Data that maybe reported is scientific journals will not include any information that identifies the participants in this study. No identifying information is to be included on the questionnaire to ensure the anonymity.

Annexure 5: Research instrument

STUDY TITLE: A DESCRIPTIVE STUDY ON THE UTILIZATION OF INTERNET AS AN ACADEMIC TOOL AMONG UNDERGRADUATE NURSING STUDENTS, AT A SELECTED UNIVERSITY IN KWAZULU NATAL

A descriptive study

PLEASE INDICATE USING A ' √' NEXT TO THE APPROPRIATE ANSWER | For office use only

QUESTIONNAIRE NUMBER

1. What nursing program are you enrolled in for 2012 academic year?

Nursing degree program		**1**
Bachelors degree advanced practice		**2**

2. Which year of the study are you in

1st year		**1**
2nd year		**2**
3rd year		**3**
4th year		**4**

3. What is your age?

4. Gender

Male		1
Female		2

5. How would you rate yourself as a computer user?

beginner		1
intermediate		2
advanced		3
competent		4
expert		5

6. How do you find out about new WWW pages/sites? *(Please check all that apply.)*

Books		1
Friends		2
Follow hyperlinks from other Web pages		3
Internet search engines (e.g., Alta Vista, Lycos, etc		4

Internet directories (e.g., Yahoo, McKinley, etc.)		5
Usenet newsgroups		6
Magazines/newspapers		7
Signatures at end of e-mail messages		8
Television advertisements		9
Teachers		10
Other (specify)		11

7. How do you rate your ability to use the World Wide Web?

Very good		1
Good		2
Poor		3
Very poor		4
Do not use World Wide Web		5
I f poor or very poor please explain why		6

8. Which of the following aspects of the Internet have you used? (check all that apply)

e-mail		1
accessing websites		2
search engines/directories (Altavista, Yahoo, etc.)		3
List serves (e-mail discussion groups)		4
newsgroups/bulletin boards		5
chat rooms		6
internet use for courses (assigned)		7
internet use for courses (on your own)		8
downloading software (programs)		9
playing audio or video over the Internet		10
downloading music or video		11
shopping online		12

9. Which of the following internet-related terms are you basically familiar with and understand?

world wide web		1
Browser		2
Software		3
URL (Uniform Resource Locator)		4
pass word		5
Chatrooms		6
ftp (File Transfer Protocol)		7
Html (HyperTextMarkup Language)		8
Blog		9
Moodle		10
Network		11
Key words		12
Computer virus		13

10. Which of the following browsers have you used in accessing the Internet?

Netscape		1
Internet Explorer		2
do not know		3

11. Have you used the Internet for any of the following? Check any that apply.

academic-related study		1
communicating with other people		2
pleasure/fun		3
shopping		4
work-related activity		5
getting the latest news or weather		6
listening to music online		7
watching video online		8
finding personal information you want (health, hobbies, etc.)		9

12. Are you aware of electronic resources such as e-journals, e-books and databases on internet?

Yes		1
Non		2

13. Do you know that many of these online resources are made available in your University?

Yes		1
Non		2

14. How do you know about these resources

Library orientation		1
Your Lecturers		2
Fellow students		3
The library web page		4
Google scholar		5
Yahoo		6
Other (specify		7

15. Which search engines do you use? (*Please tick all those that apply*)

Alta Vista		1
Ask		2
Being		3
Google		4
Yahoo		4
MSM		6
Info Space		7
Do not have a favorite search engine		8
Other (specify)		9

16. Which of the following is your favorite internet searchengine?

Alta Vista		1
Ask		2
Being		3
Google		4

Yahoo		4
MSM		6
Info Space		7
Do not have a favourite search engine		8
Other (specify		9

17. Which of the following social networking sites do you use? (*Please tick all those that apply)*

Facebook		1
MySpace		2
Student Village		3
Twitter		4
Oth(specify)		5

18. How do you rate your ability to use e-mail facilities?

ery good		1
Good		2
Poor		3
Very poor		4
Do not use e-mail		5

19. How often do you use internet for the following purposes?

		1	2	3	4
	Types of internet usage	Always	Very often	Some times	Never
	WEB BASED COURSES				
1.1.	Fully WWW placed courses				
1.2.	Major component of the course on the www				
1.3.	Support in www				
1.4.	www contains only the information on the course				
	EDUCATIONAL ADMINISTRATION				
	Online admission				
	Course registration				
	Tuition payment				
	Administrative tasks				
	DEVELOPMENT AND COMMUNICATION SKILLS				
	Thematic student to student correspondence, including students from abroad				
	Communication with the lecturer				
	Creating hypermedia web pages				
	ELECTRONIC PUBLISHING				
	issuing of online journals				
	Mining information				
	Data base browsing				
	Electronic encyclopaedias				

	ASK THE EXPERTS					
	E-mailing question to the most famous experts					
	ELECTRONIC APPEARANCES AND VIRTUAL REALIZATION					
	Virtual conferences or forums					
	INVOLVEMENT IN RESEARCH PROJECTS					
	Shared global search					
	collection and analysis of information					
	PROFESSIONAL NETWORKING					
	Exchange of experience and information via synchronous and asynchronous teleconferencing and discussion list					

20. Overall, how important do you consider the Internet in your life?

Not very important		1
Somewhat important		2
Very important		3

21. Which of the following Internet technologies do you consider "indispensable"?
(Please check all that apply.)
+++= VERY IMPORTANT, ++= IMPORTANT, + = SOMEWHAT IMPORTANT. -= NOT IMPORTANT

	1	2	3	4
	+++	++	+	-
The World Wide Web				
E-mail				
Chat/Online discussion				
Internet phone				
Internet fax				
Streaming audio over the Internet (Real Audio, etc.)				
Streaming video over the Internet				
Video conferencing over the Internet (Netmeeting, etc.)				
access to library catalogue				
News reader				

22. When you access the Internet, which of the following do you usually do? (check all that apply)

use the World Wide Web for your own entertainment		1
use the World Wide Web for your school or work purposes		2
send or receive e-mail		3
use chat rooms		4
use Instant Messenger, Microsoft NetMeeting, or other one to one conversation		5
play computer games		6
write on a word processor		7
download music or video		8
use other computer applications		9

23. Please rank the following reasons for using the World Wide Web (WWW) in order of importance?
Reasons for using World Wide Web
+++= VERY IMPORTANT, ++= IMPORTANT, + = SOMEWHAT IMPORTANT. -= NOT IMPORTANT

		1	2	3	4
		+++	++	+	-
23.1.	Accessing academic related materials and electronic databases				
23.2.	Searching the Search engines (such Google, Yahoo, Ask and others)				
23.3.	Entertainment and sports				
23.4.	News (worldwide)				
23.5.	Just browsing with no particular site or subject in mind				
23.6.	Other				

24. In which of the following settings have you *ever* made use of a computer connected to the Internet? (check all that apply)

cybercafé or other setting open to the public		1
library		2
at home		3
at a friend's		4
at school		5
or work home		6

25. In which of the following settings do you *most frequently* use a computer to access the Internet?

cybercafé or other setting open to the public		1
library		2
at home		3
at a friend's		4
at school		5
At work		6

26. Where on campus do you access the Internet?

Computer laboratories (LANs)		1
Library		2
Residence (wireless hub		3

27. Do you access the Internet from off campus?

Yes		1
No		2

28. If Yes, what internet services do you use? (*Please tick all those that apply*)

E-mail		1
World Wide Web		2
access to library catalogue remotely		3
Social Networks (Facebook, MySpace, Student Village, YouTube, Twitter etc.)		4

29. How often do you access the Internet?

Once a month or less		1
Once a week		2
Several times a week		3
Every day		4
Several times a day		5

30. How many hours per week do you spend online?

Less than an Hour		1
1-5 hours		2
6-10 hours		3
11-15 hours		4
16-20 hours		5
21-25 hours		6
26-30 hours		7
More than 30 hours		8

31. What sorts of Web sites have you visited in the last month? (check all that apply)

Chat		1
Retail sales		2
Educational/school		3
Games		4
Music/Film/Celebrity		5
Religion		6
Sports		7
News		8
Other (please specify)		9

32. How often do you use the Internet services listed below? Please rank each in the order of the frequency of use. Internet services

		1	2	3	4	5	6
		Daily	**2-4 times a week**	**Once a week**	**Every two weeks**	**Once a month**	**Never**
32.1.	Electronic E-mail(e-mail)						
32.2.	World Wide Web(WWW)						
32.3.	access to library catalogue remotely						
32.4.	News reader						
32.5.	Social Networks (Facebook, MySpace, Student Village and others)						
32.6.	File Transfer Protocol (FTP)						
32.7.	chat rooms						

33. Which of the following constraints or problems have you encountered when using the Internet

facilities on campus? (*Please tick all those that apply*)

Very few internet computers		1
Very slow internet connection (takes too long load pages)-		2
Very little training in the use of the Internet facilities is offered to students		3
No training on how to use internet facilities		4
Restricted access to certain networking sites		5

34. What do you find to be the biggest problems in using the Web?
(Please check all that apply.)

Not being able to find the information I am looking for		1
Not being able to efficiently organize the information I gather		2
Not being able to find a page I know is out there		3
Not being able to return to a page I once visited		4
Not being able to determine where I am (i.e., 'lost in hyperspace' problem		5
Not being able to visualize where I have been and where I can go (e.g., view portions of a web site, view clickstream)		6
It takes too long to view/download pages		7
It costs too much		8
Encountering links that do not work (i.e., linkrot)		9
Encountering pages with bad HTML		10
Getting errors from pages that use Java, Javascript, ActiveX, etc		11
Having problems with my browser (e.g. freezing up, poor interface, getting disconnected, timing out)		12
Sites that are not compatible with all browsers		13
Too many "junk" sites		14
Sites that require me to register with them		15
Sites with too many graphics or useless graphics		16
Advertising banners that take too long to load		17
Encountering sites that want me to pay to access information		18
Other		19

35. The Web is a versatile tool. Please indicate how often you have used the Web for each of the following categories during the *past 6 months*.

		1	2	3	4	5
		Daily	Weekly	Monthly	Less than once a month	Never
35.1.	to access newsgroups					
35.2.	to access online news?					
35.3.	to access information about commercial products/services?					
35.4.	to purchase commercial products/services?					
35.5.	to access reference materials?					
35.6.	to access research reports & projects?					
35.7.	to access financial information?					
35.8.	...to access health/medical information?					
35.9.	.to access online chat groups?					
35.10.	...to access online job listings?					
35.11.	to access online home/rental listings?					
35.12.	to access online telephone listings?					
35.13.	to access online maps?					

35.14.	Create and share information					
35.15.	Locate and evaluate information					
35.16.	Research and solve problems					
35.17.	Send and receive information					
35.18.	Retrieve, organize, manage and create information					
35.19.	Search, sift, scan and sort information					
35.20.	Navigate through screens of information					
35.21.	Make multimedia presentation					

36. What kind of online interaction and activities have you been in?

	KIND OF INTERACTION	ACTIVITY STRUCTURES		
36.1.	Interpersonal interaction	Key pals		1
		Global classrooms		2
		Electronic appearances		3
		Electronic mentoring		4
		Impersonation		5
36.2.	Information collection	Information exchanges		6
		Data base creation		7
		Electronic Publishing		8
		Tele-field trip		9
		Pooled data analysis		10
36.3.	Problem solving projects	Information searches		11
		Parallel problem solving		12
		Serial creation		13
		Simulation		14
		Social action projects		15

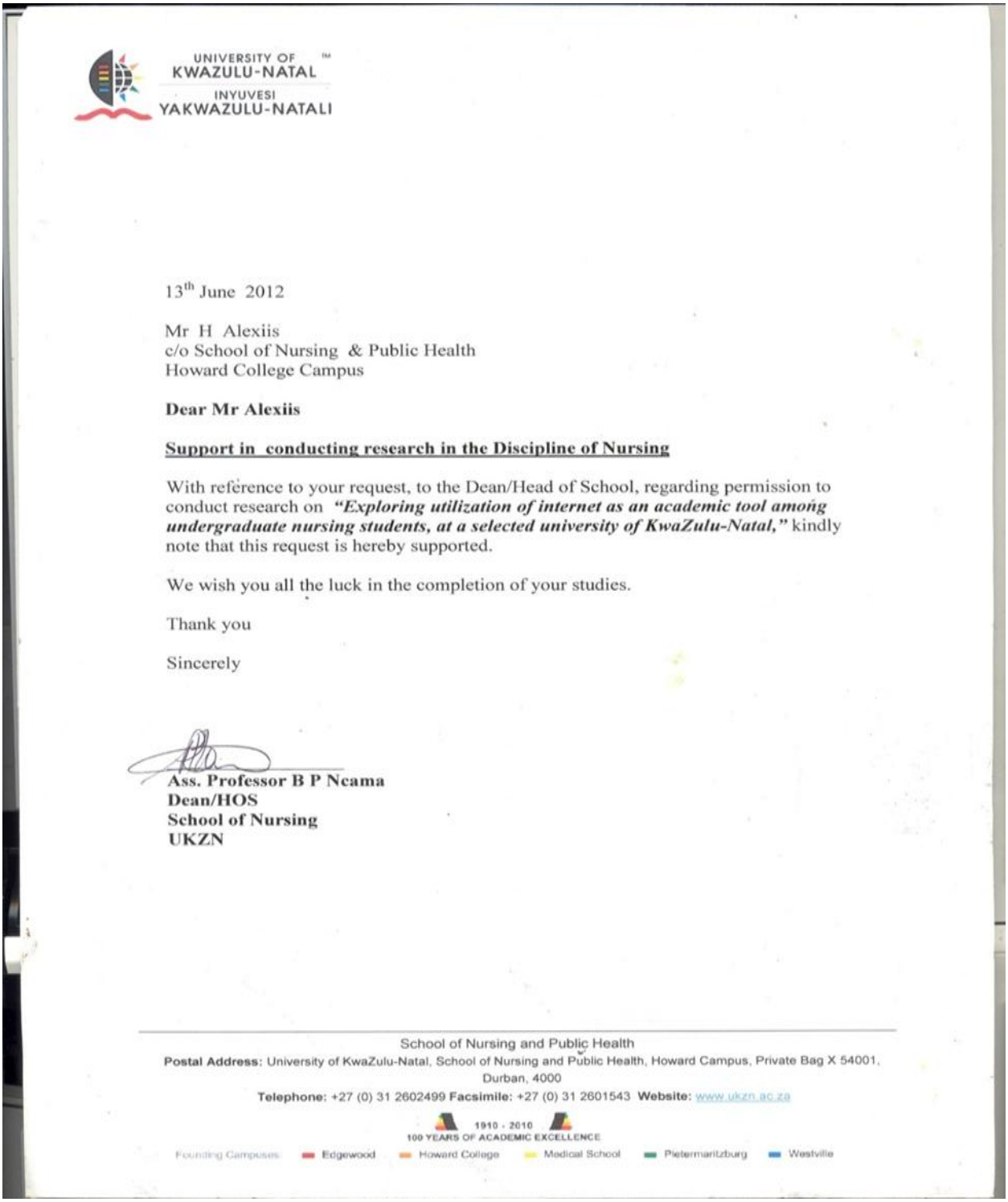
37. Is there a need for an orientation for internet utilization as an academic tool?

Yes		1
Non		2

38. If yes which of the following do you think orientation should focus on?

Basic IT skills (Microsoft word, excel, PowerPoint, Internet, etc)		1
Access academic related materials such as Journals, software etc		2
Using moodle		3
Using turntin		4
Using Endnote		5
Others (specify)		6

Annexure 6: Permission to conduct a study from UKZN, School of Nursing and Public Health



UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

13th June 2012

Mr H Alexiis
c/o School of Nursing & Public Health
Howard College Campus

Dear Mr Alexiis

Support in conducting research in the Discipline of Nursing

With reference to your request, to the Dean/Head of School, regarding permission to conduct research on ***"Exploring utilization of internet as an academic tool among undergraduate nursing students, at a selected university of KwaZulu-Natal,"*** kindly note that this request is hereby supported.

We wish you all the luck in the completion of your studies.

Thank you

Sincerely

Ass. Professor B P Ncama
Dean/HOS
School of Nursing
UKZN

School of Nursing and Public Health
Postal Address: University of KwaZulu-Natal, School of Nursing and Public Health, Howard Campus, Private Bag X 54001, Durban, 4000
Telephone: +27 (0) 31 2602499 **Facsimile:** +27 (0) 31 2601543 **Website:** www.ukzn.ac.za

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Annexure 7: Ethical clearance

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

18 June 2012

Mr Alexis Harerimana 208530822
School Nursing and Public Health

Dear Mr Harerimana

Protocol Reference Number: HSS/0364/012M
Project Title: Exploring utilization of internet as an academic tool among Undergraduate Nursing Students, at a selected University in KwaZulu-Natal

In response to your application dated 8 June 2012, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Professor Steven Collings (Chair)
/pk

cc Supervisor Professor Fikile Mtshali
cc Professor M Mars
cc School Admin. Ms Caroline Dhanraj

Professor S Collings (Chair)
Humanities & Social SC Research Ethics Committee
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Annexure 8: Application for permission to conduct a research study

HARERIMANA Alexis

University of KwaZulu Natal

Howard College

School of Nursing and Public Health

Masters of Nursing education Program

Tel: 0730876504

E-mail: haralexis@yahoo.frTo

Date: 8Th May 2012

To the head of school of nursing and public health

University of KwaZulu Natal

Howard campus

Durban

Madam,

RE: REQUESTING A PERMISSION TO CONDUCT A RESEARCH STUDY

I, HARERIMANA ALEXIS, a student at the University of KwaZulu Natal, currently doing Master's degree in Nursing education (SN: 208530822), have to conduct a research a requirement for my degree and the research. The research study is "A descriptive study on the utilization of internet as an academic tool among undergraduate nursing students, at a selected university in KwaZulu Natal"

I hereby apply for a permission to collect data from University of KwaZulu Natal, School of Nursing and Public health. Expected timeframe of one month, will be required to collect data from undergraduate nursing students from a selected university and I intent to start in Mid June 2012. All study participants will be requested to complete a questionnaire utilization of internet as an academic tool among undergraduate nursing students, at a selected university in KwaZulu natal.

All results and names of participants will be confidential. Findings will be communicated to the, UKZN School of nursing and Public health. There is no potential risk involved in the study expect that the participants will benefit by gaining more knowledge on utilization of internet as an academic tool among undergraduate nursing students. Kindly note, that the participation in this study is Voluntary. Attached are copies of a copy of Research proposal, a completed form of ethical application, the questionnaire

for data collection, and consent forms for study participants to complete enabling them to be part of the study. The study will begin once the ethical clearance has been granted.

May i kindly request the permission to begin the research study, and data collection, and I wait in anticipation for a favourable response to be allowed to conduct research and data collection from undergraduate nursing students. Any correspondence can be done through the contact details provided above.

Yours faithfully

Mr HARERIMANA ALEXIIS Signature

C.I
SUPERVISOR: Professor Fikile MTSHALI

Howard college campus

School of Nursing and public Health

4th Floor, Desmond Clarence Building

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ETHIC DEPARTMENT

Chairperson

Faculty of health sciences

Research ethics review committee

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Annexure 9: Application for ethical clearance

HARERIMANA Alexis

University of KwaZulu Natal

Howard College

School of Nursing and Public Health

Masters of Nursing education Program

Tel: 0730876504

E-mail: haralexis@yahoo.frTo

27 April 2012

To the research ethics review committee

University of Kwazulu Natal

Durban

Sir / Madam,

RE: APPLICATION FOR THE ETHICAL CLEARANCE

I, HARERIMANA ALEXIS, a student at the University of KwaZulu Natal, currently doing Master's degree in Nursing education (SN: 208530822), have to conduct a research a requirement for my degree and the research. The research study is "A descriptive study on the utilization of internet as an academic tool among undergraduate nursing students, at a selected university in KwaZulu Natal"

I hereby apply for ethical clearance for my research that would allow me to collect data from a selected University in KwaZulu Natal. Expected timeframe of one month, will be required to collect data from undergraduate nursing students from a selected university and I intent to start in Mid June 2012. All study participants will be requested to complete a questionnaire utilization of internet as an academic tool among undergraduate nursing students, at a selected university in KwaZulu natal.

All results and names of participants will be confidential. Findings will be communicated to the, UKZN School of nursing and Public health and to the selected university in KwaZulu Natal where the study will be conducted. There is no potential risk involved in the study expect that the participants will benefit by gaining more knowledge on utilization of internet as an academic tool among undergraduate nursing students. Kindly note, that the participation in this study is Voluntary. Attached are copies of a copy of Research proposal, A completed form of ethical application, the questionnaire

for data collection, and consent forms for study participants to complete enabling them to be part of the study.

May i kindly request the permission to begin the research study, and data collection, and I wait in anticipation for a favourable response to be allowed to conduct research and data collection at that selected university in KwaZulu Natal. Any correspondence can be done through the contact details provided above.

Yours faithfully

Mr HARERIMANA ALEXIIS Signature

C.I

SUPERVISOR: Professor Fikile MTSHALI

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ETHIC DEPARTMENT

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Annexure 10: Correlation between demographic data and perceived level in using computer, the ability to use www, and the ability to use e-mail facilities

Correlations								
		Age	Gender	Nursing program	The year of the study of respondents	The perceived level of competency as a computer users	The ability to use the World Wide Web by respondents	The ability to use e-mail facilities
Age of the respondents	Pearson Correlation	1	-.003	.850**	.041	-.256**	.217*	.086
	Sig. (2-tailed)		.975	.000	.664	.006	.020	.362
	N	115	115	115	115	115	115	115
Gender of the respondents	Pearson Correlation	-.003	1	.022	.019	-.045	.016	.110
	Sig. (2-tailed)	.975		.820	.836	.630	.862	.241
	N	115	115	115	115	115	115	115
Nursing program	Pearson Correlation	.850**	.022	1	-.115	-.206*	.176	.034
	Sig. (2-tailed)	.000	.820		.221	.027	.060	.721
	N	115	115	115	115	115	115	115
The year of the study of respondents	Pearson Correlation	.041	.019	-.115	1	.071	-.126	-.028
	Sig. (2-tailed)	.664	.836	.221		.449	.179	.770
	N	115	115	115	115	115	115	115
The perceived level of competency as a computer users	Pearson Correlation	-.256**	-.045	-.206*	.071	1	-.603**	-.410**
	Sig. (2-tailed)	.006	.630	.027	.449		.000	.000
	N	115	115	115	115	115	115	115
The ability to use the World Wide Web by respondents	Pearson Correlation	.217*	.016	.176	-.126	-.603**	1	.417**
	Sig. (2-tailed)	.020	.862	.060	.179	.000		.000
	N	115	115	115	115	115	115	115
How do you rate your ability to use e-mail facilities?	Pearson Correlation	.086	.110	.034	-.028	-.410**	.417**	1
	Sig. (2-tailed)	.362	.241	.721	.770	.000	.000	
	N	115	115	115	115	115	115	115
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

Annexure 11: Cross tabulation of the year of the study of respondents and their awareness of the online electronic resources

			The year of the study of respondents				
			1st Year	2nd Year	3rd Year	4th Year	Total
Do you know that many of these online resources are made available in your University?	Yes	Freq	36	32	22	13	103
		%	83.7%	91.4%	91.7%	100.0%	89.6%
	No	Freq	7	3	2	0	12
		%	16.3%	8.6%	8.3%	.0%	10.4%
Total			43	35	24	13	115
			100.0%	100.0%	100.0%	100.0%	100.0 %

Annexure 12: The cross tabulation of using Facebook and the nursing program of the respondents.

			Nursing program		
			Bachelors of Nursing (BN)	Bachelors of Nursing Advanced Practice (BNAP)	Total
Facebook	Yes	Freq	76	13	89
		%	83.5%	54.2%	77.4%
	No	Freq	15	11	26
		%	16.5%	45.8%	22.6%
Total		Freq	91	24	115
		%	100.0%	100.0%	100.0%

Annexure 13: The use of Facebook per age group of the respondents

			Age group of respondents				
			Under 20 years	From 20 to 25 years	From 26 to 30 years	More than 30 years	Total
Facebook	Yes	Freq	27	48	4	10	89
		%	93.1%	82.8%	66.7%	45.5%	77.4%
	No	Freq	2	10	2	12	26
		%	6.9%	17.2%	33.3%	54.5%	22.6%
Total		Freq	29	58	6	22	115
		%	100.0%	100.0%	100.0%	100.0%	100.0%

Annexure 14: Correlation of the demographic variables and the activities usually done by respondents when accessing internet

		Nursing program	The year of the study of respondents	Age of the respondents	Gender of the respondents
Use the world wide web for own entertainment	Pearson Correlation	,242**	-,095	,346**	,076
	Sig. (2-tailed)	,009	,313	,000	,422
	N	115	115	115	115
Use the world wide web for school or work purposes	Pearson Correlation	,124	-,165	,084	-,095
	Sig. (2-tailed)	,187	,078	,373	,311
	N	115	115	115	115
Send or receive e-mail	Pearson Correlation	,089	-,049	,132	-,015
	Sig. (2-tailed)	,342	,600	,160	,871
	N	115	115	115	115
Use chat rooms	Pearson Correlation	,080	-,058	,108	,260**
	Sig. (2-tailed)	,395	,536	,249	,005
	N	115	115	115	115
Use instant messenger, microsoft net meeting or other one to one conversation	Pearson Correlation	-,042	,020	,056	-,016
	Sig. (2-tailed)	,653	,831	,555	,862
	N	115	115	115	115
Play computer games	Pearson Correlation	,142	-,046	,200*	,091
	Sig. (2-tailed)	,131	,627	,032	,333
	N	115	115	115	115
Write on a word processor	Pearson Correlation	-,055	-,026	-,004	-,001
	Sig. (2-tailed)	,560	,785	,968	,991
	N	115	115	115	115
Download music or video	Pearson Correlation	,185*	-,093	,220*	,080
	Sig. (2-tailed)	,048	,325	,018	,394
	N	115	115	115	115
Use other computer applications	Pearson Correlation	,012	,022	,014	,109
	Sig. (2-tailed)	,902	,815	,878	,248
	N	115	115	115	115
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Annexure 15: constraints encountered of using internet per year and nursing program of the study.

			The year of the study of respondents				Nursing program	
Constraints of using internet			1st Year	2nd Year	3rd Year	4th Year	BN	BNAP
			n=43	n=35	n=24	n=13	n=91	n=24
Very few internet computers	Yes	Freq	20	14	8	1	35	8
		%	46.5%	40.0%	33.3%	7.7%	38.5 %	33.3%
	No	Freq	23	21	16	12	56	16
		%	53.5%	60.0%	66.7%	92.3 %	61.5 %	66.7%
Very slow internet connection	Yes	Freq	17	23	13	11	54	10
		%	39.5%	65.7%	54.2%	84.6 %	59.3 %	41.7%
	No	Freq	26	12	11	2	37	14
		%	60.5%	34.3%	45.8%	15.4 %	40.7 %	58.3%
Very little training in the use of internet facilities is offered to students	Yes	Freq	23	11	6	4	36	8
		%	53.5%	31.4%	25.0%	30.8 %	39.6 %	33.3%
	No	Freq	20	24	18	9	55	16
		%	46.5%	68.6%	75.0%	69.2 %	60.4 %	66.7%
No training on how to use internet facilities	Yes	Freq	13	9	5	4	27	4
		%	30.2%	25.7%	20.8%	30.8 %	29.7 %	16.7%
	No	Freq	30	26	19	9	64	20
		%	69.8%	74.3%	79.2%	69.2 %	70.3 %	83.3%
Restricted access to certain network sites	Yes	Freq	23	25	15	9	61	11
		%	53.5%	71.4%	62.5%	69.2 %	67.0 %	45.8%
	No	Freq	20	10	9	4	30	13
		%	46.5%	28.6%	37.5%	30.8 %	33.0 %	54.2%

Annexure 16: The need for orientation per Nursing program and year of the study

Year of the study and Nursing Program			A need for an orientation for internet utilization as an academic tool?			
			Yes		No	
		n	Freq	%	Freq	%
The year of the study of respondents	1ST YEAR	n=43	38	88.4%	5	11.6%
	2ND YEAR	n=35	30	85.7%	5	14.3%
	3RD YEAR	n=24	23	95.8%	1	4.2%
	4TH YEAR	n=13	11	84.6%	2	15.4%
Nursing Program	BACHELORS OF NURSING (BN	91	79	86.8%	12	13.2%
	BACHELORS OF NURSING ADVANCED PRACTICE (BNAP)	24	23	95.8%	1	4.2%

Annexure 17: Editor's letter

10 December 2012

To whom it may concern

LETTER FROM EDITOR

Re: Alexis HARERIMANA (208530822)

This is to certify that I edited the thesis of Alexis HARERIMANA for his study entitled "**Exploring utilization of internet as an academic tool among undergraduate nursing students, at a selected university in KwaZulu-Natal**".

My assistance included addressing issues relating to the structure of the chapters, the logic and flow of the content, grammar, duplications, assumptions and missing information. The edited document was returned to him with the comments and edits provided in track-changes format, and he was advised to use his discretion with regard to the final version.

Yours sincerely,

Ms Carrin Martin
Editor

Discipline of Public Health Medicine
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